Columbia River ESI: HYDRO (Hydrography Lines and Polygons)

Metadata also available as - [Parseable text] - [SGML]

Metadata:

- Identification Information
- Data Quality Information
- Spatial Data Organization Information
- Spatial Reference Information
- Entity and Attribute Information
- Distribution Information
- Metadata Reference Information

Identification Information:
Citation:

Citation Information:
Originator:

Publication Date: 200411
Title: Columbia River ESI: HYDRO (Hydrography Lines and Polygons)
Edition: First
Geospatial Data Presentation Form: Vector digital data
Series Information:
Series Name: None
Issue Identification: Columbia River
Publication Information:
Publication Place: Seattle, Washington
Publisher:

Other Citation Details:

Description:
Abstract:
This data set contains vector lines and polygons representing coastal hydrography used in the creation of the Environmental Sensitivity Index (ESI) for Columbia River. The HYDRO data layer contains all annotation used in producing the atlas. The annotation features are categorized into three subclasses in order to simplify the mapping and quality control procedures: GEOG, or geographic features; SOC, or socioeconomic features; and HYDRO, or water features.

This data set comprises a portion of the ESI data for Columbia River. ESI data characterize the marine and coastal environments and wildlife by their sensitivity to spilled oil. The ESI data include information for three main components: shoreline habitats, sensitive biological
resources, and human-use resources.

**Purpose:**
The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response. The Clean Water Act with amendments by the Oil Pollution Act of 1990 requires response plans for immediate and effective protection of sensitive resources.

**Time_Period_of_Content:**
**Time_Period_Information:**
- **Range_of_Dates/Times:**
  - **Beginning_Date:** 1999
  - **Ending_Date:** 2003

**Currentness_Reference:**
The data were compiled during 2003-2004. The currentness dates for the data range from 1999 to 2003 and are documented in the Lineage section.

**Status:**
- **Progress:** Complete
- **Maintenance_and_Update_Frequency:** None Scheduled

**Spatial_Domain:**
**Bounding_Coordinates:**
- **West_Bounding_Coordinate:** -124.125
- **East_Bounding_Coordinate:** -120.67375
- **North_Bounding_Coordinate:** 46.375
- **South_Bounding_Coordinate:** 45.3

**Keywords:**
**Theme:**
- **Theme_Keyword_Thesaurus:** None
- **Theme_Keyword:** ESI
- **Theme_Keyword:** Sensitivity maps
- **Theme_Keyword:** Coastal resources
- **Theme_Keyword:** Oil spill planning
- **Theme_Keyword:** Coastal Zone Management
- **Theme_Keyword:** Wildlife
- **Theme_Keyword:** Hydrography

**Place:**
- **Place_Keyword_Thesaurus:** None
- **Place_Keyword:** Columbia River

**Access_Constraints:** None

**Use_Constraints:**
DO NOT USE MAPS FOR NAVIGATIONAL PURPOSES. Besides the above warning, there are no use constraints on these data. Note that the ESI database should not be used to the exclusion of other pertinent data or information held by state or federal agencies or other organizations. Likewise, information contained in the database cannot be used in place of consultations with environmental, natural resource, and cultural resource agencies, or in place of field surveys. Recognize that the information contained in the ESI database represents known concentration areas or occurrences of natural, cultural, and human-use resources, but does not necessarily represent the full distribution or range of each species or resource. This is particularly important to recognize when considering potential impacts to protected resources, such as endangered species, wetlands, etc. Acknowledgment of the originators, publishers, contributors, and sources listed would be appreciated in products derived from these data.

**Browse_Graphic:**
- **Browse_Graphic_File_Name:** datafig.jpg
- **Browse_Graphic_File_Description:** Depicts the relationships between spatial data layers and attribute data tables for the Columbia River ESI data.
- **Browse_Graphic_File_Type:** JPEG

**Data_Set_Credit:**
This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; Coastal Storms Initiative; U.S. Fish and Wildlife Service; NOAA Fisheries; State of Oregon; and State of Washington.

**Native_Data_Set_Environment:**
Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report:

A multi-stage error checking process is used to verify both attribute accuracy and logical consistency throughout data production. The process includes a standardized data entry methodology, hardcopy data review by in-house and external resource experts, a final Quality Assurance/Quality Control (QA/QC) process, and multiple automated logical consistency checks. Quantitative data (such as densities, counts, abundances, or concentrations) provided by resource experts for inclusion in the data set may vary widely in attribute accuracy, depending upon the methodology used to collect and compile such data. For a more detailed evaluation of source data attribute accuracy, contact the sources listed in the Lineage section.

Logical_Consistency_Report:

A multi-stage error checking process, described in the above Attribute_Accuracy_Report, is used to verify both attribute accuracy and logical consistency throughout data production. This process includes multiple automated logical consistency checks that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and SQL SERVER(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where the data are written to CD-ROM and the metadata are written. After the data are delivered to NOAA, they are again subjected to a number of quality and consistency checks.

Completeness_Report:

These data represent the linear and polygonal hydrography for Columbia River.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

The hydrography data set was developed from pre-existing digital data and reflects the positional accuracy of these original data. The horizontal positional accuracy of the 1:24,000 USGS topographic quads should conform to National Map Accuracy Standards at scales of 1:24,000. See the Lineage and Process_Description sections for more information on the original source data and how these data were integrated or manipulated to create the final data set.

Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Originator: Oregon/Washington Bureau of Land Management (BLM)
Publication_Date: 2001
Title: Boundary State Oregon Washington
Geospatial_Data_Presentation_Form: Digital Vector Data
Publication_Information:
PublicationPlace: Portland, OR
Publisher: Oregon/Washington BLM

Source_Scale_Denominator: 24000
Type_of_Source_Media: Online
Source_Time_Period_of_Content:
Time_Period_Information:
Range_of_Dates/Times:
Beginning_Date: 1999
Ending Date: 2001
Source_Currentness_Reference: Ground condition
Source_Citation_Abbreviation: None
Source_Contribution: Shoreline for main branch of Columbia River

Source Information:
Source_Citation:
Citation Information:
Originator: Colin Plank, Research Planning, Inc.
Publication_Date: Unpublished material
Title: ESI Overflight
Geospatial_Data_Presentation_Form: Map
Publication_Information:
Publication_Place: Unpublished material
Publisher: Unpublished material
Source_Scale_Denominator: 24000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date_Time:
Calendar_Date: 200310
Source_Currentness_Reference: Date of overflight
Source_Citation_Abbreviation: None
Source_Contribution: Hydrography information

Source Information:
Source_Citation:
Citation Information:
Originator: U.S. Geological Survey (USGS)
Publication_Date: Varies
Title: 7.5 Minute Topographic Quadrangles
Geospatial_Data_Presentation_Form: Map
Publication_Information:
Publication_Place: Reston, VA or Denver, CO
Publisher: USGS
Source_Scale_Denominator: 24000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date_Time:
Calendar_Date: Varies
Source_Currentness_Reference: Date of Publication
Source_Citation_Abbreviation: None
Source_Contribution: Hydrography information

Source Information:
Source_Citation:
Citation Information:
Originator: Oregon Department of Transportation (ORDOT)
Publication_Date: Unknown
Title: County Maps
Geospatial_Data_Presentation_Form: Digital Vector Data
Publication_Information:
Publication_Place: Unknown
Publisher: ORDOT
Source_Scale_Denominator: 100,000
Type_of_Source_Media: Online
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date_Time:
Calendar_Date: Unknown
Source_Currentness_Reference: Unknown
Source_Citation_Abbreviation: None
Source_Contribution:
Hydrography information for Columbia, Multnomah, and Clackamas counties

Source_Information:

Source_Citation:

Citation_Information:
Originator: Katheryn Simmons, NOAA, U.S. National Response Team
Publication_Date: Unpublished material
Title: mllwshore_utm
Geospatial_Data_Presentation_Form: Digital Vector Data
Publication_Information:
Publication_Date: Unpublished material
Publisher: Unpublished material

Source_Scale_Denominator: Unknown
Type_of_Source_Media: Electronic Mail System
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: Unknown
Source_Currentness_Reference: Unknown
Source_Citation_Abbreviation: None
Source_Contribution: Hydrography information for Columbia River

Process_Step:
Process_Description:
The shoreline was derived primarily from digital shoreline data from Oregon/Washington Bureau of Land Management (BLM). In some cases, minor shoreline changes or additional polygons were sketched during the overflights conducted during October 2003. Overflight changes were digitized from the scanned and registered hardcopy field maps. After the initial shoreline classification, these data were edgematched and checked for logical consistency errors. Review maps were plotted at 1:24000 scale for verification of polygonal and linear attributes.

Process_Date: 200408

Process_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Person: Jill Petersen
Contact_Address:
Address_Type: Physical address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: Jill.Petersen@noaa.gov

Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: GT-polygon composed of rings
Point_and_Vector_Object_Count: 774

SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Area point
Point_and_Vector_Object_Count: 774

SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Complete chain
Point_and_Vector_Object_Count: 1557
SDTS_Terms_Description:
  SDTS_Point_and_Vector_Object_Type: Link
  Point_and_Vector_Object_Count: 282656
SDTS_Terms_Description:
  SDTS_Point_and_Vector_Object_Type: Label Point
  Point_and_Vector_Object_Count: 172
SDTS_Terms_Description:
  SDTS_Point_and_Vector_Object_Type: Node, planar graph
  Point_and_Vector_Object_Count: 1556

Spatial_Reference_Information:
  Horizontal_Coordinate_System_Definition:
    Geographic:
      Latitude_Resolution: 0.0000001
      Longitude_Resolution: 0.0000001
      Geographic_Coordinate_Units: Decimal degrees
    Geodetic_Model:
      Horizontal_Datum_Name: North American Datum of 1927
      Ellipsoid_Name: Clark 1866
      Semi-major_Axis: 6378206.4
      Denominator_of_Flattening_Ratio: 294.978698

Entity_and_Attribute_Information:
  Detailed_Description:
    Entity_Type:
      Entity_Type_Label: HYDRO.AAT
      Entity_Type_Definition:
        The HYDRO.AAT table contains attribute information for the vector lines representing linear hydrography features in the HYDRO data layer.
      Entity_Type_Definition_Source: Research Planning, Inc.
    Attribute:
      Attribute_Label: LINE
      Attribute_Definition: Type of geographic feature
      Attribute_Definition_Source: Research Planning, Inc.
      Attribute_Domain_Values:
        Enumerated_Domain:
          Enumerated_Domain_Value: B
          Enumerated_Domain_Value_Definition: Breakwater
          Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
        Enumerated_Domain:
          Enumerated_Domain_Value: H
          Enumerated_Domain_Value_Definition: Hydrography
          Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
        Enumerated_Domain:
          Enumerated_Domain_Value: I
          Enumerated_Domain_Value_Definition: Index
          Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
        Enumerated_Domain:
          Enumerated_Domain_Value: S
          Enumerated_Domain_Value_Definition: Shoreline
          Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Attribute:
      Attribute_Label: SOURCE_ID
      Attribute_Definition: Data source of the ESI lines
      Attribute_Definition_Source: Research Planning, Inc.
**Attribute Domain Values:**

**Enumerated Domain:**

- **Enumerated Domain Value:** 1
  **Enumerated Domain Value Definition:**
  Digital shoreline from Oregon/Washington Bureau of Land Management (BLM)
  **Enumerated Domain Value Definition Source:** Research Planning, Inc.

- **Enumerated Domain Value:** 2
  **Enumerated Domain Value Definition:**
  Digitized from low-altitude overflight field sketches and oblique photography
  **Enumerated Domain Value Definition Source:** Research Planning, Inc.

- **Enumerated Domain Value:** 5
  **Enumerated Domain Value Definition:**
  Digitized from scanned 1:24,000-USGS topographic quadrangles
  **Enumerated Domain Value Definition Source:** Research Planning, Inc.

- **Enumerated Domain Value:** 7
  **Enumerated Domain Value Definition:**
  Digital map boundary from INDEX data layer
  **Enumerated Domain Value Definition Source:** Research Planning, Inc.

- **Enumerated Domain Value:** 8
  **Enumerated Domain Value Definition:**
  Digital shoreline from Oregon Department of Transportation county maps
  **Enumerated Domain Value Definition Source:** Research Planning, Inc.

- **Enumerated Domain Value:** 9
  **Enumerated Domain Value Definition:**
  Digital shoreline from National Response Team
  **Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Detailed Description:**

**Entity Type:**

**Entity Type Label:** HYDRO.PAT
**Entity Type Definition:**
The HYDRO.PAT table contains attribute information for the vector polygons representing polygonal hydrography features in the HYDRO data layer.
**Entity Type Definition Source:** Research Planning, Inc.

**Attribute:**

**Attribute Label:** WATER_CODE
**Attribute Definition:** Specifies a polygon as either water or land
**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

- **Enumerated Domain Value:** L
  **Enumerated Domain Value Definition:** Land
  **Enumerated Domain Value Definition Source:** Research Planning, Inc.

- **Enumerated Domain Value:** W
  **Enumerated Domain Value Definition:** Water
  **Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Detailed Description:**

**Entity Type:**

**Entity Type Label:** ANNO.GEOG
**Entity Type Definition:**
The spatial data layer HYDRO contains label points representing annotation for geographic features.
**Entity_Type_Definition_Source**: Research Planning, Inc.

**Detailed_Description**:

**Entity_Type**:  
**Entity_Type_Label**: ANNO.HYDRO  
**Entity_Type_Definition**:  
The spatial data layer HYDRO contains label points representing annotation for water features.

**Entity_Type_Definition_Source**: Research Planning, Inc.

**Detailed_Description**:

**Entity_Type**:  
**Entity_Type_Label**: ANNO.SOC  
**Entity_Type_Definition**:  
The spatial data layer HYDRO contains label points representing annotation for socioeconomic features.

**Entity_Type_Definition_Source**: Research Planning, Inc.

**Distribution_Information**:  
**Distributor**:  
**Contact_Information**:  
**Contact_Person_Primary**: John Kaperick  
**Contact_Organization**: NOAA, Office of Response and Restoration  
**Contact_Address**:  
**Address_Type**: Physical Address  
**Address**: 7600 Sand Point Way N.E.  
**City**: Seattle  
**State_or_Province**: Washington  
**Postal_Code**: 98115-6349  
**Contact_Voice_Telephone**: (206) 526-6400  
**Contact_Facsimile_Telephone**: (206) 526-6329  

**Resource_Description**: ESI Atlas for Columbia River

**Distribution_Liability**:  
Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement copy of the product when the product is determined unreadable by computer-input peripherals, or when the physical medium is delivered in damaged condition.

**Custom_Order_Process**:  
Contact NOAA for distribution options (see Distributor). ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the distribution CDs for ease of use of the ESI data. The database files are distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats.

**Metadata_Reference_Information**:  
**Metadata_Date**: 200411  
**Metadata_Review_Date**: 200411  
**Metadata_Contact**:  
**Contact_Person_Primary**: Jill Petersen  
**Contact_Organization**: NOAA, Office of Response and Restoration  
**Contact_Position**: GIS Manager
Columbia River ESI: ESI (Environmental Sensitivity Index Shoreline Types - Lines and Polygons)

Metadata also available as - [Parseable text] - [SGML]

**Metadata:**

- Identification Information
- Data Quality Information
- Spatial Data Organization Information
- Spatial Reference Information
- Entity and Attribute Information
- Distribution Information
- Metadata Reference Information

**Identification Information:**

**Citation:**

**Originator:**


**Publication Date:** 200411

**Title:** Columbia River ESI: ESI (Environmental Sensitivity Index Shoreline Types - Lines and Polygons)

**Edition:** First

**Geospatial Data Presentation Form:** Vector digital data

**Series Information:**

- **Series Name:** None
- **Issue Identification:** Columbia River

**Publication Information:**

- **Publication Place:** Seattle, Washington
- **Publisher:** National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington

**Other Citation Details:**


**Description:**

**Abstract:**

This data set contains vector lines and polygons representing the shoreline and coastal habitats of Columbia River classified according to the Environmental Sensitivity Index (ESI) classification system. This data set comprises a portion of the ESI data for Columbia River. ESI data characterize the marine and coastal environments and wildlife by their sensitivity to spilled oil. The ESI data include information for three main components: shoreline habitats, sensitive biological resources, and human-use resources.

**Purpose:**

The ESI data were collected, mapped, and digitized to provide environmental data for oil spill...
planning and response. The Clean Water Act with amendments by the Oil Pollution Act of 1990 requires response plans for immediate and effective protection of sensitive resources.

**Time_Period_of_Content:**

**Time_Period_Information:**

**Range_of_Dates/Times:**

- **Beginning_Date:** 2003
- **Ending_Date:** 2004

**Currentness_Reference:**

The data were compiled during 2003-2004. The currentness date for the data is 2003 and is documented in the Lineage section.

**Status:**

- **Progress:** Complete
- **Maintenance_and_Update_Frequency:** None Scheduled

**Spatial_Domain:**

- **Bounding_Coordinates:**
  - **West_BoundingCoordinate:** -124.125
  - **East_BoundingCoordinate:** -120.67375
  - **North_BoundingCoordinate:** 46.375
  - **South_BoundingCoordinate:** 45.3

**Keywords:**

- **Theme:**
  - **Theme_Keyword_Thesaurus:** None
  - **Theme_Keyword:** ESI
  - **Theme_Keyword:** Sensitivity maps
  - **Theme_Keyword:** Coastal resources
  - **Theme_Keyword:** Oil spill planning
  - **Theme_Keyword:** Coastal Zone Management
  - **Theme_Keyword:** Wildlife

- **Place:**
  - **Place_Keyword_Thesaurus:** None
  - **Place_Keyword:** Columbia River

**Access_Constraints:** None

**Use_Constraints:**

DO NOT USE MAPS FOR NAVIGATIONAL PURPOSES. Besides the above warning, there are no use constraints on these data. Note that the ESI database should not be used to the exclusion of other pertinent data or information held by state or federal agencies or other organizations. Likewise, information contained in the database cannot be used in place of consultations with environmental, natural resource, and cultural resource agencies, or in place of field surveys. Recognize that the information contained in the ESI database represents known concentration areas or occurrences of natural, cultural, and human-use resources, but does not necessarily represent the full distribution or range of each species or resource. This is particularly important to recognize when considering potential impacts to protected resources, such as endangered species, wetlands, etc. Acknowledgment of the originators, publishers, contributors, and sources listed would be appreciated in products derived from these data.

**Browse_Graphic:**

- **Browse_Graphic_File_Name:** datafig.jpg
- **Browse_Graphic_File_Description:** Depicts the relationships between spatial data layers and attribute data tables for the Columbia River ESI data.
- **Browse_Graphic_File_Type:** JPEG

**Data_Set_Credit:**

This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; Coastal Storms Initiative; U.S. Fish and Wildlife Service; NOAA Fisheries; State of Oregon; and State of Washington.

**Native_Data_Set_Environment:**

The software packages used to develop the atlas are Environmental Systems Research Institute's ARCDINFO(r) (version 8.3) and SQL SERVER(r) (version 7.0). The hardware configuration is PC's with Windows Operating System (NT4.0/2000).
The Spatial_Data_Organization_Information section refers only to the source files in the ARC export format. The following files are included in that data set: birds.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mammal.e00, m_mampt.e00, mgt.e00, nests.e00, nw1.e00, reptiles.e00, soccecon.e00, t_mammal.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biores, breed, breed_dt, runs_dat, seasonal, soc_dat, soc_lut, sources, species, and status.

**Data_Quality_Information:**

**Attribute_Accuracy:**

**Attribute_Accuracy_Report:**

A multi-stage error checking process is used to verify both attribute accuracy and logical consistency throughout data production. The process includes a standardized data entry methodology, hardcopy data review by in-house and external resource experts, a final Quality Assurance/Quality Control (QA/QC) process, and multiple automated logical consistency checks. Quantitative data (such as densities, counts, abundances, or concentrations) provided by resource experts for inclusion in the data set may vary widely in attribute accuracy, depending upon the methodology used to collect and compile such data. For a more detailed evaluation of source data attribute accuracy, contact the sources listed in the Lineage section.

**Logical_Consistency_Report:**

A multi-stage error checking process, described in the above Attribute_Accuracy_Report, is used to verify both attribute accuracy and logical consistency throughout data production. This process includes multiple automated logical consistency checks that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and SQL SERVER(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where the data are written to CD-ROM and the metadata are written. After the data are delivered to NOAA, they are again subjected to a number of quality and consistency checks.

**Completeness_Report:**

These data represent coastal shorelines and habitats classified according to the ESI classification system.

**Positional_Accuracy:**

**Horizontal_Positional_Accuracy:**

**Horizontal_Positional_Accuracy_Report:**

The ESI data set was developed from pre-existing digital sources and reflects the positional accuracy of these original data. The horizontal positional accuracy of the 1:24,000 USGS topographic quads should conform to National Map Accuracy Standards at scales of 1:24,000. The minimum mapping unit (MMU) of the actual shoreline classification segments is estimated at 50 meters where mapping is conducted using 1:24,000 hardcopy field maps. Field verification has shown that the absolute positional accuracy of breaks between shoreline ESI types with a 95-percent error bound is approximately 58 meters. See the Lineage and Process_Description sections for more information on the original data source and how these data were integrated or manipulated to create the final data set.

**Lineage:**

**Source_Information:**

**Source_Citation:**

**Publication_Date:** 200310

**Title:** ESI Overflight

**Geospatial_Data_Presentation_Form:** Map

**Publication_Information:**

**Publication_Date:** Unpublished material

**Publisher:** Unpublished material

**Source_Scale_Denominator:** 24000

**Type_of_Source_Media:** Paper

**Source_Time_Period_of_Content:**

**Time_Period_Information:**

**Single_Date/Time:**
The shoreline habitats for Columbia River from the jetties up to the John Day Dam, and the Willamette River from its mouth up to Oregon City, were mapped during overflights and ground surveys conducted by an experienced coastal geologist in October 2003. The elevations were conducted using a fixed wing aircraft flying at altitudes of 400-600 feet and slow air speeds. All flights were planned to maximize time on site during the 2.5 hours preceding and the 2.5 hours following peak low tide. During this work, the shoreline classification was denoted directly onto the shoreline depicted on 1:24000 scale USGS topographic maps. Where appropriate, revisions to the existing shoreline were made and, where necessary, multiple habitats were described for each shoreline segment.

Process_Date: 200408

Contact_Organization_Primary:
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Person: Jill Petersen
Contact_Address:
Address_Type: Physical address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: Jill.Petersen@noaa.gov

Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: GT-polygon composed of rings
Point_and_Vector_Object_Count: 783
SDTS_Terms_Description:
\textbf{SDTS\_Point\_and\_Vector\_Object\_Type}: Area point
\textbf{Point\_and\_Vector\_Object\_Count}: 783

\textbf{SDTS\_Terms\_Description}:
\textbf{SDTS\_Point\_and\_Vector\_Object\_Type}: Complete chain
\textbf{Point\_and\_Vector\_Object\_Count}: 4438

\textbf{SDTS\_Terms\_Description}:
\textbf{SDTS\_Point\_and\_Vector\_Object\_Type}: Link
\textbf{Point\_and\_Vector\_Object\_Count}: 215642

\textbf{SDTS\_Terms\_Description}:
\textbf{SDTS\_Point\_and\_Vector\_Object\_Type}: Node, planar graph
\textbf{Point\_and\_Vector\_Object\_Count}: 4322

\textbf{Spatial\_Reference\_Information}:
\textbf{Horizontal\_Coordinate\_System\_Definition}:
\textbf{Geographic}:
\textbf{Latitude\_Resolution}: 0.0000001
\textbf{Longitude\_Resolution}: 0.0000001
\textbf{Geographic\_Coordinate\_Units}: Decimal degrees

\textbf{Geodetic\_Model}:
\textbf{Horizontal\_Datum\_Name}: North American Datum of 1927
\textbf{Ellipsoid\_Name}: Clark 1866
\textbf{Semi-major\_Axis}: 6378206.4
\textbf{Denominator\_of\_Flattening\_Ratio}: 294.978698

\textbf{Entity\_and\_Attribute\_Information}:
\textbf{Detailed\_Description}:
\textbf{Entity\_Type}:
\textbf{Entity\_Type\_Label}: ESI.AAT
\textbf{Entity\_Type\_Definition}:
The ESI.AAT table contains attribute information for the vector lines representing linear shoreline features with ESI classification.
\textbf{Entity\_Type\_Definition\_Source}: Research Planning, Inc.

\textbf{Attribute}:
\textbf{Attribute\_Label}: ESI
\textbf{Attribute\_Definition}:
The item ESI contains values representing the ESI shoreline type. In many cases shorelines are ranked with multiple codes, such as "6B/3A" (listed landward to seaward from left to right). The first code, "6B", is the most landward shoreline type and the second code, "3A", is the shoreline type closest to the water. Singular shoreline types are listed below. No multiple codes are listed, but all multiple codes included in the data set can be assembled from the codes described.

The ESI rankings progress from low to high susceptibility to oil spills. To determine the sensitivity of a particular intertidal shoreline habitat, the following factors are integrated: (1) Shoreline type (substrate, grain size, tidal elevation, origin); (2) Exposure to wave and tidal energy; (3) Biological productivity and sensitivity; (4) Ease of cleanup. Prediction of the behavior and persistence of oil in intertidal habitats is based on an understanding of the dynamics of the coastal environments, not just the substrate type and grain size. The intensity of energy expended upon a shoreline by wave action, tidal currents, and river currents directly affects the persistence of stranded oil. The need for shoreline cleanup activities is determined, in part, by the slowness of natural processes in removal of oil stranded on the shoreline. The potential for biological injury, and ease of cleanup of spilled oil are also important factors in the ESI ranking. Generally speaking, areas exposed to high levels of physical energy, such as wave action and tidal currents, and low biological activity rank low on the scale, whereas sheltered areas with associated high biological...
activity have the highest ranking.

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

**Enumerated Domain:**
- Enumerated Domain Value: 1A
  - Enumerated Domain Value Definition: Exposed Rocky Shores
  - Enumerated Domain Value Definition Source: Research Planning, Inc.

**Enumerated Domain:**
- Enumerated Domain Value: 1B
  - Enumerated Domain Value Definition: Exposed, Solid Man-made Structures
  - Enumerated Domain Value Definition Source: Research Planning, Inc.

**Enumerated Domain:**
- Enumerated Domain Value: 2A
  - Enumerated Domain Value Definition: Exposed, Wave-cut Platforms in Bedrock
  - Enumerated Domain Value Definition Source: Research Planning, Inc.

**Enumerated Domain:**
- Enumerated Domain Value: 3A
  - Enumerated Domain Value Definition: Fine- to Medium-grained Sand Beaches
  - Enumerated Domain Value Definition Source: Research Planning, Inc.

**Enumerated Domain:**
- Enumerated Domain Value: 3B
  - Enumerated Domain Value Definition: Scarps and Steep Slopes in Sand
  - Enumerated Domain Value Definition Source: Research Planning, Inc.

**Enumerated Domain:**
- Enumerated Domain Value: 4
  - Enumerated Domain Value Definition: Coarse-grained Sand Beaches
  - Enumerated Domain Value Definition Source: Research Planning, Inc.

**Enumerated Domain:**
- Enumerated Domain Value: 5
  - Enumerated Domain Value Definition: Mixed Sand and Gravel Beaches
  - Enumerated Domain Value Definition Source: Research Planning, Inc.

**Enumerated Domain:**
- Enumerated Domain Value: 6A
  - Enumerated Domain Value Definition: Gravel Beaches
  - Enumerated Domain Value Definition Source: Research Planning, Inc.

**Enumerated Domain:**
- Enumerated Domain Value: 6B
  - Enumerated Domain Value Definition: Riprap
  - Enumerated Domain Value Definition Source: Research Planning, Inc.

**Enumerated Domain:**
- Enumerated Domain Value: 7
  - Enumerated Domain Value Definition: Exposed Tidal Flats
  - Enumerated Domain Value Definition Source: Research Planning, Inc.

**Enumerated Domain:**
- Enumerated Domain Value: 8A
  - Enumerated Domain Value Definition: Sheltered Rocky Shores
  - Enumerated Domain Value Definition Source: Research Planning, Inc.

**Enumerated Domain:**
- Enumerated Domain Value: 8B
  - Enumerated Domain Value Definition: Sheltered, Solid Man-made Structures
  - Enumerated Domain Value Definition Source: Research Planning, Inc.

**Enumerated Domain:**
- Enumerated Domain Value: 8C
  - Enumerated Domain Value Definition: Sheltered riprap
  - Enumerated Domain Value Definition Source: Research Planning, Inc.

**Enumerated Domain:**
Enumerated_Domain_Value: 9A
Enumerated_Domain_Value_Definition: Sheltered Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: 9B
Enumerated_Domain_Value_Definition: Sheltered, Vegetated Low Banks
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: 10A
Enumerated_Domain_Value_Definition: Salt- and Brackish-water Marshes
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: 10B
Enumerated_Domain_Value_Definition: Freshwater Marshes
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: 10D
Enumerated_Domain_Value_Definition: Scrub-shrub Wetlands
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: U
Enumerated_Domain_Value_Definition: Unranked
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: LINE
Attribute_Definition: Type of geographic feature
Attribute_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: B
Enumerated_Domain_Value_Definition: Breakwater
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: F
Enumerated_Domain_Value_Definition: Flat
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: H
Enumerated_Domain_Value_Definition: Hydrography
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: I
Enumerated_Domain_Value_Definition: Index
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: S
Enumerated_Domain_Value_Definition: Shoreline
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: SOURCE_ID
Attribute_Definition: Data source of the ESI lines. See the Lineage and Process_Description sections for more information on the original source data and how these data were integrated or manipulated to create the final data set.
Attribute_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: 1
Enumerated_Domain_Value_Definition:
Digital shoreline from Oregon/Washington Bureau of Land Management (BLM)

Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
  Enumerated_Domain_Value: 2
  Enumerated_Domain_Value_Definition: Digitized from low-altitude overflight field sketches and oblique photography

Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
  Enumerated_Domain_Value: 5
  Enumerated_Domain_Value_Definition: Digitized from scanned 1:24,000-USGS topographic quadrangles

Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
  Enumerated_Domain_Value: 7
  Enumerated_Domain_Value_Definition: Digital map boundary from INDEX data layer

Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
  Enumerated_Domain_Value: 8
  Enumerated_Domain_Value_Definition: Digital shoreline from Oregon Department of Transportation county maps

Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
  Enumerated_Domain_Value: 9
  Enumerated_Domain_Value_Definition: Digital shoreline from National Response Team

Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: ENVIR
  Attribute_Definition: Type of regional environment
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: E
      Enumerated_Domain_Value_Definition: Estuarine
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain:
      Enumerated_Domain_Value: R
      Enumerated_Domain_Value_Definition: Riverine
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain:
      Enumerated_Domain_Value: U
      Enumerated_Domain_Value_Definition: Unranked
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Detailed_Description:
Entity_Type:
  Entity_Type_Label: ESI.PAT
  Entity_Type_Definition: The ESI.PAT table contains attribute information for the vector polygons representing polygonal features with ESI classification.

Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: ESI
  Attribute_Definition: The item ESI contains values representing the ESI polygon type
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
Enumerated_Domain_Value: 7
Enumerated_Domain_Value_Definition: Exposed Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: 9A
Enumerated_Domain_Value_Definition: Sheltered Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: U
Enumerated_Domain_Value_Definition: Unranked
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: WATER_CODE
Attribute_Definition: Specifies a polygon as either water or land
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: L
Enumerated_Domain_Value_Definition: Land
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: W
Enumerated_Domain_Value_Definition: Water
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: ENVIR
Attribute_Definition: Type of regional environment
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: E
Enumerated_Domain_Value_Definition: Estuarine
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: R
Enumerated_Domain_Value_Definition: Riverine
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: U
Enumerated_Domain_Value_Definition: Unranked
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Distribution_Information:
Distributor:
Contact_Information:
Contact_Person_Primary:
Contact_Person: John Kaperick
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Address:
Address_Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6400
Contact_Facsimile_Telephone: (206) 526-6329
Resource_Description: ESI Atlas for Columbia River
Distribution_Liability:
Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement copy of the product when the product is determined unreadable by computer-input peripherals, or when the physical medium is delivered in damaged condition.

Custom_Order_Process:
Contact NOAA for distribution options (see Distributor). ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the distribution CDs for ease of use of the ESI data. The database files are distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats.

Metadata_Reference_Information:
Metadata_Date: 200408
Metadata_Review_Date: 200408
Metadata_Contact:
  Contact_Person_Primary:
    Contact_Person: Jill Petersen
    Contact_Organization: NOAA, Office of Response and Restoration
  Contact_Position: GIS Manager
Contact_Address:
  Address_Type: Physical Address
  Address: 7600 Sand Point Way N.E.
  City: Seattle
  State_or_Province: Washington
  Postal_Code: 98115-6349
  Contact_Voice_Telephone: (206) 526-6944
  Contact_Facsimile_Telephone: (206) 526-6329
  Contact_Electronic_Mail_Address: Jill.Petersen@noaa.gov
Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata

Generated by mp version 2.8.2 on Fri Dec 10 13:34:57 2004
Columbia River ESI: INDEX (Index Polygons)

Metadata also available as - [Parseable text] - [SGML]

Metadata:

- Identification Information
- Data Quality Information
- Spatial Data Organization Information
- Spatial Reference Information
- Entity and Attribute Information
- Distribution Information
- Metadata Reference Information

Identification Information:

Citation:

Originator:

Publication Date: 200411
Title: Columbia River ESI: INDEX (Index Polygons)
Edition: First
Geospatial Data Presentation Form: Vector digital data
Series Information:
Series Name: None
Issue Identification: Columbia River
Publication Information:
Publication Place: Seattle, Washington
Publisher:

Other Citation Details:

Description:

Abstract:
This data set contains vector polygons representing the boundaries of all hardcopy cartographic products produced as part of the Environmental Sensitivity Index (ESI) for Columbia River. This data set comprises a portion of the Environmental Sensitivity Index (ESI) data for Columbia River. ESI data characterize the marine and coastal environments and wildlife by their sensitivity to spilled oil. The ESI data include information for three main components: shoreline habitats, sensitive biological resources, and human-use resources.

Purpose:
The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response. The Clean Water Act with amendments by the Oil Pollution Act of 1990 requires response plans for immediate and effective protection of sensitive resources.

Time Period of Content:

Time Period Information:
Range_of_Dates/Times:
   Beginning_Date: 2003
   Ending_Date: 2004

Currentness_Reference:
The INDEX data were compiled during 2003-2004. The currentness date for the data is 2003
and is documented in the Source_Information section.

Status:
   Progress: Complete
   Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:
   Bounding_Coordinates:
      West_BoundingCoordinate: -124.125
      East_BoundingCoordinate: -120.67375
      North_BoundingCoordinate: 46.375
      South_BoundingCoordinate: 45.3

Keywords:
   Theme:
      Theme_Keyword_Thesaurus: None
      Theme_Keyword: ESI
      Theme_Keyword: Sensitivity maps
      Theme_Keyword: Coastal resources
      Theme_Keyword: Oil spill planning
      Theme_Keyword: Coastal Zone Management
      Theme_Keyword: Wildlife

   Place:
      Place_Keyword_Thesaurus: None
      Place_Keyword: Columbia River

Access_Constraints: None
Use_Constraints:
   DO NOT USE MAPS FOR NAVIGATIONAL PURPOSES. Besides the above warning, there are
   no use constraints on these data. Note that the ESI database should not be used to the exclusion of
   other pertinent data or information held by state or federal agencies or other organizations. Likewise,
   information contained in the database cannot be used in place of consultations with environmental,
   natural resource, and cultural resource agencies, or in place of field surveys. Recognize that the
   information contained in the ESI database represents known concentration areas or occurrences of
   natural, cultural, and human-use resources, but does not necessarily represent the full distribution or
   range of each species or resource. This is particularly important to recognize when considering
   potential impacts to protected resources, such as endangered species, wetlands, etc. Acknowledgment
   of the originators, publishers, contributors, and sources listed would be appreciated in products
   derived from these data.

Browse_Graphic:
   Browse_Graphic_File_Name: datafig.jpg
   Browse_Graphic_File_Description:
      Depicts the relationships between spatial data layers and attribute data tables for the
      Columbia River ESI data.
   Browse_Graphic_File_Type: JPEG

Data_Set_Credit:
   This project was supported by the National Oceanic and Atmospheric Administration (NOAA),
   Division, Seattle, Washington; Coastal Storms Initiative; U.S. Fish and Wildlife Service; NOAA
   Fisheries; State of Oregon; and State of Washington.

Native_Data_Set_Environment:
The software packages used to develop the atlas are Environmental Systems Research Institute's
ARC/INFO(r) (version 8.3) and SQL SERVER(r) (version 7.0). The hardware configuration is PC's
with Windows Operating System (NT4.0/2000).

The Spatial_Data_Organization Information section refers only to the source files in the ARC export
format. The following files are included in that data set: birds.e00, esi.e00, fish.e00, fishl.e00,
habitats.e00, hydro.e00, index.e00, invert.e00, m_mammal.e00, m_mampt.e00, mgt.e00, nests.e00,
nwi.e00, reptiles.e00, socecon.e00, species.e00, status.e00, t_mammal.e00. Associated relational and
desktop data tables provided in Arc export and text format are bio_lut, biofile, biores, breed, breed_dt, runs_dat, seasonal, soc_dat, soc_lut, sources, species, and status.

Data_Quality_Information:

Attribute_Accuracy:
Attribute_Accuracy_Report:
A multi-stage error checking process is used to verify both attribute accuracy and logical consistency throughout data production. The process includes a standardized data entry methodology, hardcopy data review by in-house and external resource experts, a final Quality Assurance/Quality Control (QA/QC) process, and multiple automated logical consistency checks. Quantitative data (such as densities, counts, abundances, or concentrations) provided by resource experts for inclusion in the data set may vary widely in attribute accuracy, depending upon the methodology used to collect and compile such data. For a more detailed evaluation of source data attribute accuracy, contact the sources listed in the Lineage section.

Logical_Consistency_Report:
A multi-stage error checking process, described in the above Attribute_Accuracy_Report, is used to verify both attribute accuracy and logical consistency throughout data production. This process includes multiple automated logical consistency checks that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and SQL SERVER(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where the data are written to CD-ROM and the metadata are written. After the data are delivered to NOAA, they are again subjected to a number of quality and consistency checks.

Completeness_Report:
These data represent the boundaries of all hardcopy cartographic products produced as part of the Environmental Sensitivity Index (ESI) for Columbia River, as well as the digital data extents.

Positional_Accuracy:
Horizontal_Positional_Accuracy:
Horizontal_Positional_Accuracy_Report:
The index polygons in this data layer were generated in ArcInfo from the coordinates of the USGS 1:24,000 topographic map corners. Some small amount of positional error may be present along the arcs forming the boundaries of these polygons, particularly away from the polygon corners. See the Lineage and Process_Description sections for more information on the original source data and how these data were integrated or manipulated to create the final data set.

Lineage:
Source_Information:
Source_Citation:
Citation_Information:
Originator: U.S. Geological Survey (USGS)
Publication_Date: Varies
Title: 7.5 Minute Topographic Quadrangles
Geospatial_Data_Presentation_Form: Map
Publication_Information:
Publication_Date: Varies
Publication_Place: Reston, VA or Denver, CO
Publisher: USGS

Source_Scale_Denominator: 24000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: Varies
Source_Currentness_Reference: Date of Publication
Source_Citation_Abbreviation: None
Source_Contribution: USGS Topographic Boundaries

Process_Step:
Process_Description:
Primarily, 1:24,000 U.S. Geological Survey (USGS) topographic maps were used to provide boundaries for cartographic products. In most cases, the polygons represent
U.S. Geological Survey (USGS) topographic maps that were re-tiled, moved, or extended to provide better cartographic coverage of the study area.

**Process_Date:** 200408

**Process_Contact:**

**Contact_Information:**

- **Contact_Organization_Primary:** NOAA, Office of Response and Restoration
- **Contact_Person:** Jill Petersen

**Contact_Address:**

- **Address_Type:** Physical address
- **Address:** 7600 Sand Point Way N.E.
- **City:** Seattle
- **State_orProvince:** Washington
- **Postal_Code:** 98115-6349

**Contact_Voice_Telephone:** (206) 526-6944

**Contact_Facsimile_Telephone:** (206) 526-6329

**Contact_Electronic_Mail_Address:** Jill.Petersen@noaa.gov

**Spatial_Data_Organization_Information:**

- **Direct_Spatial_Reference_Method:** Vector

**Point_and_Vector_Object_Information:**

- **SDTS_Terms_Description:**
  - **SDTS_Point_and_Vector_Object_Type:** GT-polygon composed of rings
  - **Point_and_Vector_Object_Count:** 34

- **SDTS_Terms_Description:**
  - **SDTS_Point_and_Vector_Object_Type:** Area point
  - **Point_and_Vector_Object_Count:** 34

- **SDTS_Terms_Description:**
  - **SDTS_Point_and_Vector_Object_Type:** Complete chain
  - **Point_and_Vector_Object_Count:** 137

- **SDTS_Terms_Description:**
  - **SDTS_Point_and_Vector_Object_Type:** Link
  - **Point_and_Vector_Object_Count:** 137

- **SDTS_Terms_Description:**
  - **SDTS_Point_and_Vector_Object_Type:** Node, planar graph
  - **Point_and_Vector_Object_Count:** 104

**Spatial_Reference_Information:**

- **Horizontal_Coordinate_System_Definition:** Geographic
  - **Latitude_Resolution:** 0.0000001
  - **Longitude_Resolution:** 0.0000001
  - **Geographic_Coordinate_Units:** Decimal degrees

- **Geodetic_Model:**
  - **Horizontal_Datum_Name:** North American Datum of 1927
  - **Ellipsoid_Name:** Clark 1866
  - **Semi-major_Axis:** 6378206.4
  - **Denominator_of_Flattening_Ratio:** 294.978698

**Entity_and_Attribute_Information:**

- **Detailed_Description:**
  - **Entity_Type:** INDEX.PAT

- **Entity_Type_Label:** INDEX.PAT
**Entity_Type_Definition:**

The INDEX.PAT table contains attribute information for the vector polygons representing the boundaries of the maps and digital data boundaries used in the creation of the ESI.

**Attribute_Type_Definition_Source:** Research Planning, Inc.

**Attribute:**

**Attribute_Label:** TILE-NAME
**Attribute_Definition:**
The TILE-NAME contains the map number according to the specified layout of the atlas.

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Range_Domain:**
- **Range_Domain_Minimum:** 1
- **Range_Domain_Maximum:** 34

**Attribute:**

**Attribute_Label:** TOPO-NAME
**Attribute_Definition:**
USGS Topographic map name, short description of location, or atlas name

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Unrepresentable_Domain:** Acceptable values change from atlas to atlas

**Attribute:**

**Attribute_Label:** SCALE
**Attribute_Definition:**
SCALE contains the value of the denominator of the scale at which the map is plotted in the final map product

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Enumerated_Domain:**
- **Enumerated_Domain_Value:** 45000
  - **Enumerated_Domain_Value_Definition:** Scale = 1:45000
  - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute:**

**Attribute_Label:** MAPANGLE
**Attribute_Definition:**
MAPANGLE contains the value to rotate the final map product so that it is situated straight up and down

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Range_Domain:**
- **Range_Domain_Minimum:** -1.607
- **Range_Domain_Maximum:** 0.769

**Attribute_Units_of_Measure:** Degree

**Attribute:**

**Attribute_Label:** PAGESIZE
**Attribute_Definition:**
PAGESIZE contains the value of the width and height of the map in the final map product

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Enumerated_Domain:**
- **Enumerated_Domain_Value:** 11,17
  - **Enumerated_Domain_Value_Definition:** Page size= 11" by 17"
  - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

- **Enumerated_Domain_Value:** 17,11
  - **Enumerated_Domain_Value_Definition:** Page size= 17" by 11"
  - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.
Distribution_Information:

Distributor:

Contact_Person_Primary:
  Contact_Person: John Kaperick
  Contact_Organization: NOAA, Office of Response and Restoration

Contact_Address:
  Address_Type: Physical Address
  Address: 7600 Sand Point Way N.E.
  City: Seattle
  State_or_Province: Washington
  Postal_Code: 98115-6349

Contact_Voice_Telephone: (206) 526-6400
Contact_Facsimile_Telephone: (206) 526-6329

Resource_Description: ESI Atlas for Columbia River

Distribution_Liability:

Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement copy of the product when the product is determined unreadable by computer-input peripherals, or when the physical medium is delivered in damaged condition.

Custom_Order_Process:

Contact NOAA for distribution options (see Distributor). ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the distribution CDs for ease of use of the ESI data. The database files are distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats.

Metadata_Reference_Information:

Metadata_Date: 200411
Metadata_Review_Date: 200411
Metadata_Contact:

Contact_Person_Primary:
  Contact_Person: Jill Petersen
  Contact_Organization: NOAA, Office of Response and Restoration
  Contact_Voice_Telephone: (206) 526-6944
  Contact_Facsimile_Telephone: (206) 526-6329
  Contact_Electronic_Mail_Address: Jill.Petersen@noaa.gov

Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata

Generated by mp version 2.8.2 on Fri Dec 10 13:47:40 2004
Columbia River ESI: NWI (National Wetlands Inventory - Polygons)

Metadata also available as - [Parseable text] - [SGML]

Metadata:

- Identification_Information
- Data_Quality_Information
- Spatial_Data_Organization_Information
- Spatial_Reference_Information
- Entity_and_Attribute_Information
- Distribution_Information
- Metadata_Reference_Information

Identification_Information:

Citation:

Originator:

Publication_Date: 200411

Title: Columbia River ESI: NWI (National Wetlands Inventory - Polygons)

Edition: First

Geospatial_Data_Presentation_Form: Vector digital data

Series_Information:

Series_Name: None

Issue_Identification: Columbia River

Publication_Information:

Publication_Place: Seattle, Washington

Publisher:

Other_Citation_Details:

Description:

Abstract:
This data set contains vector polygons representing the wetlands of Columbia River classified according to the Environmental Sensitivity Index (ESI) classification system. This data set comprises a portion of the ESI data for Columbia River. ESI data characterize the marine and coastal environments and wildlife by their sensitivity to spilled oil. The ESI data include information for three main components: shoreline habitats, sensitive biological resources, and human-use resources.

Purpose:
The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response. The Clean Water Act with amendments by the Oil Pollution Act of
1990 requires response plans for immediate and effective protection of sensitive resources.

**Time_Period_of_Content:**

**Time_Period_Information:**

**Range_of_Dates/Times:**

- **Beginning_Date:** 1999
- **Ending_Date:** 2004

**Currentness_Reference:**

The data were compiled during 2003-2004. The currentness date for the data is 1999 and is documented in the Lineage section.

**Status:**

- **Progress:** Complete
- **Maintenance_and_Update_Frequency:** None Scheduled

**Spatial_Domain:**

**Bounding_Coordinates:**

- **West_BoundingCoordinate:** -124.125
- **East_BoundingCoordinate:** -120.67375
- **North_BoundingCoordinate:** 46.375
- **South_BoundingCoordinate:** 45.3

**Keywords:**

**Theme:**

- **Theme_Keyword_Thesaurus:** None
- **Theme_Keyword:** ESI
- **Theme_Keyword:** NWI
- **Theme_Keyword:** Sensitivity maps
- **Theme_Keyword:** Coastal resources
- **Theme_Keyword:** Oil spill planning
- **Theme_Keyword:** Coastal Zone Management
- **Theme_Keyword:** Wildlife
- **Theme_Keyword:** Wetland

**Place:**

- **Place_Keyword_Thesaurus:** None
- **Place_Keyword:** Columbia River

**Access_Constraints:** None

**Use_Constraints:**

DO NOT USE MAPS FOR NAVIGATIONAL PURPOSES. Besides the above warning, there are no use constraints on these data. Note that the ESI database should not be used to the exclusion of other pertinent data or information held by state or federal agencies or other organizations. Likewise, information contained in the database cannot be used in place of consultations with environmental, natural resource, and cultural resource agencies, or in place of field surveys. Recognize that the information contained in the ESI database represents known concentration areas or occurrences of natural, cultural, and human-use resources, but does not necessarily represent the full distribution or range of each species or resource. This is particularly important to recognize when considering potential impacts to protected resources, such as endangered species, wetlands, etc. Acknowledgment of the originators, publishers, contributors, and sources listed would be appreciated in products derived from these data.

**Browse_Graphic:**

- **Browse_Graphic_File_Name:** datafig.jpg
- **Browse_Graphic_File_Description:** Depicts the relationships between spatial data layers and attribute data tables for the Columbia River ESI data.
- **Browse_Graphic_File_Type:** JPEG

**Data_Set_Credit:**

This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; Coastal Storms Initiative; U.S. Fish and Wildlife Service; NOAA Fisheries; State of Oregon; and State of Washington.

**Native_Data_Set_Environment:**

The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 8.3) and SQL SERVER(r) (version 7.0). The hardware configuration is PC's with Windows Operating System (NT4.0/2000).
The Spatial_Data_Organization_Information section refers only to the source files in the ARC export format. The following files are included in that data set: birds.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mammal.e00, m_mampt.e00, mgt.e00, nests.e00, nwi.e00, reptiles.e00, socecon.e00, t_mammal.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biore, breed, breed_dt, runs_dat, seasonal, soc_dat, soc_lut, sources, species, and status.

Data_Quality_Information:
Attribute_Accuracy:
Attribute_Accuracy_Report:
A multi-stage error checking process is used to verify both attribute accuracy and logical consistency throughout data production. The process includes a standardized data entry methodology, hardcopy data review by in-house and external resource experts, a final Quality Assurance/Quality Control (QA/QC) process, and multiple automated logical consistency checks. Quantitative data (such as densities, counts, abundances, or concentrations) provided by resource experts for inclusion in the data set may vary widely in attribute accuracy, depending upon the methodology used to collect and compile such data. For a more detailed evaluation of source data attribute accuracy, contact the sources listed in the Lineage section.

Logical_Consistency_Report:
A multi-stage error checking process, described in the above Attribute_Accuracy_Report, is used to verify both attribute accuracy and logical consistency throughout data production. This process includes multiple automated logical consistency checks that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and SQL SERVER(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where the data are written to CD-ROM and the metadata are written. After the data are delivered to NOAA, they are again subjected to a number of quality and consistency checks.

Completeness_Report:
These data represent coastal shorelines and habitats classified according to the ESI classification system.

Positional_Accuracy:
Horizontal_Positional_Accuracy:
Horizontal_Positional_Accuracy_Report:
The ESI data set was developed from pre-existing digital sources and reflects the positional accuracy of these original data. The horizontal positional accuracy of the 1:24,000 USGS topographic quads should conform to National Map Accuracy Standards at scales of 1:24,000. The minimum mapping unit (MMU) of the actual shoreline classification segments is estimated at 50 meters where mapping is conducted using 1:24,000 hardcopy field maps. Field verification has shown that the absolute positional accuracy of breaks between shoreline ESI types with a 95-percent error bound is approximately 58 meters. See the Lineage and Process_Description sections for more information on the original data sources and how these data were integrated or manipulated to create the final data set.

Lineage:
Source_Information:
Source_Citation:
Citation_Information:
Originator: Lower Columbia River Estuary Partnership
Publication_Date: 1999
Title: Habitat Types of the Lower Columbia River Estuary
Geospatial_Data_Presentation_Form: Map
Publication_Information:
Publication_Place: Seattle, Washington
Publisher: Northwest Cartography, Inc.
Source_Scale_Denominator: 24000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:
Time_Period_Information:
**Source Information:**

**Source Citation:**

Originator: Colin Plank, Research Planning, Inc.
Publication Date: 200310
Title: ESI Overflight
Geospatial Data Presentation Form: Map
Publication Information:
Publication Place: Unpublished material
Publisher: Unpublished material

Source Scale Denominator: 24000
Type of Source Media: Paper
Source Time Period of Content:
Time Period Information:
Single Date/Time:
Calendar Date: 200310
Source Currentness Reference: Date of overflight
Source Citation Abbreviation: None
Source Contribution: Shoreline classification

**Source Information:**

**Source Citation:**

Originator: Oregon/Washington Bureau of Land Management (BLM)
Publication Date: 2001
Title: Boundary State Oregon Washington
Geospatial Data Presentation Form: Digital Vector Data
Publication Information:
Publication Place: Portland, OR
Publisher: Oregon/Washington BLM

Source Scale Denominator: 24000
Type of Source Media: Online
Source Time Period of Content:
Time Period Information:
Range of Dates/Times:
Beginning Date: 1999
Ending Date: 2001
Source Currentness Reference: Ground condition
Source Citation Abbreviation: None
Source Contribution: Shoreline for main branch of Columbia River

**Source Information:**

**Source Citation:**

Originator: U.S. Geological Survey (USGS)
Publication Date: Varies
Title: 7.5 Minute Topographic Quadrangles
Geospatial Data Presentation Form: Map
Publication Information:
Publication Place: Reston, VA or Denver, CO
Publisher: USGS

Source Scale Denominator: 24000
Type of Source Media: Paper
Source Time Period of Content:
Time Period Information:
Single Date/Time:
Calendar Date: Varies
Process_Description:
The main source of data used to depict the wetlands for this data layer was the Habitat Types of the Lower Columbia River provided by the Lower Columbia River Estuary Partnership. Adjustments to the polygons were made in cases where a wetland polygon was located partially or completely within a water polygon from the HYDRO coverage. The polygons were also classified with the NOAA's ESI classification. No other adjustments were made to the original data.

Process_Date: 200408

Process_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Person: Jill Petersen
Contact_Address:
Address_Type: Physical address
Address: 7600 Sand Point Way N.E.
City: Seattle
State or Province: Washington
Postal Code: 98115-6349
Contact Voice Telephone: (206) 526-6944
Contact Facsimile Telephone: (206) 526-6329
Contact Electronic Mail Address: Jill.Petersen@noaa.gov

Spatial Data Organization Information:
Direct Spatial Reference Method: Vector
Point and Vector Object Information:

SDTS Terms Description:
SDTS_Point_and_Vector_Object_Type: GT-polygon composed of rings
Point_and_Vector_Object_Count: 6078

SDTS Terms Description:
SDTS_Point_and_Vector_Object_Type: Area point
Point_and_Vector_Object_Count: 6078

SDTS Terms Description:
SDTS_Point_and_Vector_Object_Type: Complete chain
Point_and_Vector_Object_Count: 9761

SDTS Terms Description:
SDTS_Point_and_Vector_Object_Type: Link
Point_and_Vector_Object_Count: 360727

SDTS Terms Description:
SDTS_Point_and_Vector_Object_Type: Node, planar graph
Point_and_Vector_Object_Count: 7529

Spatial Reference Information:
Horizontal Coordinate System Definition:
Geographic:
Latitude Resolution: 0.0000001
Longitude Resolution: 0.0000001
Geographic Coordinate Units: Decimal degrees

Geodetic Model:
Horizontal Datum Name: North American Datum of 1927
Ellipsoid Name: Clark 1866
Semi-major Axis: 6378206.4
Denominator of Flattening Ratio: 294.978698

Entity and Attribute Information:
Detailed Description:
Entity Type:
Entity_Type_Label: NWI.PAT
Entity_Type_Definition:
The NWI.PAT table contains attribute information for the vector polygons representing polygonal features with ESI classification.
Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: ESI
Attribute_Definition: The item ESI contains values representing the ESI polygon type
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: 10A
Enumerated_Domain_Value_Definition: Salt- and Brackish-water
Marshes

Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: 10B
Enumerated_Domain_Value_Definition: Freshwater Marshes
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: 10C
Enumerated_Domain_Value_Definition: Swamps
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: 10D
Enumerated_Domain_Value_Definition: Scrub-shrub Wetlands
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: U
Enumerated_Domain_Value_Definition: Unranked
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Distribution_Information:
Distributor:
Contact_Information:
Contact_Person_Primary:
Contact_Person: John Kaperick
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Address:
Address_Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6400
Contact_Facsimile_Telephone: (206) 526-6329

Resource_Description: ESI Atlas for Columbia River

Distribution_Liability:
Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement copy of the product when the product is determined unreadable by computer-input peripherals, or when the physical medium is delivered in damaged condition.

Custom_Order_Process:
Contact NOAA for distribution options (see Distributor). ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the distribution CDs for ease of use of the ESI data. The database files are distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats.

Metadata_Reference_Information:
Metadata_Date: 200411
Metadata_Review_Date: 200411
Metadata_Contact:
Contact_Information:
Contact_Person_Primary:
Columbia River ESI: BIRDS (Bird Polygons)

Metadata also available as - [Parseable text] - [SGML]

Metadata:

- **Identification Information**
- **Data Quality Information**
- **Spatial Data Organization Information**
- **Spatial Reference Information**
- **Entity and Attribute Information**
- **Distribution Information**
- **Metadata Reference Information**

**Identification Information:**

**Citation:**

**Originator:**

**Publication Date:** 200411

**Title:** Columbia River ESI: BIRDS (Bird Polygons)

**Edition:** First

**Geospatial Data Presentation Form:** Vector digital data

**Series Information:**

**Series Name:** None

**Issue Identification:** Columbia River

**Publication Information:**

**Publication Place:** Seattle, Washington

**Publisher:**

**Other Citation Details:**


**Description:**

**Abstract:**

This data set contains sensitive biological resource data for wading birds, shorebirds, waterfowl, diving birds, seabirds, passerine birds, gulls, and terns in Columbia River. Vector polygons in this data set represent locations of bird nesting, resting, feeding, migratory staging, and wintering sites. Species-specific abundance, seasonality, status, life history, and source information are stored in relational data tables (described below) designed to be used in conjunction with this spatial data layer.

This data set comprises a portion of the Environmental Sensitivity Index (ESI) data for Columbia River. ESI data characterize the marine and coastal environments and wildlife by their sensitivity to spilled oil. The ESI data include information for three main components: shoreline habitats, sensitive biological resources, and human-use resources. See also the NESTS (Nest Points) data layer, part of the larger Columbia River ESI database, for
additional bird information.

Purpose:
The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response. The Clean Water Act with amendments by the Oil Pollution Act of 1990 requires response plans for immediate and effective protection of sensitive resources.

Time_Period_of_Content:

Time_Period_Information:
  Range_of_Dates/Times:
    Beginning_Date: 1979
    Ending_Date: 2004

Currentness_Reference:
The biological data were compiled during 2003-2004. The currentness dates for the data range from 1979 to 2004 and are documented in the Lineage section.

Status:

Progress: Complete

Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:
  West_Bounding_Coordinate: -124.125
  East_Bounding_Coordinate: -120.67375
  North_Bounding_Coordinate: 46.375
  South_Bounding_Coordinate: 45.3

Keywords:

Theme:
  Theme_Keyword_Thesaurus: None
  Theme_Keyword: ESI
  Theme_Keyword: Sensitivity maps
  Theme_Keyword: Coastal resources
  Theme_Keyword: Oil spill planning
  Theme_Keyword: Coastal Zone Management
  Theme_Keyword: Wildlife
  Theme_Keyword: Bird

Place:
  Place_Keyword_Thesaurus: None
  Place_Keyword: Columbia River

Access_Constraints: None

Use_Constraints:
DO NOT USE MAPS FOR NAVIGATIONAL PURPOSES. Besides the above warning, there are no use constraints on these data. Note that the ESI database should not be used to the exclusion of other pertinent data or information held by state or federal agencies or other organizations. Likewise, information contained in the database cannot be used in place of consultations with environmental, natural resource, and cultural resource agencies, or in place of field surveys. Recognize that the information contained in the ESI database represents known concentration areas or occurrences of natural, cultural, and human-use resources, but does not necessarily represent the full distribution or range of each species or resource. This is particularly important to recognize when considering potential impacts to protected resources, such as endangered species, wetlands, etc. Acknowledgment of the originators, publishers, contributors, and sources listed would be appreciated in products derived from these data.

Browse_Graphic:

Browse_Graphic_File_Name: datafig.jpg
Browse_Graphic_File_Description: Depicts the relationships between spatial data layers and attribute data tables for the Columbia River ESI data.
Browse_Graphic_File_Type: JPEG

Data_Set_Credit:
This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; Coastal Storms Initiative; U.S. Fish and Wildlife Service; NOAA Fisheries; State of Oregon; and State of Washington.

Native_Data_Set_Environment:
The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 8.3) and SQL SERVER(r) (version 7.0). The hardware configuration is PC's with Windows Operating System (NT4.0/2000).

The Spatial_Data_Organization_Information section refers only to the source files in the ARC export format. The following files are included in that data set: birds.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mammal.e00, m_mampt.e00, mgt.e00, nests.e00, nwi.e00, reptiles.e00, socecon.e00, t_mammal.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biores, breed, breed_dt, runs_dat, seasonal, soc_dat, soc_lut, sources, species, and status.

**Data_Quality_Information:**

**Attribute_Accuracy:**

**Attribute_Accuracy_Report:**

A multi-stage error checking process is used to verify both attribute accuracy and logical consistency throughout data production. The process includes a standardized data entry methodology, hardcopy data review by in-house and external resource experts, a final Quality Assurance/Quality Control (QA/QC) process, and multiple automated logical consistency checks. Quantitative data (such as densities, counts, abundances, or concentrations) provided by resource experts for inclusion in the data set may vary widely in attribute accuracy, depending upon the methodology used to collect and compile such data. For a more detailed evaluation of source data attribute accuracy, contact the sources listed in the Lineage section.

**Logical_Consistency_Report:**

A multi-stage error checking process, described in the above Attribute_Accuracy_Report, is used to verify both attribute accuracy and logical consistency throughout data production. This process includes multiple automated logical consistency checks that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and SQL SERVER(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where the data are written to CD-ROM and the metadata are written.

After the data are delivered to NOAA, they are again subjected to a number of quality and consistency checks. In the process of checking for topological and database consistencies, new ID's and RARNUM's or HUNUM's are also generated. The new ID's are a combination of atlas number, element number, and record number. In addition, the value used to represent the element is modified to reflect the type of feature being mapped. In the case of an element that is normally represented by a point or polygon, a value of 20 is added to the standard element value for mapping of linear features. In the case where an element usually mapped as a polygon is represented by a point, a value of 30 is added to the regular element value. The RARNUM's are also modified to include the atlas number, so multiple atlases can be combined and RARNUM's remain unique. RARNUM's are redefined on an element basis, so "resource at risk" groupings will contain only a single element. HUNUM's are also modified to include the atlas number.

**Completeness_Report:**

These data represent a synthesis of expert knowledge and available hardcopy reports and digital data on bird nesting, migratory staging, feeding, and wintering concentration areas. Portions of this information were adapted from Washington Priority Habitat digital data. Contact Washington Department of Fish and Wildlife (WDFW) for additional information on this database. See also the NESTS (Nest Points) data layer, part of the larger Columbia River ESI database, for additional bird information. These data do not necessarily represent all bird occurrences in the Columbia River area. The following species are included in this data set: (Species_ID, Common Name, Scientific Name, if applicable): 7, Western grebe, Aechmophorus occidentalis; 8, Double-crested cormorant, Phalacrocorax auritus; 9, Brandt's cormorant, Phalacrocorax penicillatus; 10, Pelagic cormorant, Phalacrocorax pelagicus; 11, Tundra swan, Cygnus columbianus; 12, Canada goose, Branta Canadensis; 14, Greater white-fronted goose, Anser albifrons; 16, Mallard, Anas platyrhynchos; 17, Northern pintail, Anas acuta; 18, Green-winged teal, Anas crecca; 21, Canvasback, Aythya valisineria; 24, Common goldeneye, Bucephala clangula; 28, Harlequin duck, Histrionicus histrionicus; 29, White-winged scoter, Melanitta fusca; 30, Surf scoter, Melanitta perspicillata; 32, Common merganser, Mergus merganser; 34, American coot, Fulica Americana; 36, Glaucous-winged gull, Larus glaucescens; 37, Western gull, Larus occidentalis; 40, Ring-billed gull, Larus delawarensis; 54,
Great blue heron, Ardea herodias; 56, Spotted sandpiper, Actitis macularia; 63, Dunlin, Calidris alpina; 66, Western sandpiper, Calidris mauri; 67, Sanderling, Calidris alba; 70, Killdeer, Charadrius vociferous; 76, Bald eagle, Haliaeetus leucocephalus; 77, Osprey, Pandion haliaetus; 88, Great egret, Ardea alba; 97, Green heron, Butorides virescens; 107, Peregrine falcon, Falco peregrinus; 118, Brown pelican, Pelecanus occidentalis; 136, Caspian tern, Sterna caspia; 169, American wigeon, Anas americana; 170, Trumpeter swan, Cygnus buccinator; 171, Dusky Canada goose, Branta canadensis occidentalis; 172, Sandhill crane, Grus Canadensis; 191, Wood duck, Aix sponsa; 273, Geese; 299, Scaup, Aythya spp.; 462, Loons, Gavia spp.; 596, Purple martin, Progne subis; 1001, Gulls; 1002, Shorebirds; 1003, Waterfowl; 1004, Wading birds; 1013, Dabbling ducks; 1014, Diving ducks; 1021, Ducks; 1026, Grebes; 1027, Swans, Cygnus spp.

Positional Accuracy:

Most of the spatial components of the biological data sets are developed using regional experts who estimate concentration areas. It is difficult to estimate the positional accuracy of such data, except to state that they are compiled on hardcopy base maps with a scale of 1:24,000. Some of the spatial components of the biological data sets are developed from pre-existing digital sources and reflect the positional accuracy of these original data. See the Lineage and Process_Description sections for more information on the original data source and how these data were integrated or manipulated to create the final data set. Note that biological resource data by their very nature are considered "fuzzy", and this should be understood when considering the positional accuracy of vector digital objects representing these resources.

Lineage:

Source Information:

Source Citation:

Citation Information:

Originator: North, J., Oregon Department of Fish and Wildlife (ODFW)
Publication Date: 200402
Title: Fish, Bird, and Mammal Distributions along the Columbia River
Geospatial Data Presentation Form: Expert knowledge
Publication Information:
  Publication Place: Unpublished material
  Publisher: Unpublished material

Type of Source Media: Personal communication
Source Time Period of Content:
  Time Period Information:
    Single Date/Time:
      Calendar Date: 200402
Source Currentness Reference: Date of communication
Source Contribution: Distribution information for birds

Source Information:

Source Citation:

Citation Information:

Originator: Rien, T., Oregon Department of Fish and Wildlife (ODFW)
Publication Date: 200402
Title: Distribution of Wildlife along the Columbia River
Geospatial Data Presentation Form: Expert knowledge
Publication Information:
  Publication Place: Unpublished material
  Publisher: Unpublished material

Type of Source Media: Personal communication
Source Time Period of Content:
  Time Period Information:
    Single Date/Time:
      Calendar Date: 200402
Source Currentness Reference: Date of communication
Source Contribution: Distribution information for birds

Source Citation Abbreviation: None
Source_Contribution: Distribution information for birds

Source_Information:
Source_Citation:
Citation_Information:
Originator:
   Van Der Naald, W., Oregon Department of Fish and Wildlife (ODFW)
Publication_Date: 200402
Title:
   Distribution of Fish, Birds, and Mammals along the Columbia River
Geospatial_Data_Presentation_Form: Expert knowledge
Publication_Information:
   Publication_Place: Unpublished material
   Publisher: Unpublished material
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:
   Time_Period_Information:
   Single_Date/Time:
      Calendar_Date: 200402
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Distribution information for birds

Source_Information:
Source_Citation:
Citation_Information:
Originator:
   Kohl, K., Oregon Department of Fish and Wildlife (ODFW)
Publication_Date: 200401
Title:
   Bird and Mammal Distribution along the Columbia River
Geospatial_Data_Presentation_Form: Expert knowledge
Publication_Information:
   Publication_Place: Unpublished material
   Publisher: Unpublished material
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:
   Time_Period_Information:
   Single_Date/Time:
      Calendar_Date: 200401
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Distribution and seasonality information for birds

Source_Information:
Source_Citation:
Citation_Information:
Originator:
   Meyer, B., National Oceanic and Atmospheric Administration (NOAA)
Publication_Date: 200402
Title:
   Fish, Bird, Mammal, and Plant Distributions in the Lower Columbia River
Geospatial_Data_Presentation_Form: Expert Knowledge
Publication_Information:
   Publication_Place: Unpublished material
   Publisher: Unpublished material
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:
   Time_Period_Information:
   Single_Date/Time:
      Calendar_Date: 200402
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Distribution and seasonality information for birds

Source_Information:
Source_Citation:
Citation_Information:
Originator: Collis, K.; Roby, D. et al.
Publication_Date: 200311
Title: Caspian Tern Research on the Lower Columbia River, Draft 2003 Season Summary
Geospatial_Data_Presentation_Form: Hardcopy Text
Publication_Information:
Publication_Place: Unpublished material
Publisher: Unpublished material
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 200311
Source_Currentness_Reference: Publication date
Source_Citation_Abbreviation: None
Source_Contribution: Distribution and seasonality information for Caspian Terns

Source_Information:
Source_Citation:
Citation_Information:
Originator: Oregon Important Bird Areas
Publication_Date: 2003
Title: Oregon's Important Bird Areas, East Sand Island
Geospatial_Data_Presentation_Form: Hardcopy Text
Publication_Information:
Publication_Place: Unpublished material
Publisher: Unpublished material
Type_of_Source_Media: Online
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 2003
Source_Currentness_Reference: Publication date
Source_Citation_Abbreviation: None
Source_Contribution: Distribution and seasonality of birds for East Sand Island

Source_Information:
Source_Citation:
Citation_Information:
Originator: U.S. Fish and Wildlife Service (USFWS)
Publication_Date: 1981
Title: Hoquiam Washington-Oregon, Pacific Coast Ecological Inventory
Geospatial_Data_Presentation_Form: Hardcopy Map
Publication_Information:
Publication_Place: Washington, D.C.
Publisher: U.S. Government Printing Office
Source_Scale_Denominator: 250,000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 1981
Source_Currentness_Reference: Publication date
Source_Citation_Abbreviation: None
Source_Contribution: Distribution information for birds
Source Information:

Source Citation:

Citation Information:

Originator:
Sutherland, B., Oregon Department of Environmental Quality (ODEQ)

Publication Date: 1979

Title:
Oil Spill Protection Plan for the Natural Resources of the Lower Columbia River

Geospatial Data Presentation Form: Hardcopy Map

Publication Information:

Publication Place: Unknown
Publisher: Unknown

Source Scale Denominator: Unknown

Type of Source Media: Paper

Source Time Period of Content:

Time Period Information:

Single Date/Time:
Calendar Date: 1979

Source Currentness Reference: Publication date

Source Citation Abbreviation: None

Source Contribution: Distribution information for birds

Source Information:

Source Citation:

Citation Information:

Originator: Anderson, E., U.S. Fish and Wildlife Service (USFWS)

Publication Date: 200401

Title: Distribution of Wildlife on the Lower Columbia River

Geospatial Data Presentation Form: Expert Knowledge

Publication Information:

Publication Place: Unpublished material
Publisher: Unpublished material

Type of Source Media: Personal communication

Source Time Period of Content:

Time Period Information:

Single Date/Time:
Calendar Date: 200401

Source Currentness Reference: Date of communication

Source Citation Abbreviation: None

Source Contribution: Distribution and seasonality information for birds

Source Information:

Source Citation:

Citation Information:

Originator: Clark, A., U.S. Fish and Wildlife Service (USFWS)

Publication Date: 200402

Title:
Distribution of Fish, Birds, Plants, and Mammals in the Columbia River

Geospatial Data Presentation Form: Expert Knowledge

Publication Information:

Publication Place: Unpublished material
Publisher: Unpublished material

Type of Source Media: Personal communication

Source Time Period of Content:

Time Period Information:

Single Date/Time:
Calendar Date: 200402

Source Currentness Reference: Publication date

Source Citation Abbreviation: None
Source_Contribution: Distribution and seasonality information for birds

Source_Information:
Source_Citation:
Citation_Information:
Originator: Isaacs, F.
Publication_Date: 2004
Title: Bald Eagle Nesting Sites in Oregon and Washington
Geospatial_Data_Presentation_Form: Spreadsheet
Publication_Information:
Publication_Date: Unpublished material
Publisher: Unpublished material

Source_Scale_Denominator: 24,000
Type_of_Source_Media: CD-ROM
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Source_Citation_Abbreviation: None
Source_Contribution: Nesting sites for bald eagles in Washington and Oregon

Source_Information:
Source_Citation:
Citation_Information:
Originator: Nebeker, M., Oregon Department of Fish and Wildlife (ODFW)
Publication_Date: 200402
Title: Distribution of Wildlife on Sauvie Island and Surrounding Areas
Geospatial_Data_Presentation_Form: Expert Knowledge
Publication_Information:
Publication_Date: Unpublished material
Publisher: Unpublished material

Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 200402
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Distribution and seasonality information of birds on Sauvie Island and surrounding areas

Source_Information:
Source_Citation:
Citation_Information:
Originator: Columbia River Estuary Data Development Program
Publication_Date: 1984
Title: The Columbia River Estuary Atlas of Physical and Biological Characteristics
Geospatial_Data_Presentation_Form: Hardcopy atlas
Publication_Information:
Publication_Date: Seattle, Washington
Publisher: Northwest Cartography, Inc.

Source_Scale_Denominator: 250,000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 1984
Source_Currentness_Reference: Publication date
Source Citation Abbreviation: None
Source Contribution: Distribution and seasonality information for birds
Source Information:
Source Citation: 
Citation Information:
Originator: Washington Department of Fish and Wildlife (WDFW)
Publication Date: 2004
Title: Priority Habitat Data for the Lower Columbia River
Geospatial Data Presentation Form: Vector digital data
Publication Information:
Publication Place: Unknown
Publisher: Washington Department of Fish and Wildlife
Source Scale Denominator: 24,000
Type of Source Media: CD-ROM
Source Time Period of Content:
Time Period Information:
Single Date/Time:
Calendar Date: 2004
Source Currentness Reference: Publication Date
Source Citation Abbreviation: None
Source Contribution: Distribution and seasonality information for birds
Source Information:
Source Citation: 
Citation Information:
Originator: Engler, J.; Friez, D.; Anderson E., U.S. Fish and Wildlife Service (USFWS); Anderson, D., Washington Department of Fish and Wildlife (WDFW)
Publication Date: 2004
Title: Final Status Report on the 2003 Greater Sandhill Crane Nesting Season
Geospatial Data Presentation Form: Hardcopy text
Publication Information:
Publication Place: Ridgefield, Washington
Publisher: Ridgefield National Wildlife Refuge Complex
Type of Source Media: Paper
Source Time Period of Content:
Time Period Information:
Single Date/Time:
Calendar Date: 2003
Source Currentness Reference: Survey date
Source Citation Abbreviation: None
Source Contribution: Seasonality information for the Greater Sandhill Crane
Source Information:
Source Citation: 
Citation Information:
Originator: Anderson, E., U.S. Fish and Wildlife Service (USFWS)
Publication Date: 200401
Title: Columbia Gorge Internal Draft CCP/EA
Geospatial Data Presentation Form: Hardcopy text
Publication Information:
Publication Place: Unpublished material
Publisher: Unpublished material
Type of Source Media: Paper
Source Time Period of Content:
Time Period Information:
Single Date/Time:
Calendar Date: 200401
Source Currentness Reference: Publication date
Source_Citation_Abbreviation: None
Source_Contribution: Seasonality information for birds
Process_Description:
Three main sources of data were used to depict bird distribution and seasonality for this data layer: (1) personal interviews with resource experts from Oregon Department of Fish and Wildlife (ODFW), Washington Department of Fish and Wildlife (WDFW), and U.S. Fish and Wildlife Service (USFWS); (2) numerous published and unpublished reports; and (3) information adapted from Washington Priority Habitat data. (Contact WDFW for more information regarding the Washington Priority Habitat data.) Information gathered during initial interviews and from hardcopy sources was compiled onto U.S. Geological Survey 1:24,000 topographic quadrangles.

The compiled data were digitized off of the base maps into an ArcInfo system to create the BIRDS data layer. All ESI, biology, and human-use data were plotted onto hardcopy draft maps. Following the delivery of draft maps to the participating resource experts, a second set of interviews was conducted to review the maps. Edits to the BIRDS data layer were made based on the recommendations of the resource experts, and final hardcopy maps were created.

Concentration information varied, and therefore for some species and locations, descriptive terms such as "HIGH" or "PRESENT" were used, while for others, numerical counts of individuals or pairs were used. When exact concentrations varied from year to year, concentration ranges such as "1000S", "100-500", or "1000-2000-PAIRS" were used. Generally, these numbers represented the peak concentrations of birds present or potentially present. If no concentration information was available from any source, the concentration field was populated with "-". Concentration and seasonality information was provided by resource experts, or was extracted from published sources, reports, and survey data.

Process_Date: 200408
Process_Contact:
Contact_Information:
  Contact_Organization_Primary:
    Contact_Organization: NOAA, Office of Response and Restoration
    Contact_Person: Jill Petersen
  Contact_Address:
    Address_Type: Physical address
    Address: 7600 Sand Point Way N.E.
    City: Seattle
    State_or_Province: Washington
    Postal_Code: 98115-6349
  Contact_Voice_Telephone: (206) 526-6944
  Contact_Facsimile_Telephone: (206) 526-6329
  Contact_Electronic_Mail_Address: Jill.Petersen@noaa.gov

Spatial_Data_Organization_Information:
  Direct_Spatial_Reference_Method: Vector
  Point_and_Vector_Object_Information:
    SDTS_Terms_Description:
      SDTS_Point_and_Vector_Object_Type: GT-polygon composed of rings
      Point_and_Vector_Object_Count: 863
    SDTS_Terms_Description:
      SDTS_Point_and_Vector_Object_Type: Area point
      Point_and_Vector_Object_Count: 863
    SDTS_Terms_Description:
      SDTS_Point_and_Vector_Object_Type: Complete chain
**Point_and_Vector_Object_Count:** 1439  
**SDTS_Terms_Description:**  
**SDTS_Point_and_Vector_Object_Type:** Link  
**Point_and_Vector_Object_Count:** 228612  
**SDTS_Terms_Description:**  
**SDTS_Point_and_Vector_Object_Type:** Node, planar graph  
**Point_and_Vector_Object_Count:** 1270  

**Spatial_Reference_Information:**  
**Horizontal_Coordinate_System_Definition:**  
**Geographic:**  
- **Latitude_Resolution:** 0.0000001  
- **Longitude_Resolution:** 0.0000001  
- **Geographic_Coordinate_Units:** Decimal degrees  
**Geodetic_Model:**  
- **Horizontal_Datum_Name:** North American Datum of 1927  
- **Ellipsoid_Name:** Clark 1866  
- **Semi-major_Axis:** 6378206.4  
- **Denominator_of_Flattening_Ratio:** 294.978698  

**Entity_and_Attribute_Information:**  
**Overview_Description:**  
In addition to the geographic data layers, six relational attribute or data tables, BIORES, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, are used to store the complex biological data in the ESI data structure. The geographic data layer containing biological resource information (in this case, BIRDS) is linked to the Biological Resources table (BIORES) using the unique ID and the lookup table BIO_LUT, or it can be linked directly using RARNUM. The ID is a unique combination of the atlas number (for the Columbia River atlas, the number is 41), an element/layer specific number (BIRDS are layer 1, FISH are layer 2, etc.), and a unique record number. The RARNUM represents a unique combination of species, seasonalities, concentrations, and source information. For each of these groupings, a number is generated. That number is concatenated with the atlas number to create a "resource at risk" number that is unique across atlases. BIORES and the other relational data tables are described below in detail. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way these tables relate to the geographic data layers and other attribute tables in the ESI data structure.  

Due to the complexity of the relational database model, the data items are also post-processed into a flat file format. This table, called BIOFILE, may be used in place of the relational files described below to ease simple data queries. The items in the flat file are ELEMENT, SUBELEMENT, NAME, GEN_SPEC, S, F, NHP, DATE_PUB, CONC, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC, BREED1, BREED2, BREED3, BREED4, BREED5, RARNUM, G_SOURCE, S_SOURCE, and BREED. All of these items are the same as their counterparts in the individual data tables described below, except the BREED1-BREED5 and BREED items. BREED is a newly generated variable used to link to the BREED_DT data table, a modified, more compact version of the relational BREED data table. BREED1-BREED5 give a text summary of when each life stage occurs within the associated map object. The life stages referred to are the same as those listed in the Detailed_Description of the BREED data table. The link to the BIOFILE may be made through the BIO_LUT, using ID to link to RARNUM, or BIOFILE may be linked directly to the RARNUM in each of the geographic layer's attribute data tables. As mentioned, BREED_DT is an auxiliary support data table to the flat file structure, which allows the user to do searches based on month for seasonal breeding activities. The link from the flat file to BREED_DT is the BREED item.
A second supporting data table is SOURCES. This is the same as the source file described above, and the link from the flat file is both G_SOURCE and S_SOURCE. It should be noted that although the flat file eases data query, it is not a normalized database structure, and actual updates performed by the states and other responsible agencies should be done using the relational data tables. The entity-relationship diagram, describing relationships between attribute tables in the ESI data structure, does NOT include the BIOFILE data table, and this data table is NOT described in detail below.

**Detailed Description:**

**Entity Type:**

- **Entity_Type_Label:** BIRDS.PAT
- **Entity_Type_Definition:** The BIRDS.PAT table contains attribute information for the vector polygons representing bird nesting, resting, feeding, migratory staging, and wintering sites. Note that all attribute information is stored in a series of relational files, described below. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the relationships between attribute tables in the ESI data structure.

**Attribute:**

- **Attribute_Label:** ID
- **Attribute_Definition:** An identifier that links vector objects in the biology data layers to records in the BIO_LUT data table. ID is a concatenation of atlas number (41), element number (1), and record number. ID values of 9999 are holes in polygons and do not contain information.
- **Attribute_Definition_Source:** NOAA
- **Attribute_Domain_Values:**
  - **Range_Domain:**
    - **Range_Domain_Minimum:** 410100002
    - **Range_Domain_Maximum:** 410100861

- **Attribute_Label:** RARNUM
- **Attribute_Definition:** An identifier that links directly to the BIORES table or the flat format BIOFILE table. RARNUM values of 0 are holes in polygons and do not contain information.
- **Attribute_Definition_Source:** NOAA
- **Attribute_Domain_Values:**
  - **Range_Domain:**
    - **Range_Domain_Minimum:** 41000001
    - **Range_Domain_Maximum:** 41000290

**Detailed Description:**

**Entity Type:**

- **Entity_Type_Label:** BIO_LUT
- **Entity_Type_Definition:** The data table BIO_LUT is a lookup table that contains items necessary for linking vector objects in the biological data layers with the BIORES data table. Note that all attribute information is stored in a series of relational files, described below. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.

**Attribute:**

- **Attribute_Label:** RARNUM
- **Attribute_Definition:** An identifier that links records in the BIO_LUT data table to records in the BIORES data table or the flat format BIOFILE data table. RARNUM values of 0 are holes in polygons and do not contain information.
- **Attribute_Definition_Source:** NOAA
- **Attribute_Domain_Values:**
  - **Range_Domain:**
    - **Range_Domain_Minimum:** 41000001
    - **Range_Domain_Maximum:** 41000131
Attribute:

Attribute_Label: ID
Attribute_Definition:
An identifier that links vector objects in the biology data layers to records in the BIO_LUT data table. ID is a concatenation of atlas number (41), element number (1), and record number. ID values of 9999 are holes in polygons and do not contain information.

Attribute_Definition_Source: NOAA
Attribute_Domain_Values:
  Range_Domain:
      Range_Domain_Minimum: 410100002
      Range_Domain_Maximum: 413400015

Detailed_Description:

Entity_Type:
Entity_Type_Label: BIORES
Entity_Type_Definition:
The data table BIORES contains both biological attribute data and items necessary for linking vector objects in the biological data layers via the BIO_LUT data table to other associated data tables. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.

Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:

Attribute_Label: RARNUM
Attribute_Definition:
An identifier that links records in the BIORES data table to records in the BIO_LUT data table or the flat format BIOFILE data table.

Attribute_Definition_Source: NOAA
Attribute_Domain_Values:
  Range_Domain:
      Range_Domain_Minimum: 041000001
      Range_Domain_Maximum: 041000290

Attribute:

Attribute_Label: SPECIES_ID
Attribute_Definition:
Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.

Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Range_Domain:
      Range_Domain_Minimum: 1
      Range_Domain_Maximum: N

Attribute:

Attribute_Label: CONC
Attribute_Definition:
The field CONC refers to "concentration," abundance, or density values, and may contain counts of individuals for each species present at a particular nesting, resting, feeding, or wintering site, or a term that describes relative abundance of birds at a particular site. The field may contain counts of individuals (XX) or pairs of birds (XX-PAIRS). When exact concentrations varied from year to year, concentration ranges such as "1000S", "100-500", or "1000-2000-PAIRS" are used. These numbers represent the peak numbers of birds that may potentially be present at a site. In cases where no quantitative count data were available, the field may either be blank, or contain descriptive terms such as "HIGH" or "PRESENT". If no concentration information was available from any source, the field is populated with "-". Counts were derived from a variety of surveys, and may range in date.

Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Unrepresentable_Domain: Acceptable values change from atlas to atlas
Attribute_Label: SEASON_ID
Attribute_Definition: Numeric identifier for the unique monthly presence and life history characteristics of each species at a given location.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Range_Domain:
  Range_Domain_Minimum: 1
  Range_Domain_Maximum: N

Attribute:
Attribute_Label: G_SOURCE
Attribute_Definition: Geographic source identifier that links records in the BIORES data table to records in the SOURCES data table.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Range_Domain:
  Range_Domain_Minimum: 1
  Range_Domain_Maximum: N

Attribute:
Attribute_Label: S_SOURCE
Attribute_Definition: Seasonality source identifier that links records in the BIORES data table to records in the SOURCES data table.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Range_Domain:
  Range_Domain_Minimum: 1
  Range_Domain_Maximum: N

Attribute:
Attribute_Label: ELEMENT
Attribute_Definition: Major categories of biological data
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
  Enumerated_Domain_Value: BIRD
  Enumerated_Domain_Value_Definition: Birds
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
  Enumerated_Domain:
  Enumerated_Domain_Value: FISH
  Enumerated_Domain_Value_Definition: Fish
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
  Enumerated_Domain:
  Enumerated_Domain_Value: HABITAT
  Enumerated_Domain_Value_Definition: Habitats and Plants
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
  Enumerated_Domain:
  Enumerated_Domain_Value: INVERT
  Enumerated_Domain_Value_Definition: Invertebrates
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
  Enumerated_Domain:
  Enumerated_Domain_Value: M_MAMMAL
  Enumerated_Domain_Value_Definition: Marine Mammals
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
**Enumerated Domain Value:** REPTILE
**Enumerated Domain Value Definition:** Reptiles and Amphibians
**Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

**Enumerated Domain:**
- **Enumerated Domain Value:** T_MAMMAL
  - **Enumerated Domain Value Definition:** Terrestrial Mammals
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Attribute:**

**Attribute Label:** EL_SPE
**Attribute Definition:** Concatenation of ELEMENT and SPECIES_ID. This item links records in the BIORES data table to records in the SPECIES and STATUS data tables.
**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

**Enumerated Domain:**
- **Enumerated Domain Value:** E####
  - **Enumerated Domain Value Definition:** Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = 'B00001').
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Attribute:**

**Attribute Label:** EL_SPE_SEA
**Attribute Definition:** Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the BIORES data table to records in the SEASONAL and BREED data tables.
**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

**Enumerated Domain:**
- **Enumerated Domain Value:** E$$$$
  - **Enumerated Domain Value Definition:** Where E is the first character of ELEMENT, the next five characters are SPECIES_ID, and the last two characters are SEASON_ID (e.g. ELEMENT = 'BIRD', SPECIES_ID = 1 and SEASON_ID = 1; EL_SPE_SEA = 'B0000101').
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Detailed Description:**

**Entity Type:**

**Entity Type Label:** SPECIES
**Entity Type Definition:** The data table SPECIES identifies all species in the ESI data set. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure. Refer to the Completeness_Report for a list of layer-specific species.
**Entity Type Definition Source:** Research Planning, Inc.

**Attribute:**

**Attribute Label:** SPECIES_ID
**Attribute Definition:** Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.
**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

**Range Domain:**
- **Range Domain Minimum:** 1
- **Range Domain Maximum:** N

**Attribute:**

**Attribute Label:** NAME
**Attribute Definition:** Species common name for the entire ESI data set
Attribute: Attribute_Label: GEN_SPEC
Attribute_Definition: Species scientific name for the entire ESI data set
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute: Attribute_Label: ELEMENT
Attribute_Definition: Major categories of biological data
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: BIRD
    Enumerated_Domain_Value_Definition: Birds
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: FISH
    Enumerated_Domain_Value_Definition: Fish
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: HABITAT
    Enumerated_Domain_Value_Definition: Habitats and Plants
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: INVERT
    Enumerated_Domain_Value_Definition: Invertebrates
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: M_MAMMAL
    Enumerated_Domain_Value_Definition: Marine Mammals
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: REPTILE
    Enumerated_Domain_Value_Definition: Reptiles and Amphibians
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: T_MAMMAL
    Enumerated_Domain_Value_Definition: Terrestrial Mammals
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute: Attribute_Label: SUBELEMENT
Attribute_Definition: Element subgroup delineating a logical grouping of species
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: bivalve
    Enumerated_Domain_Value_Definition: Bivalve
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: crab
Enumerated_Domain_Value_Definition: Crab
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Attribute_Domain_Values:**

Enumerated_Domain:
- Enumerated_Domain_Value: diadromous
  Enumerated_Domain_Value_Definition: Diadromous fish
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
- Enumerated_Domain_Value: diving
  Enumerated_Domain_Value_Definition: Diving bird
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
- Enumerated_Domain_Value: e_nursery
  Enumerated_Domain_Value_Definition: Estuarine nursery fish
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
- Enumerated_Domain_Value: fav
  Enumerated_Domain_Value_Definition: Floating aquatic vegetation
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
- Enumerated_Domain_Value: freshwater
  Enumerated_Domain_Value_Definition: Freshwater fish
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
- Enumerated_Domain_Value: gull_tern
  Enumerated_Domain_Value_Definition: Gull or tern
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
- Enumerated_Domain_Value: passerine
  Enumerated_Domain_Value_Definition: Passerine bird
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
- Enumerated_Domain_Value: pinniped
  Enumerated_Domain_Value_Definition: Pinniped
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
- Enumerated_Domain_Value: raptor
  Enumerated_Domain_Value_Definition: Raptor
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
- Enumerated_Domain_Value: sav
  Enumerated_Domain_Value_Definition: Submerged aquatic vegetation
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
- Enumerated_Domain_Value: shorebird
  Enumerated_Domain_Value_Definition: Shorebird
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
- Enumerated_Domain_Value: sm_mammal
Enumerate_Domain_Value_Definition: Small mammal
Enumerate_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: turtle
    Enumerated_Domain_Value_Definition: Turtle
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: ungulate
    Enumerated_Domain_Value_Definition: Ungulate
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: wading
    Enumerated_Domain_Value_Definition: Wading bird
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: waterfowl
    Enumerated_Domain_Value_Definition: Waterfowl
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: NHP
  Attribute_Definition:
    Natural Heritage Program global ranking. When no information was provided on
    the global rank for a species, the field is blank.
  Attribute_Definition_Source: Network of Natural Heritage Program
  Attribute_Domain_Values:
    Codeset_Domain:
      Codeset_Name: NHP Global Conservation Status Rank
      Codeset_Source: Natural Heritage Program

Attribute:
  Attribute_Label: DATE_PUB
  Attribute_Definition: Date of NHP listing
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: YYYYMM
      Enumerated_Domain_Value_Definition: YYYY for year and optionally
      MM for month
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: 0
    Enumerated_Domain_Value_Definition: No information was provided on
    the global rank for the species
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: EL_SPE
  Attribute_Definition:
    Concatenation of ELEMENT and SPECIES_ID. This item links records in the
    SPECIES data table to records in the BIORES and STATUS data tables.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: E#####
      Enumerated_Domain_Value_Definition:
        Where E is the first character of ELEMENT and the next five
        characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and
Columbia River ESI: BIRDS (Bird Polygons)

Detailed_Description:

Entity_Type:

Entity_Type_Label: SEASONAL
Entity_Type_Definedition:
The data table SEASONAL contains information on the seasonal presence of each species associated with each spatial vector object. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.

Entity_Type_Definedition_Source: Research Planning, Inc.

Attribute:

Attribute_Label: ELEMENT
Attribute_Definedition: Major categories of biological data
Attribute_Definedition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:
Enumerated_Domain_Value: BIRD
Enumerated_Domain_Value_Definedition: Birds
Enumerated_Domain_Value_Definedition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:
Enumerated_Domain_Value: FISH
Enumerated_Domain_Value_Definedition: Fish
Enumerated_Domain_Value_Definedition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:
Enumerated_Domain_Value: HABITAT
Enumerated_Domain_Value_Definedition: Habitats and Plants
Enumerated_Domain_Value_Definedition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:
Enumerated_Domain_Value: INVERT
Enumerated_Domain_Value_Definedition: Invertebrates
Enumerated_Domain_Value_Definedition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:
Enumerated_Domain_Value: M_MAMMAL
Enumerated_Domain_Value_Definedition: Marine Mammals
Enumerated_Domain_Value_Definedition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:
Enumerated_Domain_Value: REPTILE
Enumerated_Domain_Value_Definedition: Reptiles and Amphibians
Enumerated_Domain_Value_Definedition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:
Enumerated_Domain_Value: T_MAMMAL
Enumerated_Domain_Value_Definedition: Terrestrial Mammals
Enumerated_Domain_Value_Definedition_Source: Research Planning, Inc.

Attribute:

Attribute_Label: SPECIES_ID
Attribute_Definedition: Numeric identifier for each species that is unique within each element and refers to a nationwide ESI species list maintained at NOAA.
Attribute_Definedition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Range_Domain:
Range_Domain_Minimum: 1
Range_Domain_Maximum: N
Attribute:
  Attribute_Label: SEASON_ID
  Attribute_Definition: Numeric identifier for the unique monthly presence and life history characteristics of each species at a given location.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 1
      Range_Domain_Maximum: N

Attribute:
  Attribute_Label: JAN
  Attribute_Definition: January
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: X
      Enumerated_Domain_Value_Definition: Present in January
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: FEB
  Attribute_Definition: February
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: X
      Enumerated_Domain_Value_Definition: Present in February
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: MAR
  Attribute_Definition: March
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: X
      Enumerated_Domain_Value_Definition: Present in March
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: APR
  Attribute_Definition: April
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: X
      Enumerated_Domain_Value_Definition: Present in April
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: MAY
  Attribute_Definition: May
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: X
      Enumerated_Domain_Value_Definition: Present in May
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: JUN
  Attribute_Definition: June
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
Enumerated_Domain:
   Enumerated_Domain_Value: X
   Enumerated_Domain_Value_Definition: Present in June
   Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
   Attribute_Label: JUL
   Attribute_Definition: July
   Attribute_Definition_Source: Research Planning, Inc.
   Attribute_Domain_Values:
      Enumerated_Domain:
         Enumerated_Domain_Value: X
         Enumerated_Domain_Value_Definition: Present in July
         Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
   Attribute_Label: AUG
   Attribute_Definition: August
   Attribute_Definition_Source: Research Planning, Inc.
   Attribute_Domain_Values:
      Enumerated_Domain:
         Enumerated_Domain_Value: X
         Enumerated_Domain_Value_Definition: Present in August
         Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
   Attribute_Label: SEP
   Attribute_Definition: September
   Attribute_Definition_Source: Research Planning, Inc.
   Attribute_Domain_Values:
      Enumerated_Domain:
         Enumerated_Domain_Value: X
         Enumerated_Domain_Value_Definition: Present in September
         Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
   Attribute_Label: OCT
   Attribute_Definition: October
   Attribute_Definition_Source: Research Planning, Inc.
   Attribute_Domain_Values:
      Enumerated_Domain:
         Enumerated_Domain_Value: X
         Enumerated_Domain_Value_Definition: Present in October
         Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
   Attribute_Label: NOV
   Attribute_Definition: November
   Attribute_Definition_Source: Research Planning, Inc.
   Attribute_Domain_Values:
      Enumerated_Domain:
         Enumerated_Domain_Value: X
         Enumerated_Domain_Value_Definition: Present in November
         Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
   Attribute_Label: DEC
   Attribute_Definition: December
   Attribute_Definition_Source: Research Planning, Inc.
   Attribute_Domain_Values:
      Enumerated_Domain:
         Enumerated_Domain_Value: X
         Enumerated_Domain_Value_Definition: Present in December
         Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
   Attribute_Label: EL_SPE_SEA
**Attribute Definition:**
Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the SEASONAL data table to records in the BIORES and BREED data tables.

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**
- **Enumerated Domain:**
  - **Enumerated Domain Value:** E####
  - **Enumerated Domain Value Definition:** Where E is the first character of ELEMENT, the next five characters are SPECIES_ID, and the last two characters are SEASON_ID (e.g. ELEMENT = 'BIRD', SPECIES_ID = 1 and SEASON_ID = 1; EL_SPE_SEA = 'B0000101').

**Detailed Description:**

**Entity Type:**
- **Entity Type Label:** BREED
- **Entity Type Definition:** The data table BREED identifies the monthly presence of certain life-history stages or activities for each species at a given location.

**Attribute:**
- **Attribute Label:** EL_SPE_SEA
- **Attribute Definition:** Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the BREED data table to records in the BIORES and SEASONAL data tables.
- **Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**
- **Enumerated Domain:**
  - **Enumerated Domain Value:** Y
  - **Enumerated Domain Value Definition:** Life-history stage or activity
present

**Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute:**

**Attribute_Label:** BREED2

**Attribute_Definition:**
Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED2 = migrating; if ELEMENT is "FISH" then BREED2 = eggs; if ELEMENT is "INVERT" then BREED2 = eggs; if ELEMENT is "REPTILE" then BREED2 = hatching; if ELEMENT is "M_MAMMAL" then BREED2 = calving. This attribute is not used for HABITAT or T_MAMMAL elements.

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Enumerated_Domain:**

- **Enumerated_Domain_Value:** Y
  - **Enumerated_Domain_Value_Definition:** Life-history stage or activity present
  - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

- **Enumerated_Domain_Value:** N
  - **Enumerated_Domain_Value_Definition:** Life-history stage or activity not present
  - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

- **Enumerated_Domain_Value:** -
  - **Enumerated_Domain_Value_Definition:** Breed category not used or not appropriate for record(s) in question
  - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute:**

**Attribute_Label:** BREED3

**Attribute_Definition:**
Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED3 = molting; if ELEMENT is "FISH" then BREED3 = larvae; if ELEMENT is "INVERT" then BREED3 = larvae; if ELEMENT is "REPTILE" then BREED3 = internesting; if ELEMENT is "M_MAMMAL" then BREED3 = pupping. This attribute is not used for HABITAT or T_MAMMAL elements.

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Enumerated_Domain:**

- **Enumerated_Domain_Value:** Y
  - **Enumerated_Domain_Value_Definition:** Life-history stage or activity present
  - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

- **Enumerated_Domain_Value:** N
  - **Enumerated_Domain_Value_Definition:** Life-history stage or activity not present
  - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

- **Enumerated_Domain_Value:** -
  - **Enumerated_Domain_Value_Definition:** Breed category not used or not appropriate for record(s) in question
  - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.
Enumerated_Domain_Value: N
Enumerated_Domain_Value_Definition: Life-history stage or activity not present
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: -
Enumerated_Domain_Value_Definition: Breed category not used or not appropriate for record(s) in question
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: BREED4
Attribute_Definition:
Life history stage or activity type, where: if ELEMENT is "FISH" then BREED4 = juveniles; if ELEMENT is "INVERT" then BREED4 = juveniles; if ELEMENT is "REPTILE" then BREED4 = juveniles; if ELEMENT is "M_MAMMAL" then BREED4 = molting. This attribute is not used for BIRD, HABITAT, or T_MAMMAL elements.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Y
Enumerated_Domain_Value_Definition: Life-history stage or activity present
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: N
Enumerated_Domain_Value_Definition: Life-history stage or activity not present
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: BREED5
Attribute_Definition:
Life history stage or activity type, where: if ELEMENT is "FISH" then BREED5 = adults; if ELEMENT is "INVERT" then BREED5 = adults; if ELEMENT is "REPTILE" then BREED5 = adults. This attribute is not used for BIRD, M_MAMMAL, HABITAT, or T_MAMMAL elements.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Y
Enumerated_Domain_Value_Definition: Life-history stage or activity present
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: N
Enumerated_Domain_Value_Definition: Life-history stage or activity not present
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: -

Enumerated_Domain_Value_Definition:
  Breed category not used or not appropriate for record(s) in question

Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Detailed_Description:

Entity_Type:
  Entity_Type_Label: SOURCES
  Entity_Type_Definition:
  The data table SOURCES contains the primary sources used to create the ESI data set. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.

Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: SOURCE_ID
  Attribute_Definition:
  Source identifier that links records in the SOURCES data table to the items G_SOURCE and A_SOURCE in the SOC_DAT table, and to G_SOURCE and S_SOURCE in the BIORES table.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 1
      Range_Domain_Maximum: N

Attribute:
  Attribute_Label: ORIGINATOR
  Attribute_Definition: Author or developer of source material or data set
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
  Attribute_Label: DATE_PUB
  Attribute_Definition:
  Date of source material, publication, or date of personal communication with expert source
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: YYYYMM
      Enumerated_Domain_Value_Definition: YYYY for year and optionally MM for month
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: TITLE
  Attribute_Definition: Title of source material or data
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
  Attribute_Label: DATA_FORMAT
  Attribute_Definition: The format of the source material
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
  Attribute_Label: PUBLICATION
  Attribute_Definition: Additional citation information
  Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
Attribute_Label: SCALE
Attribute_Definition: Scale denominator of the source
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: integer
Enumerated_Domain_Value_Definition: Any integer
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: TIME_PERIOD
Attribute_Definition: Date(s) of data collection that the source material is based upon.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: MM/DD/YY
Enumerated_Domain_Value_Definition: Month/Day/Year
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: MM/YYYY
Enumerated_Domain_Value_Definition: Month/Year
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: UNKNOWN
Enumerated_Domain_Value_Definition: Date information unknown
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Detailed_Description:
Entity_Type:
Entity_Type_Label: STATUS
Entity_Type_Definition:
The data table STATUS identifies the species that are listed as threatened or endangered by a state or federal authority. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: ELEMENT
Attribute_Definition: Major categories of biological data
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: BIRD
Enumerated_Domain_Value_Definition: Birds
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: FISH
Enumerated_Domain_Value_Definition: Fish
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: HABITAT
Enumerated_Domain_Value_Definition: Habitats and Plants
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Enumerated_Domain:
Enumerated_Domain_Value: INVERT
Enumerated_Domain_Value_Definition: Invertebrates
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: M_MAMMAL
Enumerated_Domain_Value_Definition: Marine Mammals
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: REPTILE
Enumerated_Domain_Value_Definition: Reptiles and Amphibians
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: T_MAMMAL
Enumerated_Domain_Value_Definition: Terrestrial Mammals
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: SPECIES_ID
Attribute_Definition:
Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.
Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 1
Range_Domain_Maximum: N

Attribute:
Attribute_Label: S
Attribute_Definition: State threatened or endangered status
Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: E
Enumerated_Domain_Value_Definition: Endangered on state list
Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: T
Enumerated_Domain_Value_Definition: Threatened on state list
Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: C
Enumerated_Domain_Value_Definition: Species of Special Concern
Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute:
Attribute_Label: F
Attribute_Definition: Federal threatened or endangered status
Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: E
Enumerated_Domain_Value_Definition: Endangered on federal list
Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service
### Attribute Domain Values:

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<tr>
<th>Enumerated_Domain</th>
<th>Enumerated_Domain_Value</th>
<th>Enumerated_Domain_Value_Definition</th>
<th>Enumerated_Domain_Value_Definition_Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service</td>
<td>T</td>
<td>Threatened on federal list</td>
<td>U.S. Fish and Wildlife Service</td>
</tr>
<tr>
<td>Enumerated_Domain</td>
<td>C</td>
<td>Species of Special Concern</td>
<td>U.S. Fish and Wildlife Service</td>
</tr>
<tr>
<td>Enumerated_Domain</td>
<td>YYYYMM</td>
<td>YYYY for year and optionally MM for month</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>EL_SPE</td>
<td>E#####</td>
<td>Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = 'B00001')</td>
<td>Research Planning, Inc.</td>
</tr>
</tbody>
</table>

### Attribute:

<table>
<thead>
<tr>
<th>Attribute_Label</th>
<th>Attribute_Definition</th>
<th>Attribute_Definition_Source</th>
<th>Attribute_Domain_Values:</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATE</td>
<td>Two-letter state abbreviation</td>
<td>Research Planning, Inc.</td>
<td>Unrepresentable_Domain:</td>
</tr>
<tr>
<td>S_DATE</td>
<td>Publication date of source material used to assign state status values for each species, if used.</td>
<td>Research Planning, Inc.</td>
<td>Enumerated_Domain:</td>
</tr>
<tr>
<td>F_DATE</td>
<td>Publication date of source material used to assign federal status values for each species, if used.</td>
<td>Research Planning, Inc.</td>
<td>Enumerated_Domain:</td>
</tr>
</tbody>
</table>
Distribution Information:
Distributor:
Contact Information:
Contact Person Primary:
Contact Person: John Kaperick
Contact Organization: NOAA, Office of Response and Restoration
Contact Address:
Address Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State or Province: Washington
Postal Code: 98115-6349
Contact Voice Telephone: (206) 526-6400
Contact Facsimile Telephone: (206) 526-6329

Resource Description: ESI Atlas for Columbia River

Distribution Liability:
Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement copy of the product when the product is determined unreadable by computer-input peripherals, or when the physical medium is delivered in damaged condition.

Custom Order Process:
Contact NOAA for distribution options (see Distributor). ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the distribution CDs for ease of use of the ESI data. The database files are distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats.

Metadata Reference Information:

Metadata Date: 200411
Metadata Review Date: 200411
Metadata Contact:
Contact Information:
Contact Person Primary:
Contact Person: Jill Petersen
Contact Organization: NOAA, Office of Response and Restoration
Contact Position: GIS Manager
Contact Address:
Address Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State or Province: Washington
Postal Code: 98115-6349
Contact Voice Telephone: (206) 526-6944
Contact Facsimile Telephone: (206) 526-6329
Contact Electronic Mail Address: Jill.Petersen@noaa.gov

Metadata Standard Name: Content Standards for Digital Geospatial Metadata

Generated by mp version 2.8.2 on Tue Dec 07 17:18:48 2004
Columbia River ESI: NESTS (Nest Points)

Metadata also available as - [Parseable text] - [SGML]

Metadata:
- Identification Information
- Data Quality Information
- Spatial Data Organization Information
- Spatial Reference Information
- Entity and Attribute Information
- Distribution Information
- Metadata Reference Information

Identification Information:
Citation:

Originator:
Publication Date: 200411
Title: Columbia River ESI: NESTS (Nest Points)
Edition: First
Geospatial Data Presentation Form: Vector digital data
Series Information:
Series Name: None
Issue Identification: Columbia River
Publication Information:
Publication Place: Seattle, Washington
Publisher:
Other Citation Details:

Description:
Abstract:
This data set contains sensitive biological resource data for bird nesting sites in the Columbia River area. Vector points in this data set represent locations of bird nesting sites. Species-specific abundance, seasonality, status, life history, and source information are stored in relational data tables (described below) designed to be used in conjunction with this spatial data layer.

This data set comprises a portion of the Environmental Sensitivity Index (ESI) data for Columbia River. ESI data characterize the marine and coastal environments and wildlife by their sensitivity to spilled oil. The ESI data include information for three main components: shoreline habitats, sensitive biological resources, and human-use resources. See also the BIRDS (Bird Polygons) data layer, part of the larger Columbia River ESI database, for additional bird information.
Purpose:
The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response. The Clean Water Act with amendments by the Oil Pollution Act of 1990 requires response plans for immediate and effective protection of sensitive resources.

Time_Period_of_Content:
Time_Period_Information:
  Range_of_Dates/Times:
    Beginning_Date: 1979
    Ending_Date: 2004

Currentness_Reference:
The biological data were compiled during 2003-2004. The currentness dates for these data range from 1979 to 2004 and are documented in the Lineage section.

Status:
Progress: Complete
Maintenance_and.Update_Frequency: None Scheduled

Spatial_Domain:
Bounding_Coordinates:
  West_Bounding_Coordinate: -124.125
  East_Bounding_Coordinate: -120.67375
  North_Bounding_Coordinate: 46.375
  South_Bounding_Coordinate: 45.3

Keywords:
Theme:
  Theme.Keyword_Thesaurus: None
  Theme.Keyword: ESI
  Theme.Keyword: Sensitivity maps
  Theme.Keyword: Coastal resources
  Theme.Keyword: Oil spill planning
  Theme.Keyword: Coastal Zone Management
  Theme.Keyword: Wildlife
  Theme.Keyword: Nest
  Theme.Keyword: Bird

Place:
  Place.Keyword_Thesaurus: None
  Place.Keyword: Columbia River

Access_Constraints: None
Use_Constraints:
  DO NOT USE MAPS FOR NAVIGATIONAL PURPOSES. Besides the above warning, there are no use constraints on these data. Note that the ESI database should not be used to the exclusion of other pertinent data or information held by state or federal agencies or other organizations. Likewise, information contained in the database cannot be used in place of consultations with environmental, natural resource, and cultural resource agencies, or in place of field surveys. Recognize that the information contained in the ESI database represents known concentration areas or occurrences of natural, cultural, and human-use resources, but does not necessarily represent the full distribution or range of each species or resource. This is particularly important to recognize when considering potential impacts to protected resources, such as endangered species, wetlands, etc. Acknowledgment of the originators, publishers, contributors, and sources listed would be appreciated in products derived from these data.

Browse_Graphic:
  Browse_Graphic_File_Name: datafig.jpg
  Browse_Graphic_File_Description:
    Depicts the relationships between spatial data layers and attribute data tables for the Columbia River ESI data.
  Browse_Graphic_File_Type: JPEG

Data_Set_Credit:
  This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; Coastal Storms Initiative; U.S. Fish and Wildlife Service; NOAA Fisheries; State of Oregon; and State of Washington.

Native_Data_Set_Environment:
The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 8.3) and SQL SERVER(r) (version 7.0). The hardware configuration is PC's with Windows Operating System (NT4.0/2000).

The Spatial_Data_Organization_Information section refers only to the source files in the ARC export format. The following files are included in that data set: birds.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mammal.e00, m_mampt.e00, mgt.e00, nests.e00, nwi.e00, reptiles.e00, socecon.e00, t_mammal.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biore, breed, breed_dt, runs_dat, seasonal, soc_dat, soc_lut, sources, species, and status.

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report:

A multi-stage error checking process is used to verify both attribute accuracy and logical consistency throughout data production. The process includes a standardized data entry methodology, hardcopy data review by in-house and external resource experts, a final Quality Assurance/Quality Control (QA/QC) process, and multiple automated logical consistency checks. Quantitative data (such as densities, counts, abundances, or concentrations) provided by resource experts for inclusion in the data set may vary widely in attribute accuracy, depending upon the methodology used to collect and compile such data. For a more detailed evaluation of source data attribute accuracy, contact the sources listed in the Lineage section.

Logical_Consistency_Report:

A multi-stage error checking process, described in the above Attribute_Accuracy_Report, is used to verify both attribute accuracy and logical consistency throughout data production. This process includes multiple automated logical consistency checks that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and SQL SERVER(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where the data are written to CD-ROM and the metadata are written.

After the data are delivered to NOAA, they are again subjected to a number of quality and consistency checks. In the process of checking for topological and database consistencies, new ID's and RARNUM's or HUNUM's are also generated. The new ID's are a combination of atlas number, element number, and record number. In addition, the value used to represent the element is modified to reflect the type of feature being mapped. In the case of an element that is normally represented by a point or polygon, a value of 20 is added to the standard element value for mapping of linear features. In the case where an element usually mapped as a polygon is represented by a point, a value of 30 is added to the regular element value. The RARNUM's are also modified to include the atlas number, so multiple atlases can be combined and RARNUM's remain unique. RARNUM's are redefined on an element basis, so "resource at risk" groupings will contain only a single element. HUNUM's are also modified to include the atlas number.

Completeness_Report:

These data represent a synthesis of expert knowledge and available hardcopy reports and digital data on bird nesting sites. Portions of this information were adapted from Washington Priority Habitat digital data. Contact Washington Department of Fish and Wildlife (WDFW) for additional information on this database. See also the BIRDS (Bird Polygons) data layer, part of the larger Columbia River ESI database, for additional bird information. These data do not necessarily represent all nest occurrences in the Columbia River area. The following species are included in this data set: (Species_ID, Common Name, Scientific Name, if applicable): 54, Great blue heron, Ardea herodias; 76, Bald eagle, Haliaeetus leucocephalus; 77, Osprey, Pandion haliaetus; 107, Peregrine falcon, Falco peregrinus.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

Most of the spatial components of the biological data sets are developed using regional experts who estimate concentration areas. It is difficult to estimate the positional accuracy of such data, except to state that they are compiled on hardcopy base maps with a scale of 1:24,000. Some of the spatial components of the
biological data sets are developed from pre-existing digital sources and reflect the positional accuracy of these original data. See the Lineage and Process_Description sections for more information on the original data source and how these data were integrated or manipulated to create the final data set. Note that biological resource data by their very nature are considered "fuzzy", and this should be understood when considering the positional accuracy of vector digital objects representing these resources.

**Lineage:**

**Source Information:**

**Source Citation:**

**Citation Information:**

- **Originator:** North, J., Oregon Department of Fish and Wildlife (ODFW)
- **Publication Date:** 200402
- **Title:** Fish, Bird, and Mammal Distributions along the Columbia River
- **Geospatial Data Presentation Form:** Expert knowledge

**Publication Information:**

- **Publication Place:** Unpublished material
- **Publisher:** Unpublished material

**Type of Source Media:** Personal communication

**Source Time_Period of Content:**

**Time_Period Information:**

- **Single_Date/Time:**
  - **Calendar Date:** 200402

**Source Currentness Reference:** Date of communication

**Source Citation Abbreviation:** None

**Source Contribution:** Distribution information for birds

**Source Information:**

**Source Citation:**

**Citation Information:**

- **Originator:** Van Der Naald, W., Oregon Department of Fish and Wildlife (ODFW)
- **Publication Date:** 200402
- **Title:** Distribution of Fish, Birds, and Mammals along the Columbia River
- **Geospatial Data Presentation Form:** Expert knowledge

**Publication Information:**

- **Publication Place:** Unpublished material
- **Publisher:** Unpublished material

**Type of Source Media:** Personal communication

**Source Time_Period of Content:**

**Time_Period Information:**

- **Single_Date/Time:**
  - **Calendar Date:** 200402

**Source Currentness Reference:** Date of communication

**Source Citation Abbreviation:** None

**Source Contribution:** Distribution information for birds

**Source Information:**

**Source Citation:**

**Citation Information:**

- **Originator:** Kohl, K., Oregon Department of Fish and Wildlife (ODFW)
- **Publication Date:** 200401
- **Title:** Bird and Mammal Distribution along the Columbia River
- **Geospatial Data Presentation Form:** Expert knowledge

**Publication Information:**

- **Publication Place:** Unpublished material
- **Publisher:** Unpublished material

**Type of Source Media:** Personal communication

**Source Time_Period of Content:**
Time_Period_Information:
  Single_Date/Time:
    Calendar_Date: 200401
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Distribution and seasonality information for birds
Source_Information:
  Source_Citation:
    Citation_Information:
      Originator:
        Meyer, B., National Oceanic and Atmospheric Administration (NOAA)
      Publication_Date: 200402
      Title:
        Fish, Bird, Mammal, and Plant Distributions in the Lower Columbia River
      Geospatial_Data_Presentation_Form: Expert Knowledge
      Publication_Information:
        Publication_Place: Unpublished material
        Publisher: Unpublished material
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:
  Time_Period_Information:
    Single_Date/Time:
      Calendar_Date: 200402
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Distribution and seasonality information for birds
Source_Information:
  Source_Citation:
    Citation_Information:
      Originator:
        U.S. Fish and Wildlife Service (USFWS)
      Publication_Date: 1981
      Title:
        Hoquiam Washington-Oregon, Pacific Coast Ecological Inventory
      Geospatial_Data_Presentation_Form: Hardcopy Map
      Publication_Information:
        Publication_Place: Washington, D.C.
        Publisher: U.S. Government Printing Office
Source_Scale_Denominator: 250,000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:
  Time_Period_Information:
    Single_Date/Time:
      Calendar_Date: 1981
Source_Currentness_Reference: Publication date
Source_Citation_Abbreviation: None
Source_Contribution: Distribution information for birds
Source_Information:
  Source_Citation:
    Citation_Information:
      Originator:
        Sutherland, B., Oregon Department of Environmental Quality (ODEQ)
      Publication_Date: 1979
      Title:
        Oil Spill Protection Plan for the Natural Resources of the Lower Columbia River
      Geospatial_Data_Presentation_Form: Hardcopy Map
      Publication_Information:
        Publication_Place: Unknown
Single_Date/Time: 2004
Source_Currentness_Reference: Publication Date
Source_Citation_Abbreviation: None
Source_Contribution: Distribution and seasonality information for birds

Process_Description:
Three main sources of data were used to depict bird distribution and seasonality for this data layer: (1) personal interviews with resource experts from Oregon Department of Fish and Wildlife (ODFW), Washington Department of Fish and Wildlife (WDFW), and U.S. Fish and Wildlife Service (USFWS); (2) numerous published and unpublished reports; and (3) information adapted from Washington Priority Habitat data. Contact WDFW for more information regarding the Washington Priority Habitat data. Information gathered during initial interviews and from hardcopy sources was compiled onto U.S. Geological Survey 1:24,000 topographic quadrangles.

The compiled data were digitized off of the base maps into an ArcInfo system to create the NESTS data layer. All ESI, biology, and human-use data were plotted onto hardcopy draft maps. Following the delivery of draft maps to the participating resource experts, a second set of interviews was conducted to review the maps. Edits to the NESTS data layer were made based on the recommendations of the resource experts, and final hardcopy maps were created.

Concentration information varied. For most species, numerical counts or numerical ranges of nesting pairs were used. Generally, these numbers represented the peak concentrations of birds present or potentially present. In cases where no concentration information was available, the field was populated with "-". Concentration and seasonality information was provided by resource experts, or was extracted from published sources, reports, and survey data.

Process_Date: 200408

Process_Contract:
Contact_Information:
Contact_Organization_Primary:
  Contact_Organization: NOAA, Office of Response and Restoration
  Contact_Person: Jill Petersen
Contact_Address:
  Address_Type: Physical address
  Address: 7600 Sand Point Way N.E.
  City: Seattle
  State_or_Province: Washington
  Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: Jill.Petersen@noaa.gov

Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
  SDTS_Terms_Description:
    SDTS_Point_and_Vector_Object_Type: Entity Point
    Point_and_Vector_Object_Count: 71

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Geographic:

- **Latitude Resolution:** 0.0000001
- **Longitude Resolution:** 0.0000001
- **Geographic Coordinate Units:** Decimal degrees

Geodetic Model:

- **Horizontal Datum Name:** North American Datum of 1927
- **Ellipsoid Name:** Clark 1866
- **Semi-major Axis:** 6378206.4
- **Denominator of Flattening Ratio:** 294.978698

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**Entity and Attribute Information:**

**Overview Description:**

In addition to the geographic data layers, six relational attribute or data tables, BIORES, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, are used to store the complex biological data in the ESI data structure. The geographic data layer containing biological resource information (in this case, NESTS) is linked to the Biological Resources table (BIORES) using the unique ID and the lookup table BIO_LUT, or it can be linked directly using RARNUM. The ID is a unique combination of the atlas number (for the Columbia River atlas, the number is 41), an element/layer specific number (BIRDS are layer 1, FISH are layer 2, etc.), and a unique record number. The RARNUM represents a unique combination of species, seasonalities, concentrations, and source information. For each of these groupings, a number is generated. That number is concatenated with the atlas number to create a "resource at risk" number that is unique across atlases. BIORES and the other relational data tables are described below in detail. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way these tables relate to the geographic data layers and other attribute tables in the ESI data structure.

Due to the complexity of the relational database model, the data items are also post-processed into a flat file format. This table, called BIOFILE, may be used in place of the relational files described below to ease simple data queries. The items in the flat file are ELEMENT, SUBELEMENT, NAME, GEN_SPEC, S, F, NHP, DATE_PUB, CONC, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC, BREED1, BREED2, BREED3, BREED4, BREED5, RARNUM, G_SOURCE, S_SOURCE, and BREED. All of these items are the same as their counterparts in the individual data tables described below, except the BREED1-BREED5 and BREED items. BREED is a newly generated variable used to link to the BREED_DT data table, a modified, more compact version of the relational BREED data table. BREED1-BREED5 give a text summary of when each life stage occurs within the associated map object. The life stages referred to are the same as those listed in the Detailed_Description of the BREED data table. The link to the BIOFILE may be made through the BIO_LUT, using ID to link to RARNUM, or BIOFILE may be linked directly to the RARNUM in each of the geographic layer's attribute data tables. As mentioned, BREED_DT is an auxiliary support data table to the flat file structure, which allows the user to do searches based on month for seasonal breeding activities. The link from the flat file to BREED_DT is the BREED item.

A second supporting data table is SOURCES. This is the same as the source file described above, and the link from the flat file is both G_SOURCE and S_SOURCE. It should be noted that although the flat file eases data query, it is not a normalized database structure, and actual updates performed by the states and other responsible agencies should be done using the relational data tables. The entity-relationship diagram, describing relationships between attribute tables in the ESI data structure, does NOT include the BIOFILE data table, and this data table is NOT described in detail below.

**Detailed Description:**

**Entity Type:**

- **Entity Type Label:** NESTS.PAT
- **Entity Type Definition:**

  The NESTS.PAT table contains attribute information for the vector points.
representing bird nesting sites. Note that all attribute information is stored in a series of relational files, described below. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the relationships between attribute tables in the ESI data structure.

**Entity_Type_Definition_Source:** Research Planning, Inc.

**Attribute:**

<table>
<thead>
<tr>
<th>Attribute_Label</th>
<th>Attribute_Definition</th>
<th>Attribute_Definition_Source</th>
<th>Attribute_Domain_Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>An identifier that links vector objects in the biology data layers to records in the BIO_LUT data table. ID is a concatenation of atlas number (41), element number (5), and record number.</td>
<td>NOAA</td>
<td>Range_Domain:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Range_Domain_Minimum: 410500001</td>
</tr>
</tbody>
</table>

**Attribute:**

<table>
<thead>
<tr>
<th>Attribute_Label</th>
<th>Attribute_Definition</th>
<th>Attribute_Definition_Source</th>
<th>Attribute_Domain_Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>RARNUM</td>
<td>An identifier that links directly to the BIORES table or the flat format BIOFILE table.</td>
<td>NOAA</td>
<td>Range_Domain:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Range_Domain_Minimum: 41000008</td>
</tr>
</tbody>
</table>

**Detailed_Description:**

**Entity_Type:**

<table>
<thead>
<tr>
<th>Entity_Type_Label</th>
<th>Entity_Type_Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO_LUT</td>
<td>The data table BIO_LUT is a lookup table that contains items necessary for linking vector objects in the biological data layers with the BIORES data table. Note that all attribute information is stored in a series of relational files, described below. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.</td>
</tr>
</tbody>
</table>
Entity_Type:
  Entity_Type_Label: BIORES
  Entity_Type_Definition:
The data table BIORES contains both biological attribute data and items necessary for linking vector objects in the biological data layers via the BIO_LUT data table to other associated data tables. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
  Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: RARNUM
  Attribute_Definition:
  An identifier that links records in the BIORES data table to records in the BIO_LUT data table or the flat format BIOFILE data table.
  Attribute_Definition_Source: NOAA
  Attribute_Domain_Values:
  Range_Domain:
  Range_Domain_Minimum: 041000001
  Range_Domain_Maximum: 041000290

Attribute:
  Attribute_Label: SPECIES_ID
  Attribute_Definition:
  Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
  Range_Domain:
  Range_Domain_Minimum: 1
  Range_Domain_Maximum: N

Attribute:
  Attribute_Label: CONC
  Attribute_Definition:
The field CONC refers to "concentration," abundance, or density values, and contains counts of nesting pairs at a particular site. For most species, numerical counts (X-PAIRS) or numerical ranges (X-XX-PAIRS) were used. Generally, these numbers represented the peak concentrations of birds present or potentially present. In cases where no concentration data were available, the field was populated with ".". Counts were derived from a variety of surveys, and may range in date.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
  Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
  Attribute_Label: SEASON_ID
  Attribute_Definition:
  Numeric identifier for the unique monthly presence and life history characteristics of each species at a given location.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
  Range_Domain:
  Range_Domain_Minimum: 1
  Range_Domain_Maximum: N

Attribute:
  Attribute_Label: G_SOURCE
  Attribute_Definition:
  Geographic source identifier that links records in the BIORES data table to records in the SOURCES data table.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
  Range_Domain:
  Range_Domain_Minimum: 1
Range_Domain_Maximum: N

Attribute:
Attribute_Label: S_SOURCE
Attribute_Definition:
   Seasonality source identifier that links records in the BIORES data table to records in the SOURCES data table.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
   Range_Domain:
      Range_Domain_Minimum: 1
      Range_Domain_Maximum: N

Attribute:
Attribute_Label: ELEMENT
Attribute_Definition:
   Major categories of biological data
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
   Enumerated_Domain:
      Enumerated_Domain_Value: BIRD
      Enumerated_Domain_Value_Definition: Birds
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
   Enumerated_Domain:
      Enumerated_Domain_Value: FISH
      Enumerated_Domain_Value_Definition: Fish
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
   Enumerated_Domain:
      Enumerated_Domain_Value: HABITAT
      Enumerated_Domain_Value_Definition: Habitats and Plants
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
   Enumerated_Domain:
      Enumerated_Domain_Value: INVERT
      Enumerated_Domain_Value_Definition: Invertebrates
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
   Enumerated_Domain:
      Enumerated_Domain_Value: M_MAMMAL
      Enumerated_Domain_Value_Definition: Marine Mammals
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
   Enumerated_Domain:
      Enumerated_Domain_Value: REPTILE
      Enumerated_Domain_Value_Definition: Reptiles and Amphibians
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
   Enumerated_Domain:
      Enumerated_Domain_Value: T_MAMMAL
      Enumerated_Domain_Value_Definition: Terrestrial Mammals
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: EL_SPE
Attribute_Definition:
   Concatenation of ELEMENT and SPECIES_ID. This item links records in the BIORES data table to records in the SPECIES and STATUS data tables.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
   Enumerated_Domain:
      Enumerated_Domain_Value: E#####
Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = 'B00001').

Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: EL_SPE_SEA
Attribute_Definition: Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the BIORES data table to records in the SEASONAL and BREED data tables.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: E########
  Enumerated_Domain_Value_Definition: Where E is the first character of ELEMENT, the next five characters are SPECIES_ID, and the last two characters are SEASON_ID (e.g. ELEMENT = 'BIRD', SPECIES_ID = 1 and SEASON_ID = 1; EL_SPE_SEA = 'B0000101').
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Detailed_Description:
Entity_Type:
Entity_Type_Label: SPECIES
Entity_Type_Definition: The data table SPECIES identifies all species in the ESI data set. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure. Refer to the Completeness_Report for a list of layer-specific species.
Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: SPECIES_ID
Attribute_Definition: Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Range_Domain:
    Range_Domain_Minimum: 1
    Range_Domain_Maximum: N

Attribute:
Attribute_Label: NAME
Attribute_Definition: Species common name for the entire ESI data set
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
Attribute_Label: GEN_SPEC
Attribute_Definition: Species scientific name for the entire ESI data set
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
Attribute_Label: ELEMENT
Attribute_Definition: Major categories of biological data
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain: BIRD
  Enumerated_Domain_Value: Birds
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: FISH
    Enumerated_Domain_Value_Definition: Fish
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: HABITAT
    Enumerated_Domain_Value_Definition: Habitats and Plants
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: INVERT
    Enumerated_Domain_Value_Definition: Invertebrates
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: M_MAMMAL
    Enumerated_Domain_Value_Definition: Marine Mammals
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: REPTILE
    Enumerated_Domain_Value_Definition: Reptiles and Amphibians
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: T_MAMMAL
    Enumerated_Domain_Value_Definition: Terrestrial Mammals
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: SUBELEMENT
  Attribute_Definition: Element subgroup delineating a logical grouping of species
  Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: bivalve
    Enumerated_Domain_Value_Definition: Bivalve
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: crab
    Enumerated_Domain_Value_Definition: Crab
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: diadromous
    Enumerated_Domain_Value_Definition: Diadromous fish
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: diving
    Enumerated_Domain_Value_Definition: Diving bird
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: e_nursery
    Enumerated_Domain_Value_Definition: Estuarine nursery fish
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Enumerated_Domain:
Enumerated_Domain_Value: fav
Enumerated_Domain_Value_Definition: Floating aquatic vegetation
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: freshwater
Enumerated_Domain_Value_Definition: Freshwater fish
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: gull_tern
Enumerated_Domain_Value_Definition: Gull or tern
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: passerine
Enumerated_Domain_Value_Definition: Passerine bird
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: pinniped
Enumerated_Domain_Value_Definition: Pinniped
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: raptor
Enumerated_Domain_Value_Definition: Raptor
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: sav
Enumerated_Domain_Value_Definition: Submerged aquatic vegetation
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: shorebird
Enumerated_Domain_Value_Definition: Shorebird
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: sm_mammal
Enumerated_Domain_Value_Definition: Small mammal
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: turtle
Enumerated_Domain_Value_Definition: Turtle
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: ungulate
Enumerated_Domain_Value_Definition: Ungulate
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: wading
Enumerated_Domain_Value_Definition: Wading bird
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: waterfowl
  Enumerated_Domain_Value_Definition: Waterfowl
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: NHP
  Attribute_Definition: Natural Heritage Program global ranking. When no information was provided on the global rank for a species, the field is blank.
  Attribute_Definition_Source: Network of Natural Heritage Program
  Attribute_Domain_Values:
    Codeset_Domain:
      Codeset_Name: NHP Global Conservation Status Rank
      Codeset_Source: Natural Heritage Program

Attribute:
  Attribute_Label: DATE_PUB
  Attribute_Definition: Date of NHP listing
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: YYYYMM
      Enumerated_Domain_Value_Definition: YYYY for year and optionally MM for month
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: EL_SPE
  Attribute_Definition: Concatenation of ELEMENT and SPECIES_ID. This item links records in the SPECIES data table to records in the BIORES and STATUS data tables.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: E#####
      Enumerated_Domain_Value_Definition: Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = 'B00001').
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Detailed_Description:
  Entity_Type:
    Entity_Type_Label: SEASONAL
    Entity_Type_Definition: The data table SEASONAL contains information on the seasonal presence of each species associated with each spatial vector object. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
    Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: ELEMENT
  Attribute_Definition: Major categories of biological data
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: BIRD
Enumerated_Domain_Value_Definition: Birds
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
    Enumerated_Domain_Value: FISH
    Enumerated_Domain_Value_Definition: Fish
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
    Enumerated_Domain_Value: HABITAT
    Enumerated_Domain_Value_Definition: Habitats and Plants
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
    Enumerated_Domain_Value: INVERT
    Enumerated_Domain_Value_Definition: Invertebrates
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
    Enumerated_Domain_Value: M_MAMMAL
    Enumerated_Domain_Value_Definition: Marine Mammals
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
    Enumerated_Domain_Value: REPTILE
    Enumerated_Domain_Value_Definition: Reptiles and Amphibians
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
    Enumerated_Domain_Value: T_MAMMAL
    Enumerated_Domain_Value_Definition: Terrestrial Mammals
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: SPECIES_ID
Attribute_Definition:
    Numeric identifier for each species that is unique within each element and refers to a nationwide ESI species list maintained at NOAA.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
    Range_Domain:
        Range_Domain_Minimum: 1
        Range_Domain_Maximum: N

Attribute:
Attribute_Label: SEASON_ID
Attribute_Definition:
    Numeric identifier for the unique monthly presence and life history characteristics of each species at a given location.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
    Range_Domain:
        Range_Domain_Minimum: 1
        Range_Domain_Maximum: N

Attribute:
Attribute_Label: JAN
Attribute_Definition: January
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
    Enumerated_Domain:
        Enumerated_Domain_Value: X
        Enumerated_Domain_Value_Definition: Present in January
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: FEB
Attribute_Definition: February
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: X
Enumerated_Domain_Value_Definition: Present in February
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: MAR
Attribute_Definition: March
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: X
Enumerated_Domain_Value_Definition: Present in March
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: APR
Attribute_Definition: April
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: X
Enumerated_Domain_Value_Definition: Present in April
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: MAY
Attribute_Definition: May
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: X
Enumerated_Domain_Value_Definition: Present in May
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: JUN
Attribute_Definition: June
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: X
Enumerated_Domain_Value_Definition: Present in June
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: JUL
Attribute_Definition: July
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: X
Enumerated_Domain_Value_Definition: Present in July
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: AUG
Attribute_Definition: August
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: X
  Enumerated_Domain_Value_Definition: Present in August
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: SEP
  Attribute_Definition: September
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: X
      Enumerated_Domain_Value_Definition: Present in September
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: OCT
  Attribute_Definition: October
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: X
      Enumerated_Domain_Value_Definition: Present in October
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: NOV
  Attribute_Definition: November
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: X
      Enumerated_Domain_Value_Definition: Present in November
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: DEC
  Attribute_Definition: December
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: X
      Enumerated_Domain_Value_Definition: Present in December
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: EL_SPE_SEA
  Attribute_Definition: Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the SEASONAL data table to records in the BIORES and BREED data tables.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: E####
      Enumerated_Domain_Value_Definition: Where E is the first character of ELEMENT, the next five characters are SPECIES_ID, and the last two characters are SEASON_ID (e.g. ELEMENT = 'BIRD', SPECIES_ID = 1 and SEASON_ID = 1; EL_SPE_SEA = 'B0000101').
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Detailed_Description:
  Entity_Type:
    Entity_Type_Label: BREED
    Entity_Type_Definition:
The data table BREED identifies the monthly presence of certain life-history stages or activities for each species at a given location.

Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: EL_SPE_SEA
Attribute_Definition:
Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the BREED data table to records in the BIORES and SEASONAL data tables.
Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: E########
Enumerated_Domain_Value_Definition:
Where E is the first character of ELEMENT, the next five characters are SPECIES_ID, and the last two characters are SEASON_ID (e.g., ELEMENT = 'BIRD', SPECIES_ID = 1 and SEASON_ID = 1; EL_SPE_SEA = 'B0000101').

Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: MONTH
Attribute_Definition:
Two-digit calendar month. Each life history stage or activity type for a particular species can have up to 12 records to account for each month of the year.
Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 1
Range_Domain_Maximum: 12

Attribute:
Attribute_Label: BREED1
Attribute_Definition:
Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED1 = nesting; if ELEMENT is "FISH" then BREED1 = spawning; if ELEMENT is "INVERT" then BREED1 = spawning; if ELEMENT is "REPTILE" then BREED1 = nesting; if ELEMENT is "M_MAMMAL" then BREED1 = mating. This attribute is not used for HABITAT or T_MAMMAL elements.
Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Y
Enumerated_Domain_Value_Definition: Life-history stage or activity present
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: N
Enumerated_Domain_Value_Definition: Life-history stage or activity not present
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: -
Enumerated_Domain_Value_Definition: Breed category not used or not appropriate for record(s) in question
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: BREED2
Attribute_Definition:
Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED2 = migrating; if ELEMENT is "FISH" then BREED2 = eggs; if ELEMENT is "INVERT" then BREED2 = eggs; if ELEMENT is "REPTILE" then BREED2 = hatching; if ELEMENT is "M_MAMMAL" then BREED2 = calving. This attribute is not used for HABITAT or T_MAMMAL elements.

**Attribute: BREED2**

**Attribute Definition:**

- **Enumerated Domain:**
  - **Enumerated Domain Value:** Y
  - **Enumerated Domain Value Definition:** Life-history stage or activity present
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

- **Enumerated Domain:**
  - **Enumerated Domain Value:** N
  - **Enumerated Domain Value Definition:** Life-history stage or activity not present
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

- **Enumerated Domain:**
  - **Enumerated Domain Value:** -
  - **Enumerated Domain Value Definition:** Breed category not used or not appropriate for record(s) in question
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

- **Enumerated Domain: Y**
  - **Enumerated Domain Value Definition:** Life-history stage or activity present
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

- **Enumerated Domain: N**
  - **Enumerated Domain Value Definition:** Life-history stage or activity not present
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

- **Enumerated Domain: -**
  - **Enumerated Domain Value Definition:** Breed category not used or not appropriate for record(s) in question
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Attribute:** BREED3

**Attribute Definition:**

Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED3 = molting; if ELEMENT is "FISH" then BREED3 = larvae; if ELEMENT is "INVERT" then BREED3 = larvae; if ELEMENT is "REPTILE" then BREED3 = internesting; if ELEMENT is "M_MAMMAL" then BREED3 = pupping. This attribute is not used for HABITAT or T_MAMMAL elements.

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

- **Enumerated Domain: Y**
  - **Enumerated Domain Value Definition:** Life-history stage or activity present
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

- **Enumerated Domain: N**
  - **Enumerated Domain Value Definition:** Life-history stage or activity not present
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

- **Enumerated Domain: -**
  - **Enumerated Domain Value Definition:** Breed category not used or not appropriate for record(s) in question
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Attribute:** BREED4

**Attribute Definition:**

Life history stage or activity type, where: if ELEMENT is "FISH" then BREED4 = juveniles; if ELEMENT is "INVERT" then BREED4 = juveniles; if ELEMENT is "REPTILE" then BREED4 = juveniles; if ELEMENT is "M_MAMMAL" then BREED4 = molting. This attribute is not used for BIRD, HABITAT, or T_MAMMAL elements.

**Attribute Definition Source:** Research Planning, Inc.
BREED5

Attribute_Definition: Life history stage or activity type, where: if ELEMENT is "FISH" then BREED5 = adults; if ELEMENT is "INVERT" then BREED5 = adults; if ELEMENT is "REPTILE" then BREED5 = adults. This attribute is not used for BIRD, M_MAMMAL, HABITAT, or T_MAMMAL elements.

Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Y
Enumerated_Domain_Value_Definition: Life-history stage or activity present
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain_Value: N
Enumerated_Domain_Value_Definition: Life-history stage or activity not present
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain_Value: -
Enumerated_Domain_Value_Definition: Breed category not used or not appropriate for record(s) in question
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Detailed_Description:

Entity_Type:

Entity_Type_Label: SOURCES
Entity_Type_Definition: The data table SOURCES contains the primary sources used to create the ESI data set. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:

Attribute_Label: SOURCE_ID
Attribute_Definition:
Source identifier that links records in the SOURCES data table to the items G_SOURCE and A_SOURCE in the SOC_DAT table, and to G_SOURCE and S_SOURCE in the BIORES table.

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

- Range Domain:
  - Range Domain Minimum: 1
  - Range Domain Maximum: N

**Attribute:**

- **Attribute Label:** ORIGINATOR
- **Attribute Definition:** Author or developer of source material or data set
- **Attribute Definition Source:** Research Planning, Inc.
- **Attribute Domain Values:**
  - Unrepresentable Domain: Acceptable values change from atlas to atlas

**Attribute:**

- **Attribute Label:** DATE_PUB
- **Attribute Definition:** Date of source material, publication, or date of personal communication with expert source
- **Attribute Definition Source:** Research Planning, Inc.
- **Attribute Domain Values:**
  - Enumerated Domain:
    - Enumerated Domain Value: YYYYMM
    - Enumerated Domain Value Definition: YYYY for year and optionally MM for month
    - Enumerated Domain Value Definition Source: Research Planning, Inc.

**Attribute:**

- **Attribute Label:** TITLE
- **Attribute Definition:** Title of source material or data
- **Attribute Definition Source:** Research Planning, Inc.
- **Attribute Domain Values:**
  - Unrepresentable Domain: Acceptable values change from atlas to atlas

**Attribute:**

- **Attribute Label:** DATA_FORMAT
- **Attribute Definition:** The format of the source material
- **Attribute Definition Source:** Research Planning, Inc.
- **Attribute Domain Values:**
  - Unrepresentable Domain: Acceptable values change from atlas to atlas

**Attribute:**

- **Attribute Label:** PUBLICATION
- **Attribute Definition:** Additional citation information
- **Attribute Definition Source:** Research Planning, Inc.
- **Attribute Domain Values:**
  - Unrepresentable Domain: Acceptable values change from atlas to atlas

**Attribute:**

- **Attribute Label:** SCALE
- **Attribute Definition:** Scale denominator of the source
- **Attribute Definition Source:** Research Planning, Inc.
- **Attribute Domain Values:**
  - Enumerated Domain:
    - Enumerated Domain Value: integer
    - Enumerated Domain Value Definition: Any integer
    - Enumerated Domain Value Definition Source: Research Planning, Inc.

**Attribute:**

- **Attribute Label:** TIME_PERIOD
- **Attribute Definition:** Date(s) of data collection that the source material is based upon.
- **Attribute Definition Source:** Research Planning, Inc.
- **Attribute Domain Values:**
  - Enumerated Domain:
Enumerated_Domain_Value: MM/DD/YY  
Enumerated_Domain_Value_Definition: Month/Day/Year  
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: MM/YYYY  
    Enumerated_Domain_Value_Definition: Month/Year  
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Detailed_Description:
Entity_Type:
  Entity_Type_Label: STATUS  
  Entity_Type_Definition: The data table STATUS identifies the species that are listed as threatened or endangered by a state or federal authority. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.  
  Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: ELEMENT  
  Attribute_Definition: Major categories of biological data  
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: BIRD  
      Enumerated_Domain_Value_Definition: Birds  
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: FISH  
      Enumerated_Domain_Value_Definition: Fish  
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: HABITAT  
      Enumerated_Domain_Value_Definition: Habitats and Plants  
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: INVERT  
      Enumerated_Domain_Value_Definition: Invertebrates  
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: M_MAMMAL  
      Enumerated_Domain_Value_Definition: Marine Mammals  
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: REPTILE  
      Enumerated_Domain_Value_Definition: Reptiles and Amphibians  
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: T_MAMMAL  
      Enumerated_Domain_Value_Definition: Terrestrial Mammals
<table>
<thead>
<tr>
<th>Attribute</th>
<th>Attribute Label</th>
<th>Attribute Definition</th>
<th>Attribute Definition Source</th>
<th>Attribute Domain Values</th>
<th>Enumerated Domain Values</th>
<th>Enumerated Domain Value Definition</th>
<th>Enumerated Domain Value Definition Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECIES_ID</td>
<td>SPECIES_ID</td>
<td>Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.</td>
<td>Research Planning, Inc.</td>
<td>Range Domain:</td>
<td>Range Domain Minimum: 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPECIES_ID</td>
<td>SPECIES_ID</td>
<td>Species of Special Concern</td>
<td>Research Planning, Inc.</td>
<td>Enumerated Domain:</td>
<td>Enumerated Domain Value: C</td>
<td>Species of Special Concern</td>
<td>U.S. Fish and Wildlife Service</td>
</tr>
<tr>
<td>STATE</td>
<td>STATE</td>
<td>Federal threatened or endangered status</td>
<td>Research Planning, Inc.</td>
<td>Enumerated Domain:</td>
<td>Enumerated Domain Value: T</td>
<td>Threatened on federal list</td>
<td>U.S. Fish and Wildlife Service</td>
</tr>
<tr>
<td>STATE</td>
<td>STATE</td>
<td>Species of Special Concern</td>
<td>Research Planning, Inc.</td>
<td>Enumerated Domain:</td>
<td>Enumerated Domain Value: C</td>
<td>Species of Special Concern</td>
<td>U.S. Fish and Wildlife Service</td>
</tr>
</tbody>
</table>
Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
Attribute_Label: S_DATE
Attribute_Definition:
Publication date of source material used to assign state status values for each species, if used.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: YYYYMM
Enumerated_Domain_Value_Definition: YYYY for year and optionally MM for month
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: F_DATE
Attribute_Definition:
Publication date of source material used to assign federal status values for each species, if used.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: YYYYMM
Enumerated_Domain_Value_Definition: YYYY for year and optionally MM for month
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: EL_SPE
Attribute_Definition:
Concatenation of ELEMENT and SPECIES_ID. This item links the STATUS data table to the BIORES and SPECIES data tables.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: E####
Enumerated_Domain_Value_Definition:
Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = 'B00001').
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Distribution_Information:
Distributor:
Contact_Information:
Contact_Person_Primary:
Contact_Person: John Kaperick
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Address:
Address_Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_orProvince: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6400
Contact_Facsimile_Telephone: (206) 526-6329
Resource_Description: ESI Atlas for Columbia River
Distribution_Liability:
Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the
utility of the data on any other system, nor shall the act of distribution constitute any such warranty.
NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement
copy of the product when the product is determined unreadable by computer-input peripherals, or
when the physical medium is delivered in damaged condition.

Custom_Order_Process:
Contact NOAA for distribution options (see Distributor). ESI data are processed into multiple
formats to make them useful to a wider community of GIS/mapping users. Distribution formats
include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project
and ESI_Viewer product are also included on the distribution CDs for ease of use of the ESI data.
The database files are distributed both in the NOAA standard relational database format (see NOAA
Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata
document includes information on both of these database formats.

Metadata_Reference_Information:
Metadata_Date: 200411
Metadata_Review_Date: 200411
Metadata_Contact:
Contact_Person_Primary:
  Contact_Person: Jill Petersen
  Contact_Organization: NOAA, Office of Response and Restoration
Contact_Position: GIS Manager
Contact_Address:
  Address_Type: Physical Address
  Address: 7600 Sand Point Way N.E.
  City: Seattle
  State_orProvince: Washington
  Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: Jill.Petersen@noaa.gov

Generated by mp version 2.8.2 on Tue Dec 07 17:30:17 2004
Columbia River ESI: FISH (Fish Polygons)

Metadata also available as - [Parseable text] - [SGML]

Metadata:

- Identification_Information
- Data_Quality_Information
- Spatial_Data_Organization_Information
- Spatial_Reference_Information
- Entity_and_Attribute_Information
- Distribution_Information
- Metadata_Reference_Information

Identification_Information:

Citation:

Originator:

Publication_Date: 200411
Title: Columbia River ESI: FISH (Fish Polygons)
Edition: First
Geospatial_Data_Presentation_Form: Vector digital data
Series_Information:
Series_Name: None
Issue_Identification: Columbia River

Publication_Information:
Publication_Place: Seattle, Washington
Publisher:

Other_Citation_Details:

Description:

Abstract:
This data set contains sensitive biological resource data for marine, estuarine, anadromous, and freshwater fish species in Columbia River. Vector polygons in this data set represent locations of fish distribution, concentration areas, spawning areas, and salmon spawning runs. Species specific abundance, seasonality, status, life history, and source information are stored in relational data tables (described below) designed to be used in conjunction with this spatial data layer.

This data set comprises a portion of the Environmental Sensitivity Index (ESI) data for Columbia River. ESI data characterize the marine and coastal environments and wildlife by their sensitivity to spilled oil. The ESI data include information for three main components: shoreline habitats, sensitive biological resources, and human-use resources. See also the FISHL (Fish Lines) data layer, part of the larger Columbia River ESI database, for additional
fish information.

**Purpose:**
The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response. The Clean Water Act with amendments by the Oil Pollution Act of 1990 requires response plans for immediate and effective protection of sensitive resources.

**Time_Period_of_Content:**

**Time_Period_Information:**

**Range_of_Dates/Times:**
- **Beginning_Date:** 1979
- **Ending_Date:** 2004

**Currentness_Reference:**
The biological data were compiled during 2003-2004. The currentness dates for these data range from 1979 to 2004 and are documented in the Lineage section.

**Status:**

**Progress:** Complete

**Maintenance_and_Update_Frequency:** None Scheduled

**Spatial_Domain:**

**Bounding_Coordinates:**
- **West_Bounding_Coordinate:** -124.125
- **East_Bounding_Coordinate:** -120.67375
- **North_Bounding_Coordinate:** 46.375
- **South_Bounding_Coordinate:** 45.3

**Keywords:**

**Theme:**
- **Theme_Keyword_Thesaurus:** None
- **Theme_Keyword:** ESI
- **Theme_Keyword:** Sensitivity maps
- **Theme_Keyword:** Coastal resources
- **Theme_Keyword:** Oil spill planning
- **Theme_Keyword:** Coastal Zone Management
- **Theme_Keyword:** Wildlife
- **Theme_Keyword:** Fish

**Place:**
- **Place_Keyword_Thesaurus:** None
- **Place_Keyword:** Columbia River

**Access_Constraints:** None

**Use_Constraints:**

DO NOT USE MAPS FOR NAVIGATIONAL PURPOSES. Besides the above warning, there are no use constraints on these data. Note that the ESI database should not be used to the exclusion of other pertinent data or information held by state or federal agencies or other organizations. Likewise, information contained in the database cannot be used in place of consultations with environmental, natural resource, and cultural resource agencies, or in place of field surveys. Recognize that the information contained in the ESI database represents known concentration areas or occurrences of natural, cultural, and human-use resources, but does not necessarily represent the full distribution or range of each species or resource. This is particularly important to recognize when considering potential impacts to protected resources, such as endangered species, wetlands, etc. Acknowledgment of the originators, publishers, contributors, and sources listed would be appreciated in products derived from these data.

**Browse_Graphic:**

**Browse_Graphic_File_Name:** datafig.jpg

**Browse_Graphic_File_Description:**
Depicts the relationships between spatial data layers and attribute data tables for the Columbia River ESI data.

**Browse_Graphic_File_Type:** JPEG

**Data_Set_Credit:**
This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; Coastal Storms Initiative; U.S. Fish and Wildlife Service; NOAA Fisheries; State of Oregon; and State of Washington.

**Native_Data_Set_Environment:**
The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 8.3) and SQL SERVER(r) (version 7.0). The hardware configuration is PC's with Windows Operating System (NT4.0/2000).

The Spatial_Data_Organization_Information section refers only to the source files in the ARC export format. The following files are included in that data set: birds.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mammal.e00, m_mampt.e00, mgt.e00, nests.e00, nwi.e00, reptiles.e00, socecon.e00, t_mammal.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biore, breeds, breed_dt, runs_dat, seasonal, soc_dat, soc_lut, sources, species, and status.

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report:

A multi-stage error checking process is used to verify both attribute accuracy and logical consistency throughout data production. The process includes a standardized data entry methodology, hardcopy data review by in-house and external resource experts, a final Quality Assurance/Quality Control (QA/QC) process, and multiple automated logical consistency checks. Quantitative data (such as densities, counts, abundances, or concentrations) provided by resource experts for inclusion in the data set may vary widely in attribute accuracy, depending upon the methodology used to collect and compile such data. For a more detailed evaluation of source data attribute accuracy, contact the sources listed in the Lineage section.

Logical_Consistency_Report:

A multi-stage error checking process, described in the above Attribute_Accuracy_Report, is used to verify both attribute accuracy and logical consistency throughout data production. This process includes multiple automated logical consistency checks that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and SQL SERVER(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where the data are written to CD-ROM and the metadata are written.

After the data are delivered to NOAA, they are again subjected to a number of quality and consistency checks. In the process of checking for topological and database consistencies, new ID's and RARNUM's or HUNUM's are also generated. The new ID's are a combination of atlas number, element number, and record number. In addition, the value used to represent the element is modified to reflect the type of feature being mapped. In the case of an element that is normally represented by a point or polygon, a value of 20 is added to the standard element value for mapping of linear features. In the case where an element usually mapped as a polygon is represented by a point, a value of 30 is added to the regular element value. The RARNUM's are also modified to include the atlas number, so multiple atlases can be combined and RARNUM's remain unique. RARNUM's are redefined on an element basis, so "resources at risk" groupings will contain only a single element. HUNUM's are also modified to include the atlas number.

Completeness_Report:

These data represent a synthesis of expert knowledge, digital data, and hardcopy maps. Salmon spawning runs were adapted by NOAA from Washington Department of Fish and Wildlife (WDFW) and Oregon Fish and Wildlife digital data. Contact these agencies or NOAA for more information concerning this database. See also the FISHL (Fish Lines) data layer, part of the larger Columbia River ESI database, for additional fish information. These data do not necessarily represent all fish occurrences in Columbia River. The following species are included in this data set: (Species_ID, Common Name, Scientific Name, if applicable): 12, Starry flounder, Platichthys stellatus; 43, White sturgeon, Acipenser transmontanus; 44, Green sturgeon, Acipenser medirostris; 45, Coastal Cutthroat trout, Oncorhynchus clarkii clarkia; 69, Coho salmon, Oncorhynchus kisutch; 71, Sockeye salmon, Oncorhynchus nerka; 72, Chum salmon, Oncorhynchus keta; 77, Eulachon, Thaleichthys pacificus; 83, Salmon; 87, American shad, Alosa sapidissima; 162, Common carp, Cyprinus carpio; 180, Smallmouth bass, Micropterus dolomieu; 188, Walleye, Stizostedion vitreum vitreum; 202, White crappie, Pomoxis annularis; 219, Pacific lamprey, Lampetra tridentate; 490, Chinook salmon (fall), Oncorhynchus tsawytscha (fall); 493, Chinook salmon (spring), Oncorhynchus tsawytscha (spring); 962, Rainbow trout (summer), Oncorhynchus mykiss (summer); 963, Rainbow trout (winter), Oncorhynchus mykiss (winter); 964, Bull trout, Salvelinus
confluentus; 965, Chinook salmon (summer), Oncorhynchus tshawytscha (summer).

**Positional Accuracy:**

**Horizontal_Positional_Accuracy:**

**Horizontal_Positional_Accuracy_Report:**

Most of the spatial components of the biological data sets are developed using regional experts who estimate concentration areas. It is difficult to estimate the positional accuracy of such data, except to state that they are compiled on hardcopy base maps with a scale of 1:24,000. Some of the spatial components of the biological data sets are developed from pre-existing digital sources and reflect the positional accuracy of these original data. See the Lineage and Process_Description sections for more information on the original data source and how these data were integrated or manipulated to create the final data set. Note that biological resource data by their very nature are considered "fuzzy", and this should be understood when considering the positional accuracy of vector digital objects representing these resources.

**Lineage:**

**Source Information:**

**Source Citation:**

**Citation Information:**

**Originator:** North, J., Oregon Department of Fish and Wildlife (ODFW)

**Publication_Date:** 200402

**Title:** Fish, Bird, and Mammal Distributions along the Columbia River

**Geospatial_Data_Presentation_Form:** Expert knowledge

**Publication Information:**

**Publication Place:** Unpublished material

**Publisher:** Unpublished material

**Type_of_Source_Media:** Personal communication

**Source_Time_Period_of_Content:**

**Time_Period_Information:**

**Calendar_Date:** 200402

**Source_Currentness_Reference:** Date of communication

**Source_Citation_Abbreviation:** None

**Source_Contribution:** Distribution and seasonality information for fish

**Source Information:**

**Source Citation:**

**Citation Information:**

**Originator:** Rien, T., Oregon Department of Fish and Wildlife (ODFW)

**Publication_Date:** 200402

**Title:** Distribution of Wildlife along the Columbia River

**Geospatial_Data_Presentation_Form:** Expert knowledge

**Publication Information:**

**Publication Place:** Unpublished material

**Publisher:** Unpublished material

**Type_of_Source_Media:** Personal communication

**Source_Time_Period_of_Content:**

**Time_Period_Information:**

**Calendar_Date:** 200402

**Source_Currentness_Reference:** Date of communication

**Source_Citation_Abbreviation:** None

**Source_Contribution:** Distribution and seasonality information for fish

**Source Information:**

**Source Citation:**

**Citation Information:**

**Originator:** Van Der Naald, W., Oregon Department of Fish and Wildlife (ODFW)

**Publication_Date:** 200402

**Title:**
Distribution of Fish, Birds, and Mammals along the Columbia River

Geospatial Data Presentation Form: Expert knowledge
Publication Information:
  Publication Place: Unpublished material
  Publisher: Unpublished material

Type of Source Media: Personal communication
Source Time Period of Content:
  Time Period Information:
    Single_Date/Time:
      Calendar_Date: 200402
Source Currentness Reference: Date of communication
Source Citation Abbreviation: None
Source Contribution: Distribution and seasonality information for fish

Source Information:
Source Citation:
  Citation Information:
    Originator: Pribyl, S., Oregon Department of Fish and Wildlife (ODFW)
    Publication Date: 200401
    Title: Fish Distribution in the Columbia River
    Geospatial Data Presentation Form: Expert knowledge
  Publication Information:
    Publication Place: Unpublished material
    Publisher: Unpublished material

Type of Source Media: Personal communication
Source Time Period of Content:
  Time Period Information:
    Single_Date/Time:
      Calendar_Date: 200401
Source Currentness Reference: Date of communication
Source Citation Abbreviation: None
Source Contribution: Distribution and seasonality information for fish

Source Information:
Source Citation:
  Citation Information:
    Originator: Meyer, B., National Oceanic and Atmospheric Administration (NOAA)
    Publication Date: 200402
    Title: Fish, Bird, Mammal, and Plant Distributions in the Lower Columbia River
    Geospatial Data Presentation Form: Expert Knowledge
  Publication Information:
    Publication Place: Unpublished material
    Publisher: Unpublished material

Type of Source Media: Personal communication
Source Time Period of Content:
  Time Period Information:
    Single_Date/Time:
      Calendar_Date: 200402
Source Currentness Reference: Date of communication
Source Citation Abbreviation: None
Source Contribution: Distribution and seasonality information for fish

Source Information:
Source Citation:
  Citation Information:
    Originator: U.S. Fish and Wildlife Service (USFWS)
    Publication Date: 1981
    Title: Hoquiam Washington-Oregon, Pacific Coast Ecological Inventory
Originator: Sutherland, B., Oregon Department of Environmental Quality (ODEQ)
Publication_Date: 1979
Title: Oil Spill Protection Plan for the Natural Resources of the Lower Columbia River

Originator: Anderson, E., U.S. Fish and Wildlife Service (USFWS)
Publication_Date: 200401
Title: Distribution of Wildlife on the Lower Columbia River

Originator: Clark, A., U.S. Fish and Wildlife Service (USFWS)
Publication_Date: 200402
Title:
Distribution of Fish, Birds, Plants, and Mammals in the Columbia River

**Geospatial_Data_Presentation_Form:** Expert Knowledge

**Publication Information:**
- **Publication Place:** Unpublished material
- **Publisher:** Unpublished material

**Type_of_Source_Media:** Personal communication

**Source Time Period of Content:**
- **Time_Period_Information:**
  - **Single_Date/Time:**
    - **Calendar_Date:** 200402

**Source Currentness Reference:** Publication date

**Source Contribution:** Distribution and seasonality information for fish

**Source Information:**

**Source Citation:**

**Citation Information:**

- **Originator:** Stone, S., National Oceanic and Atmospheric Administration (NOAA)
- **Publication Date:** 200402
- **Title:** Anadromous Fish Data for Washington and Oregon

**Geospatial_Data_Presentation_Form:** Expert knowledge

**Publication Information:**
- **Publication Place:** Unpublished material
- **Publisher:** Unpublished material

**Type_of_Source_Media:** Personal communication

**Source Time Period of Content:**
- **Time_Period_Information:**
  - **Single_Date/Time:**
    - **Calendar_Date:** 200402

**Source Currentness Reference:** Date of communication

**Source Citation Abbreviation:** None

**Source Contribution:** Anadromous fish distributions

**Source Information:**

**Source Citation:**

**Citation Information:**

- **Originator:** Nebeker, M., Oregon Department of Fish and Wildlife (ODFW)
- **Publication Date:** 200402
- **Title:** Distribution of Wildlife on Sauvie Island and Surrounding Areas

**Geospatial_Data_Presentation_Form:** Expert Knowledge

**Publication Information:**
- **Publication Place:** Unpublished material
- **Publisher:** Unpublished material

**Type_of_Source_Media:** Personal communication

**Source Time Period of Content:**
- **Time_Period_Information:**
  - **Single_Date/Time:**
    - **Calendar_Date:** 200402

**Source Currentness Reference:** Date of communication

**Source Citation Abbreviation:** None

**Source Contribution:** Distribution information of fish on Sauvie Island and surrounding areas

**Source Information:**

**Source Citation:**

**Citation Information:**

- **Originator:** Columbia River Estuary Data Development Program
- **Publication Date:** 1984
- **Title:**

Page: 7
The Columbia River Estuary Atlas of Physical and Biological Characteristics

**Geospatial Data Presentation Form:** Hardcopy atlas

**Publication Information:**
- **Publication Place:** Seattle, Washington
- **Publisher:** Northwest Cartography, Inc.

**Source Scale Denominator:** 250,000

**Type of Source Media:** Paper

**Source Time Period of Content:**
- **Single Date/Time:**
  - **Calendar Date:** 1984

**Source Currentness Reference:** Publication date

**Source Citation Abbreviation:** None

**Source Contribution:** Seasonality information for fish

**Source Information:**

**Source Citation:**
- **Originator:** Washington Department of Fish and Wildlife
- **Publication Date:** 2004
- **Title:** Salmon Information for the Lower Columbia River
- **Geospatial Data Presentation Form:** Hardcopy text
- **Publication Information:**
  - **Publication Place:** Olympia, Washington
  - **Publisher:** Washington Department of Fish and Wildlife

**Type of Source Media:** Online

**Source Time Period of Content:**
- **Single Date/Time:**
  - **Calendar Date:** 200402

**Source Currentness Reference:** Date of communication

**Source Citation Abbreviation:** None

**Source Contribution:** Seasonality information for Sockeye salmon

**Source Information:**

**Source Citation:**
- **Originator:** Guy, D., Lower Columbia Fish Recovery Board
- **Publication Date:** 2003
- **Title:** Recovery/Subbasin Plan Technical Document
- **Geospatial Data Presentation Form:** Hardcopy text
- **Publication Information:**
  - **Publication Place:** Unpublished material
  - **Publisher:** Unpublished material

**Type of Source Media:** CD-ROM

**Source Time Period of Content:**
- **Single Date/Time:**
  - **Calendar Date:** 2003

**Source Currentness Reference:** Publication date

**Source Citation Abbreviation:** None

**Source Contribution:** Seasonality information for fish

**Source Information:**

**Source Citation:**
- **Originator:** Monaco, M., et al., National Oceanic and Atmospheric Administration
- **Publication Date:** 1990
- **Title:** Distribution and Abundance of Fishes and Invertebrates in West
Process Step:

Three main sources of data were used to depict fish distribution and seasonality for this data layer: (1) personal interviews with resource experts from the Oregon Department of Fish and Wildlife (ODFW) and the U.S. Fish and Wildlife Service (USFWS); (2) the 2003 Draft Lower Columbia Fish Recovery Board Recovery/Subbasin Plan, Technical Foundation; and (3) NOAA synthesized digital ODFW and WDFW anadromous fish arc coverages. Note that these arcs were adapted from the original ODFW and WDFW data. Information gathered during initial interviews and from hardcopy sources was compiled onto U.S. Geological Survey 1:24,000 topographic quadrangles.

The compiled data were digitized off of the base maps into an ArcInfo system to create the FISH data layer. All ESI, biology, and human-use data were plotted onto hardcopy draft maps. Following the delivery of draft maps to the participating resource experts, a second set of interviews was conducted to review the maps. Edits to the FISH data layer were made based on the recommendations of the resource experts, and final hardcopy maps were created.

Process Date: 200408

Process Contact:

Contact Information:

Contact Organization Primary:

Contact Organization: NOAA, Office of Response and Restoration
Contact Person: Jill Petersen

Contact Address:

Address Type: Physical address
Address: 7600 Sand Point Way N.E.
City: Seattle
State or Province: Washington
Postal Code: 98115-6349

Contact Voice Telephone: (206) 526-6944
Contact Facsimile Telephone: (206) 526-6329
Contact Electronic Mail Address: Jill.Petersen@noaa.gov

Spatial Data Organization Information:

Direct Spatial Reference Method: Vector

Point and Vector Object Information:

SDTS Terms Description:

SDTS Point and Vector Object Type: GT-polygon composed of rings
Point and Vector Object Count: 788

SDTS Terms Description:

SDTS Point and Vector Object Type: Area point
Point and Vector Object Count: 788
In addition to the geographic data layers, six relational attribute or data tables, BIORES, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, are used to store the complex biological data in the ESI data structure. The geographic data layer containing biological resource information (in this case, FISH) is linked to the Biological Resources table (BIORES) using the unique ID and the lookup table BIO_LUT, or it can be linked directly using RARNUM. The ID is a unique combination of the atlas number (for the Columbia River atlas, the number is 41), an element/layer specific number (BIRDS are layer 1, FISH are layer 2, etc.), and a unique record number. The RARNUM represents a unique combination of species, seasonalities, concentrations, and source information. For each of these groupings, a number is generated. That number is concatenated with the atlas number to create a "resource at risk" number that is unique across atlases. BIORES and the other relational data tables are described below in detail. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way these tables relate to the geographic data layers and other attribute tables in the ESI data structure.

Due to the complexity of the relational database model, the data items are also post-processed into a flat file format. This table, called BIOFILE, may be used in place of the relational files described below to ease simple data queries. The items in the flat file are ELEMENT, SUBELEMENT, NAME, GEN_SPEC, S, F, NHP, DATE_PUB, CONC, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC, BREED1, BREED2, BREED3, BREED4, BREED5, RARNUM, G_SOURCE, S_SOURCE, and BREED. All of these items are the same as their counterparts in the individual data tables described below, except the BREED1-BREED5 and BREED items. BREED is a newly generated variable used to link to the BREED_DT data table, a modified, more compact version of the relational BREED data table. BREED1-BREED5 give a text summary of when each life stage occurs within the associated map object. The life stages referred to are the same as those listed in the Detailed_Description of the BREED data table. The link to the BIOFILE may be made through the BIO_LUT, using ID to link to RARNUM, or BIOFILE may be linked directly to the RARNUM in each of the geographic layer's attribute data tables. As mentioned, BREED_DT is an auxiliary support data table to the flat file structure, which allows the user to do searches based on month for seasonal breeding activities. The link from the flat file to
BREED_DT is the BREED item.

A second supporting data table is SOURCES. This is the same as the source file described above, and the link from the flat file is both G_SOURCE and S_SOURCE. It should be noted that although the flat file eases data query, it is not a normalized database structure, and actual updates performed by the states and other responsible agencies should be done using the relational data tables. The entity-relationship diagram, describing relationships between attribute tables in the ESI data structure, does NOT include the BIOFILE data table, and this data table is NOT described in detail below.

Detailed_Description:
Entity_Type:
  Entity_Type_Label: FISH.PAT
  Entity_Type_Definition:
  The FISH.PAT table contains attribute information for the vector polygons representing fish distribution, concentration areas, spawning areas, and salmon spawning runs. Note that all attribute information is stored in a series of relational files, described below. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the relationships between attribute tables in the ESI data structure.
  Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: ID
  Attribute_Definition:
  An identifier that links vector objects in the biology data layers to records in the BIO_LUT data table. ID is a concatenation of atlas number (41), element number (2), and record number. ID values of 9999 are holes in polygons and do not contain information.
  Attribute_Definition_Source: NOAA
  Attribute_Domain_Values:
  Range_Domain:
    Range_Domain_Minimum: 410200002
    Range_Domain_Maximum: 410200784

Attribute:
  Attribute_Label: RARNUM
  Attribute_Definition:
  An identifier that links directly to the BIORES table or the flat format BIOFILE table. RARNUM values of 0 are holes in polygons and do not contain information.
  Attribute_Definition_Source: NOAA
  Attribute_Domain_Values:
  Range_Domain:
    Range_Domain_Minimum: 41000132
    Range_Domain_Maximum: 41000245

Detailed_Description:
Entity_Type:
  Entity_Type_Label: BIO_LUT
  Entity_Type_Definition:
  The data table BIO_LUT is a lookup table that contains items necessary for linking vector objects in the biological data layers with the BIORES data table. Note that all attribute information is stored in a series of relational files, described below. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
  Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: RARNUM
  Attribute_Definition:
  An identifier that links records in the BIO_LUT data table to records in the BIORES data table or the flat format BIOFILE data table. RARNUM values of 0 are holes in polygons and do not contain information.
  Attribute_Definition_Source: NOAA
  Attribute_Domain_Values:
Range_Domain:
  Range_Domain_Minimum: 41000001
  Range_Domain_Maximum: 41000290

Attribute:
  Attribute_Label: ID
  Attribute_Definition:
  An identifier that links vector objects in the biology data layers to records in the
  BIO_LUT data table. ID is a concatenation of atlas number (41), element number
  (2), and record number. ID values of 9999 are holes in polygons and do not contain
  information.
  Attribute_Definition_Source: NOAA
  Attribute_Domain_Values:
  Range_Domain:
    Range_Domain_Minimum: 410100002
    Range_Domain_Maximum: 413400015

Detailed_Description:
Entity_Type:
  Entity_Type_Label: BIORES
  Entity_Type_Definition:
  The data table BIORES contains both biological attribute data and items necessary
  for linking vector objects in the biological data layers via the BIO_LUT data table to
  other associated data tables. See the Browse_Graphic section for a link to the
  entity-relationship diagram, which describes the way this table relates to other
  attribute tables in the ESI data structure.
  Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: RARNUM
  Attribute_Definition:
  An identifier that links records in the BIORES data table to records in the BIO_LUT
  data table or the flat format BIOFILE data table.
  Attribute_Definition_Source: NOAA
  Attribute_Domain_Values:
  Range_Domain:
    Range_Domain_Minimum: 041000001
    Range_Domain_Maximum: 041000290

Attribute:
  Attribute_Label: SPECIES_ID
  Attribute_Definition:
  Numeric identifier for each species that is unique within each element and refers to a
  nationwide master ESI species list maintained at NOAA.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
  Range_Domain:
    Range_Domain_Minimum: 1
    Range_Domain_Maximum: N

Attribute:
  Attribute_Label: CONC
  Attribute_Definition:
  The field CONC refers to "concentration," abundance, or density values of a species
  at a particular location. No quantitative concentration data were available for fish, so
  the CONC field may contain a descriptive term, such as "HIGH", or may be
  populated with "-", to indicate that no concentration information was available.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
  Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
  Attribute_Label: SEASON_ID
  Attribute_Definition:
  Numeric identifier for the unique monthly presence and life history characteristics of
  each species at a given location.
**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

- **Range Domain:**
  - Range Domain Minimum: 1
  - Range Domain Maximum: N

---

**Attribute:**

**Attribute Label:** G_SOURCE

**Attribute Definition:** Geographic source identifier that links records in the BIORES data table to records in the SOURCES data table.

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

- **Range Domain:**
  - Range Domain Minimum: 1
  - Range Domain Maximum: N

---

**Attribute:**

**Attribute Label:** S_SOURCE

**Attribute Definition:** Seasonality source identifier that links records in the BIORES data table to records in the SOURCES data table.

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

- **Range Domain:**
  - Range Domain Minimum: 1
  - Range Domain Maximum: N

---

**Attribute:**

**Attribute Label:** ELEMENT

**Attribute Definition:** Major categories of biological data

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

- **Enumerated Domain:**
  - Enumerated Domain Value: BIRD
    - Enumerated Domain Value Definition: Birds
    - Enumerated Domain Value Definition Source: Research Planning, Inc.

- **Enumerated Domain:**
  - Enumerated Domain Value: FISH
    - Enumerated Domain Value Definition: Fish
    - Enumerated Domain Value Definition Source: Research Planning, Inc.

- **Enumerated Domain:**
  - Enumerated Domain Value: HABITAT
    - Enumerated Domain Value Definition: Habitats and Plants
    - Enumerated Domain Value Definition Source: Research Planning, Inc.

- **Enumerated Domain:**
  - Enumerated Domain Value: INVERT
    - Enumerated Domain Value Definition: Invertebrates
    - Enumerated Domain Value Definition Source: Research Planning, Inc.

- **Enumerated Domain:**
  - Enumerated Domain Value: M_MAMMAL
    - Enumerated Domain Value Definition: Marine Mammals
    - Enumerated Domain Value Definition Source: Research Planning, Inc.

- **Enumerated Domain:**
  - Enumerated Domain Value: REPTILE
    - Enumerated Domain Value Definition: Reptiles and Amphibians
    - Enumerated Domain Value Definition Source: Research Planning, Inc.

---
Enumerated_Domain:

Enumerated_Domain_Value: T_MAMMAL
Enumerated_Domain_Value_Definition: Terrestrial Mammals
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:

Attribute_Label: EL_SPE
Attribute_Definition:
Concatenation of ELEMENT and SPECIES_ID. This item links records in the BIORES data table to records in the SPECIES and STATUS data tables.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: E####
Enumerated_Domain_Value_Definition:
Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = 'B00001').
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:

Attribute_Label: EL_SPE_SEA
Attribute_Definition:
Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the BIORES data table to records in the SEASONAL and BREED data tables.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: E####
Enumerated_Domain_Value_Definition:
Where E is the first character of ELEMENT, the next five characters are SPECIES_ID, and the last two characters are SEASON_ID (e.g. ELEMENT = 'BIRD', SPECIES_ID = 1 and SEASON_ID = 1; EL_SPE_SEA = 'B0000101').
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Detailed_Description:

Entity_Type:

Entity_Type_Label: SPECIES
Entity_Type_Definition:
The data table SPECIES identifies all species in the ESI data set. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
Refer to the Completeness_Report for a list of layer-specific species.
Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:

Attribute_Label: SPECIES_ID
Attribute_Definition:
Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 1
Range_Domain_Maximum: N

Attribute:

Attribute_Label: NAME
Attribute_Definition: Species common name for the entire ESI data set
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Unrepresentable_Domain: Acceptable values change from atlas to atlas
Attribute_Label: GEN_SPEC
Attribute_Definition: Species scientific name for the entire ESI data set
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
Attribute_Label: ELEMENT
Attribute_Definition: Major categories of biological data
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: BIRD
    Enumerated_Domain_Value_Definition: Birds
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Enumerated_Domain:
    Enumerated_Domain_Value: FISH
    Enumerated_Domain_Value_Definition: Fish
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Enumerated_Domain:
    Enumerated_Domain_Value: HABITAT
    Enumerated_Domain_Value_Definition: Habitats and Plants
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Enumerated_Domain:
    Enumerated_Domain_Value: INVERT
    Enumerated_Domain_Value_Definition: Invertebrates
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Enumerated_Domain:
    Enumerated_Domain_Value: M_MAMMAL
    Enumerated_Domain_Value_Definition: Marine Mammals
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Enumerated_Domain:
    Enumerated_Domain_Value: REPTILE
    Enumerated_Domain_Value_Definition: Reptiles and Amphibians
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Enumerated_Domain:
    Enumerated_Domain_Value: T_MAMMAL
    Enumerated_Domain_Value_Definition: Terrestrial Mammals
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: SUBELEMENT
Attribute_Definition: Element subgroup delineating a logical grouping of species
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: bivalve
    Enumerated_Domain_Value_Definition: Bivalve
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Enumerated_Domain:
    Enumerated_Domain_Value: crab
    Enumerated_Domain_Value_Definition: Crab
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
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<tr>
<th>Attribute_Domain_Values:</th>
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<tr>
<td><strong>Enumerated_Domain_Value</strong>: diadromous</td>
<td><strong>Enumerated_Domain_Value</strong>: diving</td>
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<tr>
<td><strong>Enumerated_Domain_Value_Definition</strong>: Diadromous fish</td>
<td><strong>Enumerated_Domain_Value_Definition</strong>: Diving bird</td>
</tr>
<tr>
<td><strong>Enumerated_Domain_Value_Definition_Source</strong>: Research Planning, Inc.</td>
<td><strong>Enumerated_Domain_Value_Definition_Source</strong>: Research Planning, Inc.</td>
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<tr>
<th>Attribute_Domain_Values:</th>
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<tbody>
<tr>
<td><strong>Enumerated_Domain_Value</strong>: e_nursery</td>
<td><strong>Enumerated_Domain_Value</strong>: fav</td>
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<tr>
<td><strong>Enumerated_Domain_Value_Definition</strong>: Estuarine nursery fish</td>
<td><strong>Enumerated_Domain_Value_Definition</strong>: Floating aquatic vegetation</td>
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<tr>
<td><strong>Enumerated_Domain_Value_Definition_Source</strong>: Research Planning, Inc.</td>
<td><strong>Enumerated_Domain_Value_Definition_Source</strong>: Research Planning, Inc.</td>
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<tr>
<th>Attribute_Domain_Values:</th>
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<tbody>
<tr>
<td><strong>Enumerated_Domain_Value</strong>: freshwater</td>
<td><strong>Enumerated_Domain_Value</strong>: gull_tern</td>
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<td><strong>Enumerated_Domain_Value_Definition</strong>: Freshwater fish</td>
<td><strong>Enumerated_Domain_Value_Definition</strong>: Gull or tern</td>
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<tr>
<td><strong>Enumerated_Domain_Value_Definition_Source</strong>: Research Planning, Inc.</td>
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<tr>
<th>Attribute_Domain_Values:</th>
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<tbody>
<tr>
<td><strong>Enumerated_Domain_Value</strong>: passerine</td>
<td><strong>Enumerated_Domain_Value</strong>: pinniped</td>
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<tr>
<td><strong>Enumerated_Domain_Value_Definition</strong>: Passerine bird</td>
<td><strong>Enumerated_Domain_Value_Definition</strong>: Pinniped</td>
</tr>
<tr>
<td><strong>Enumerated_Domain_Value_Definition_Source</strong>: Research Planning, Inc.</td>
<td><strong>Enumerated_Domain_Value_Definition_Source</strong>: Research Planning, Inc.</td>
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<tr>
<th>Attribute_Domain_Values:</th>
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<tr>
<td><strong>Enumerated_Domain_Value</strong>: raptor</td>
<td><strong>Enumerated_Domain_Value</strong>: sav</td>
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<tr>
<td><strong>Enumerated_Domain_Value_Definition</strong>: Raptor</td>
<td><strong>Enumerated_Domain_Value_Definition</strong>: Submerged aquatic vegetation</td>
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<tr>
<td><strong>Enumerated_Domain_Value_Definition_Source</strong>: Research Planning, Inc.</td>
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<th>Attribute_Domain_Values:</th>
<th>Enumerated_Domain:</th>
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</thead>
<tbody>
<tr>
<td><strong>Enumerated_Domain_Value</strong>: shorebird</td>
<td><strong>Enumerated_Domain_Value</strong>: sm_mammal</td>
</tr>
<tr>
<td><strong>Enumerated_Domain_Value_Definition</strong>: Shorebird</td>
<td><strong>Enumerated_Domain_Value_Definition</strong>: Small mammal</td>
</tr>
<tr>
<td><strong>Enumerated_Domain_Value_Definition_Source</strong>: Research Planning, Inc.</td>
<td><strong>Enumerated_Domain_Value_Definition_Source</strong>: Research Planning, Inc.</td>
</tr>
</tbody>
</table>

| Attribute_Domain_Values: | Enumerated_Domain: |
Enumerated_Domain_Value: turtle
Enumerated_Domain_Value_Definition: Turtle
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
    Enumerated_Domain:
       Enumerated_Domain_Value: ungulate
       Enumerated_Domain_Value_Definition: Ungulate
       Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
    Enumerated_Domain:
       Enumerated_Domain_Value: wading
       Enumerated_Domain_Value_Definition: Wading bird
       Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
    Enumerated_Domain:
       Enumerated_Domain_Value: waterfowl
       Enumerated_Domain_Value_Definition: Waterfowl
       Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
    Attribute_Label: NHP
    Attribute_Definition: Natural Heritage Program global ranking. When no information was provided on the global rank for a species, the field is blank.
    Attribute_Definition_Source: Network of Natural Heritage Program
    Attribute_Domain_Values:
       Codeset_Domain:
           Codeset_Name: NHP Global Conservation Status Rank
           Codeset_Source: Natural Heritage Program

Attribute:
    Attribute_Label: DATE_PUB
    Attribute_Definition: Date of NHP listing
    Attribute_Definition_Source: Research Planning, Inc.
    Attribute_Domain_Values:
       Enumerated_Domain:
           Enumerated_Domain_Value: YYYYMM
           Enumerated_Domain_Value_Definition: YYYY for year and optionally MM for month
           Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
    Enumerated_Domain:
       Enumerated_Domain_Value: 0
       Enumerated_Domain_Value_Definition: No information was provided on the global rank for the species
       Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
    Attribute_Label: EL_SPE
    Attribute_Definition: Concatenation of ELEMENT and SPECIES_ID. This item links records in the SPECIES data table to records in the BIORES and STATUS data tables.
    Attribute_Definition_Source: Research Planning, Inc.
    Attribute_Domain_Values:
       Enumerated_Domain:
           Enumerated_Domain_Value: E#####
           Enumerated_Domain_Value_Definition: Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = 'B00001').
           Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Detailed_Description:
Entity_Type:
Entity_Type_Label: SEASONAL
Entity_Type_Definition:
The data table SEASONAL contains information on the seasonal presence of each species associated with each spatial vector object. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: ELEMENT
Attribute_Definition: Major categories of biological data
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: BIRD
    Enumerated_Domain_Value_Definition: Birds
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain_Value: FISH
    Enumerated_Domain_Value_Definition: Fish
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain_Value: HABITAT
    Enumerated_Domain_Value_Definition: Habitats and Plants
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain_Value: INVERT
    Enumerated_Domain_Value_Definition: Invertebrates
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain_Value: M_MAMMAL
    Enumerated_Domain_Value_Definition: Marine Mammals
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain_Value: REPTILE
    Enumerated_Domain_Value_Definition: Reptiles and Amphibians
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain_Value: T_MAMMAL
    Enumerated_Domain_Value_Definition: Terrestrial Mammals
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: SPECIES_ID
Attribute_Definition: Numeric identifier for each species that is unique within each element and refers to a nationwide ESI species list maintained at NOAA.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Range_Domain:
    Range_Domain_Minimum: 1
    Range_Domain_Maximum: N

Attribute:
Attribute_Label: SEASON_ID
Attribute_Definition: Numeric identifier for the unique monthly presence and life history characteristics of
each species at a given location.

**Attribute Definition Source**: Research Planning, Inc.

**Attribute Domain Values**:

**Range Domain**:
- **Range Domain Minimum**: 1
- **Range Domain Maximum**: N

**Attribute**:
- **Attribute Label**: JAN
- **Attribute Definition**: January
- **Attribute Definition Source**: Research Planning, Inc.
- **Attribute Domain Values**:
  - **Enumerated Domain**:
    - **Enumerated Domain Value**: X
    - **Enumerated Domain Value Definition**: Present in January
    - **Enumerated Domain Value Definition Source**: Research Planning, Inc.

**Attribute**:
- **Attribute Label**: FEB
- **Attribute Definition**: February
- **Attribute Definition Source**: Research Planning, Inc.
- **Attribute Domain Values**:
  - **Enumerated Domain**:
    - **Enumerated Domain Value**: X
    - **Enumerated Domain Value Definition**: Present in February
    - **Enumerated Domain Value Definition Source**: Research Planning, Inc.

**Attribute**:
- **Attribute Label**: MAR
- **Attribute Definition**: March
- **Attribute Definition Source**: Research Planning, Inc.
- **Attribute Domain Values**:
  - **Enumerated Domain**:
    - **Enumerated Domain Value**: X
    - **Enumerated Domain Value Definition**: Present in March
    - **Enumerated Domain Value Definition Source**: Research Planning, Inc.

**Attribute**:
- **Attribute Label**: APR
- **Attribute Definition**: April
- **Attribute Definition Source**: Research Planning, Inc.
- **Attribute Domain Values**:
  - **Enumerated Domain**:
    - **Enumerated Domain Value**: X
    - **Enumerated Domain Value Definition**: Present in April
    - **Enumerated Domain Value Definition Source**: Research Planning, Inc.

**Attribute**:
- **Attribute Label**: MAY
- **Attribute Definition**: May
- **Attribute Definition Source**: Research Planning, Inc.
- **Attribute Domain Values**:
  - **Enumerated Domain**:
    - **Enumerated Domain Value**: X
    - **Enumerated Domain Value Definition**: Present in May
    - **Enumerated Domain Value Definition Source**: Research Planning, Inc.

**Attribute**:
- **Attribute Label**: JUN
- **Attribute Definition**: June
- **Attribute Definition Source**: Research Planning, Inc.
- **Attribute Domain Values**:
  - **Enumerated Domain**:
    - **Enumerated Domain Value**: X
    - **Enumerated Domain Value Definition**: Present in June
    - **Enumerated Domain Value Definition Source**: Research Planning, Inc.
Attribute:
  Attribute_Label: JUL
  Attribute_Definition: July
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: X
      Enumerated_Domain_Value_Definition: Present in July
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: AUG
  Attribute_Definition: August
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: X
      Enumerated_Domain_Value_Definition: Present in August
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: SEP
  Attribute_Definition: September
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: X
      Enumerated_Domain_Value_Definition: Present in September
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: OCT
  Attribute_Definition: October
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: X
      Enumerated_Domain_Value_Definition: Present in October
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: NOV
  Attribute_Definition: November
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: X
      Enumerated_Domain_Value_Definition: Present in November
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: DEC
  Attribute_Definition: December
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: X
      Enumerated_Domain_Value_Definition: Present in December
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: EL_SPE_SEA
  Attribute_Definition:
    Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the SEASONAL data table to records in the BIORES and BREED data tables.
Attribute **Definition Source**: Research Planning, Inc.

**Attribute Domain Values:**

**Enumerated Domain:**

- **Enumerated Domain Value**: E####

**Enumerated Domain Value Definition:**

Where E is the first character of ELEMENT, the next five characters are SPECIES_ID, and the last two characters are SEASON_ID (e.g., ELEMENT = 'BIRD', SPECIES_ID = 1 and SEASON_ID = 1; EL_SPE_SEA = 'B0000101').

**Enumerated Domain Value Definition Source**: Research Planning, Inc.

**Detailed Description:**

**Entity Type:**

- **Entity Type Label**: BREED

**Entity Type Definition:**

The data table BREED identifies the monthly presence of certain life-history stages or activities for each species at a given location.

**Entity Type Definition Source**: Research Planning, Inc.

**Attribute:**

- **Attribute Label**: EL_SPE_SEA

**Attribute Definition:**

Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the BREED data table to records in the BIORES and SEASONAL data tables.

**Attribute Definition Source**: Research Planning, Inc.

**Attribute Domain Values:**

**Enumerated Domain:**

- **Enumerated Domain Value**: E####

**Enumerated Domain Value Definition:**

Where E is the first character of ELEMENT, the next five characters are SPECIES_ID, and the last two characters are SEASON_ID (e.g., ELEMENT = 'BIRD', SPECIES_ID = 1 and SEASON_ID = 1; EL_SPE_SEA = 'B0000101').

**Enumerated Domain Value Definition Source**: Research Planning, Inc.

**Attribute:**

- **Attribute Label**: MONTH

**Attribute Definition:**

Two-digit calendar month. Each life history stage or activity type for a particular species can have up to 12 records to account for each month of the year.

**Attribute Definition Source**: Research Planning, Inc.

**Attribute Domain Values:**

**Range Domain:**

- **Range Domain Minimum**: 1
- **Range Domain Maximum**: 12

**Attribute:**

- **Attribute Label**: BREED1

**Attribute Definition:**

Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED1 = nesting; if ELEMENT is "FISH" then BREED1 = spawning; if ELEMENT is "INVERT" then BREED1 = spawning; if ELEMENT is "REPTILE" then BREED1 = nesting; if ELEMENT is "M_MAMMAL" then BREED1 = mating. This attribute is not used for HABITAT or T_MAMMAL elements.

**Attribute Definition Source**: Research Planning, Inc.

**Attribute Domain Values:**

**Enumerated Domain:**

- **Enumerated Domain Value**: Y

**Enumerated Domain Value Definition**: Life-history stage or activity present

**Enumerated Domain Value Definition Source**: Research Planning, Inc.
**Enumerated Domain Value:** N  
**Enumerated Domain Value Definition:** Life-history stage or activity not present  
**Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

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<tr>
<th>Enumerated Domain</th>
<th>Enumerated Domain Value</th>
<th>Enumerated Domain Value Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breed category not used or not appropriate for record(s) in question</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Attribute:**

**Attribute Label:** BREED2  
**Attribute Definition:** Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED2 = migrating; if ELEMENT is "FISH" then BREED2 = eggs; if ELEMENT is "INVERT" then BREED2 = eggs; if ELEMENT is "REPTILE" then BREED2 = hatching; if ELEMENT is "M_MAMMAL" then BREED2 = calving. This attribute is not used for HABITAT or T_MAMMAL elements.  
**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

<table>
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<tr>
<th>Enumerated Domain</th>
<th>Enumerated Domain Value</th>
<th>Enumerated Domain Value Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breed category not used or not appropriate for record(s) in question</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Attribute:**

**Attribute Label:** BREED3  
**Attribute Definition:** Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED3 = molting; if ELEMENT is "FISH" then BREED3 = larvae; if ELEMENT is "INVERT" then BREED3 = larvae; if ELEMENT is "REPTILE" then BREED3 = internesting; if ELEMENT is "M_MAMMAL" then BREED3 = pupping. This attribute is not used for HABITAT or T_MAMMAL elements.  
**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

<table>
<thead>
<tr>
<th>Enumerated Domain</th>
<th>Enumerated Domain Value</th>
<th>Enumerated Domain Value Definition</th>
</tr>
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<tbody>
<tr>
<td>Breed category not used or not appropriate for record(s) in question</td>
<td></td>
<td></td>
</tr>
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</table>
Attribute Domain Values:

Enumerated Domain:
- Enumerated Domain Value: -
  Enumerated Domain Value Definition: Breed category not used or not appropriate for record(s) in question
  Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:
Attribute Label: BREED4
Attribute Definition:
Life history stage or activity type, where: if ELEMENT is "FISH" then BREED4 = juveniles; if ELEMENT is "INVERT" then BREED4 = juveniles; if ELEMENT is "REPTILE" then BREED4 = juveniles; if ELEMENT is "M_MAMMAL" then BREED4 = molting. This attribute is not used for BIRD, HABITAT, or T_MAMMAL elements.
Attribute Definition Source: Research Planning, Inc.

Attribute Domain Values:
Enumerated Domain:
- Enumerated Domain Value: Y
  Enumerated Domain Value Definition: Life-history stage or activity present
  Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:
Enumerated Domain:
- Enumerated Domain Value: N
  Enumerated Domain Value Definition: Life-history stage or activity not present
  Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:
Enumerated Domain:
- Enumerated Domain Value: -
  Enumerated Domain Value Definition: Breed category not used or not appropriate for record(s) in question
  Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:
Attribute Label: BREED5
Attribute Definition:
Life history stage or activity type, where: if ELEMENT is "FISH" then BREED5 = adults; if ELEMENT is "INVERT" then BREED5 = adults; if ELEMENT is "REPTILE" then BREED5 = adults. This attribute is not used for BIRD, M_MAMMAL, HABITAT, or T_MAMMAL elements.
Attribute Definition Source: Research Planning, Inc.

Attribute Domain Values:
Enumerated Domain:
- Enumerated Domain Value: Y
  Enumerated Domain Value Definition: Life-history stage or activity present
  Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:
Enumerated Domain:
- Enumerated Domain Value: N
  Enumerated Domain Value Definition: Life-history stage or activity not present
  Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:
Enumerated Domain:
- Enumerated Domain Value: -
  Enumerated Domain Value Definition: Breed category not used or not appropriate for record(s) in
**Detailed_Description:**

*Enumerated_Domain_Value_Definition_Source:* Research Planning, Inc.

**Entity_Type:**

**Entity_Type_Label:** SOURCES

**Entity_Type_Definition:**
The data table SOURCES contains the primary sources used to create the ESI data set. See the Browse Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.

**Entity_Type_Definition_Source:** Research Planning, Inc.

**Attribute:**

**Attribute_Label:** SOURCE_ID

**Attribute_Definition:** Source identifier that links records in the SOURCES data table to the items G_SOURCE and A_SOURCE in the SOC_DAT table, and to G_SOURCE and S_SOURCE in the BIORES table.

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Range_Domain:**

**Range_Domain_Minimum:** 1

**Range_Domain_Maximum:** N

**Attribute:**

**Attribute_Label:** ORIGINATOR

**Attribute_Definition:** Author or developer of source material or data set

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Unrepresentable_Domain:** Acceptable values change from atlas to atlas

**Attribute:**

**Attribute_Label:** DATE_PUB

**Attribute_Definition:** Date of source material, publication, or date of personal communication with expert source

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Enumerated_Domain:**

**Enumerated_Domain_Value:** YYYYMM

**Enumerated_Domain_Value_Definition:** YYYY for year and optionally MM for month

**Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute:**

**Attribute_Label:** TITLE

**Attribute_Definition:** Title of source material or data

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Unrepresentable_Domain:** Acceptable values change from atlas to atlas

**Attribute:**

**Attribute_Label:** DATA_FORMAT

**Attribute_Definition:** The format of the source material

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Unrepresentable_Domain:** Acceptable values change from atlas to atlas

**Attribute:**

**Attribute_Label:** PUBLICATION

**Attribute_Definition:** Additional citation information

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Unrepresentable_Domain:** Acceptable values change from atlas to atlas

**Attribute:**

**Attribute_Label:** SCALE
Attribute Definition: Scale denominator of the source
Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Enumerated Domain:
    Enumerated Domain Value: integer
    Enumerated Domain Value Definition: Any integer
    Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:
Attribute Label: TIME_PERIOD
Attribute Definition: Date(s) of data collection that the source material is based upon.
Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Enumerated Domain:
    Enumerated Domain Value: MM/DD/YY
    Enumerated Domain Value Definition: Month/Day/Year
    Enumerated Domain Value Definition Source: Research Planning, Inc.
  Enumerated Domain Values:
    Enumerated Domain Value: MM/YYYY
    Enumerated Domain Value Definition: Month/Year
    Enumerated Domain Value Definition Source: Research Planning, Inc.
  Enumerated Domain Values:
    Enumerated Domain Value: UNKNOWN
    Enumerated Domain Value Definition: Date information unknown
    Enumerated Domain Value Definition Source: Research Planning, Inc.

Detailed Description:
Entity Type:
  Entity Type Label: STATUS
  Entity Type Definition:
The data table STATUS identifies the species that are listed as threatened or
dangerous by a state or federal authority. See the Browse Graphic section for a
link to the entity-relationship diagram, which describes the way this table relates to
other attribute tables in the ESI data structure.
  Entity Type Definition Source: Research Planning, Inc.

Attribute:
Attribute Label: ELEMENT
Attribute Definition: Major categories of biological data
Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Enumerated Domain:
    Enumerated Domain Value: BIRD
    Enumerated Domain Value Definition: Birds
    Enumerated Domain Value Definition Source: Research Planning, Inc.
  Enumerated Domain Values:
    Enumerated Domain Value: FISH
    Enumerated Domain Value Definition: Fish
    Enumerated Domain Value Definition Source: Research Planning, Inc.
  Enumerated Domain Values:
    Enumerated Domain Value: HABITAT
    Enumerated Domain Value Definition: Habitats and Plants
    Enumerated Domain Value Definition Source: Research Planning, Inc.
  Enumerated Domain Values:
    Enumerated Domain Value: INVERT
    Enumerated Domain Value Definition: Invertebrates
    Enumerated Domain Value Definition Source: Research Planning, Inc.
Attribute Domain Values:

Enumerated Domain:
- Enumerated Domain Value: M_MAMMAL
  Enumerated Domain Value Definition: Marine Mammals
  Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:
- Enumerated Domain Value: REPTILE
  Enumerated Domain Value Definition: Reptiles and Amphibians
  Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:
- Enumerated Domain Value: T_MAMMAL
  Enumerated Domain Value Definition: Terrestrial Mammals
  Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:

Attribute Label: SPECIES_ID
Attribute Definition:
Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.
Attribute Definition Source: Research Planning, Inc.

Attribute Domain Values:

Range Domain:
- Range Domain Minimum: 1
- Range Domain Maximum: N

Attribute:

Attribute Label: S
Attribute Definition: State threatened or endangered status
Attribute Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:
- Enumerated Domain Value: E
  Enumerated Domain Value Definition: Endangered on state list
  Enumerated Domain Value Definition Source: U.S. Fish and Wildlife Service

Attribute Domain Values:

Enumerated Domain:
- Enumerated Domain Value: T
  Enumerated Domain Value Definition: Threatened on state list
  Enumerated Domain Value Definition Source: U.S. Fish and Wildlife Service

Attribute Domain Values:

Enumerated Domain:
- Enumerated Domain Value: C
  Enumerated Domain Value Definition: Species of Special Concern
  Enumerated Domain Value Definition Source: U.S. Fish and Wildlife Service

Attribute Domain Values:

Enumerated Domain:
- Enumerated Domain Value: *
  Enumerated Domain Value Definition:
  Refer to the table RUNS_DAT for threatened or endangered status.
  Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:

Attribute Label: F
Attribute Definition: Federal threatened or endangered status
Attribute Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:
- Enumerated Domain Value: E
Enumerated_Domain_Value_Definition: Endangered on federal list
Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: T
Enumerated_Domain_Value_Definition: Threatened on federal list
Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: C
Enumerated_Domain_Value_Definition: Species of Special Concern
Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: *
Enumerated_Domain_Value_Definition: Refer to the table RUNS_DAT for threatened or endangered status.
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: STATE
Attribute_Definition: Two-letter state abbreviation
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
Attribute_Label: S_DATE
Attribute_Definition: Publication date of source material used to assign state status values for each species, if used.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: YYYYMM
Enumerated_Domain_Value_Definition: YYYY for year and optionally MM for month
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: F_DATE
Attribute_Definition: Publication date of source material used to assign federal status values for each species, if used.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: YYYYMM
Enumerated_Domain_Value_Definition: YYYY for year and optionally MM for month
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: EL_SPE
Attribute_Definition: Concatenation of ELEMENT and SPECIES_ID. This item links records in the STATUS data table to records in the BIORES, SPECIES, and RUNS_DAT data tables.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
**Enumerated_Domain_Value:** E####

**Enumerated_Domain_Value_Definition:**
Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = 'B00001').

**Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Detailed_Description:**

**Entity_Type:**

**Entity_Type_Label:** RUNS_DAT

**Entity_Type_Definition:**
The data table RUNS_DAT identifies anadromous fish runs that are listed as threatened, endangered, sensitive-critical, or candidate by a state or federal authority. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.

**Entity_Type_Definition_Source:** Research Planning, Inc.

**Attribute:**

**Attribute_Label:** EL_SPE

**Attribute_Definition:**
Concatenation of ELEMENT and SPECIES_ID. This item links records in the RUNS_DAT table to records in the STATUS table.

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Enumerated_Domain:**

**Enumerated_Domain_Value:** E####

**Enumerated_Domain_Value_Definition:**
Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = 'B00001').

**Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute:**

**Attribute_Label:** SPECIES

**Attribute_Definition:**
Species common name. This field may also include the season in which the species is running [for example, "Chinook Salmon (Spring)"].

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Unrepresentable_Domain:** Acceptable values change from atlas to atlas

**Attribute:**

**Attribute_Label:** RUN

**Attribute_Definition:**
Location of the run in which the species is listed as threatened, endangered, sensitive-critical, or a candidate.

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Unrepresentable_Domain:** Acceptable values change from atlas to atlas

**Attribute:**

**Attribute_Label:** OR

**Attribute_Definition:**
Threatened or endangered status for the state of Oregon.

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Enumerated_Domain:**

**Enumerated_Domain_Value:** E

**Enumerated_Domain_Value_Definition:** Listed as endangered by the state of Oregon

**Enumerated_Domain_Value_Definition_Source:** U.S. Fish and Wildlife Service

**Attribute_Domain_Values:**

**Enumerated_Domain:**

**Enumerated_Domain_Value:** T

**Enumerated_Domain_Value_Definition:** Listed as threatened by the state
of Oregon

**Enumerated_Domain_Value_Definition_Source:** U.S. Fish and Wildlife Service

**Attribute_Domain_Values:**

**Enumerated_Domain:**

- **Enumerated_Domain_Value:** S-C
  - **Enumerated_Domain_Value_Definition:** Listed as a sensitive-critical species by the state of Oregon
  - **Enumerated_Domain_Value_Definition_Source:** U.S. Fish and Wildlife Service

**Attribute_Domain_Values:**

**Enumerated_Domain:**

- **Enumerated_Domain_Value:** NL
  - **Enumerated_Domain_Value_Definition:** Not listed by the state of Oregon
  - **Enumerated_Domain_Value_Definition_Source:** U.S. Fish and Wildlife Service

**Attribute:**

**Attribute_Label:** WA

**Attribute_Definition:** Threatened or endangered status for the state of Washington

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Enumerated_Domain:**

- **Enumerated_Domain_Value:** Cand.
  - **Enumerated_Domain_Value_Definition:** Listed as candidate species by the state of Washington
  - **Enumerated_Domain_Value_Definition_Source:** U.S. Fish and Wildlife Service

**Attribute_Domain_Values:**

**Enumerated_Domain:**

- **Enumerated_Domain_Value:** NL
  - **Enumerated_Domain_Value_Definition:** Not listed by the state of Washington
  - **Enumerated_Domain_Value_Definition_Source:** U.S. Fish and Wildlife Service

**Attribute:**

**Attribute_Label:** FEDERAL

**Attribute_Definition:** Threatened or endangered status for the Federal Endangered Species Act

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Enumerated_Domain:**

- **Enumerated_Domain_Value:** E
  - **Enumerated_Domain_Value_Definition:** Listed as endangered by the Federal Endangered Species Act
  - **Enumerated_Domain_Value_Definition_Source:** U.S. Fish and Wildlife Service

**Attribute_Domain_Values:**

**Enumerated_Domain:**

- **Enumerated_Domain_Value:** T
  - **Enumerated_Domain_Value_Definition:** Listed as threatened by the Federal Endangered Species Act
  - **Enumerated_Domain_Value_Definition_Source:** U.S. Fish and Wildlife Service

**Attribute_Domain_Values:**

**Enumerated_Domain:**

- **Enumerated_Domain_Value:** Cand.
  - **Enumerated_Domain_Value_Definition:** Listed as candidate species by the Federal Endangered Species Act
  - **Enumerated_Domain_Value_Definition_Source:** U.S. Fish and Wildlife Service
Attribute Domain Values:

Enumerated Domain:
- Enumerated Domain Value: NL
- Enumerated Domain Value Definition: Not listed by the Federal Endangered Species Act
- Enumerated Domain Value Definition Source: U.S. Fish and Wildlife Service

Attribute:
- Attribute Label: ESA_YEAR
- Attribute Definition: Year the species was listed by the Federal Endangered Species Act.
- Attribute Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:
- Enumerated Domain Value: YYYYMM
- Enumerated Domain Value Definition: YYYY for year and optionally MM for month
- Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:
- Enumerated Domain Value: 0
- Enumerated Domain Value Definition: Species is not federally ranked
- Enumerated Domain Value Definition Source: Research Planning, Inc.

Distribution Information:

Distributor:

Contact Information:
- Contact Person Primary:
  - Contact Person: John Kaperick
  - Contact Organization: NOAA, Office of Response and Restoration

Contact Address:
- Address Type: Physical Address
- Address: 7600 Sand Point Way N.E.
- City: Seattle
- State or Province: Washington
- Postal Code: 98115-6349
- Contact Voice Telephone: (206) 526-6400
- Contact Facsimile Telephone: (206) 526-6329

Resource Description: ESI Atlas for Columbia River

Distribution Liability:

Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement copy of the product when the product is determined unreadable by computer-input peripherals, or when the physical medium is delivered in damaged condition.

Custom Order Process:

Contact NOAA for distribution options (see Distributor). ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the distribution CDs for ease of use of the ESI data. The database files are distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats.

Metadata Reference Information:
Columbia River ESI: FISHL (Fish Lines)

Metadata also available as - [Parseable text] - [SGML]

Metadata:

- Identification_Information
- Data_Quality_Information
- Spatial_Data_Organization_Information
- Spatial_Reference_Information
- Entity_and_Attribute_Information
- Distribution_Information
- Metadata_Reference_Information

**Identification_Information:**

**Citation:**

**Originator:**

**Publication_Date:** 200411

**Title:** Columbia River ESI: FISHL (Fish Lines)

**Edition:** First

**Geospatial_Data_Presentation_Form:** Vector digital data

**Series_Information:**

- **Series_Name:** None
- **Issue_Identification:** Columbia River

**Publication_Information:**

- **Publication_Place:** Seattle, Washington
- **Publisher:**

**Other_Citation_Details:**


**Description:**

**Abstract:**

This data set contains sensitive biological resource data for anadromous fish species in Columbia River. Vector lines in this data set represent locations of anadromous fish spawning runs. Species-specific abundance, seasonality, status, life history, and source information are stored in relational data tables (described below) designed to be used in conjunction with this spatial data layer.

This data set comprises a portion of the Environmental Sensitivity Index (ESI) data for Columbia River. ESI data characterize the marine and coastal environments and wildlife by their sensitivity to spilled oil. The ESI data include information for three main components: shoreline habitats, sensitive biological resources, and human-use resources. See also the FISH (Fish Polygons) data layer, part of the larger Columbia River ESI database, for additional fish information.
Purpose:
The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response. The Clean Water Act with amendments by the Oil Pollution Act of 1990 requires response plans for immediate and effective protection of sensitive resources.

Time_Period_of_Content:
Time_Period_Information:
Range_of_Dates/Times:
  Beginning_Date: 2003
  Ending_Date: 2004

Currentness_Reference:
The biological data were compiled during 2003-2004. The currentness dates for the data range from 2003 to 2004 and are documented in the Lineage section.

Status:
Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:
Bounding_Coordinates:
  West_BoundingCoordinate: -124.125
  East_BoundingCoordinate: -120.67375
  North_BoundingCoordinate: 46.375
  South_BoundingCoordinate: 45.3

Keywords:
Theme:
  Theme_Keyword_Thesaurus: None
  Theme_Keyword: ESI
  Theme_Keyword: Sensitivity maps
  Theme_Keyword: Coastal resources
  Theme_Keyword: Oil spill planning
  Theme_Keyword: Coastal Zone Management
  Theme_Keyword: Wildlife
  Theme_Keyword: Fish

Place:
  Place_Keyword_Thesaurus: None
  Place_Keyword: Columbia River

Access_Constraints: None

Use_Constraints:
DO NOT USE MAPS FOR NAVIGATIONAL PURPOSES. Besides the above warning, there are no use constraints on these data. Note that the ESI database should not be used to the exclusion of other pertinent data or information held by state or federal agencies or other organizations. Likewise, information contained in the database cannot be used in place of consultations with environmental, natural resource, and cultural resource agencies, or in place of field surveys. Recognize that the information contained in the ESI database represents known concentration areas or occurrences of natural, cultural, and human-use resources, but does not necessarily represent the full distribution or range of each species or resource. This is particularly important to recognize when considering potential impacts to protected resources, such as endangered species, wetlands, etc. Acknowledgment of the originators, publishers, contributors, and sources listed would be appreciated in products derived from these data.

Browse_Graphic:
  Browse_Graphic_File_Name: datafig.jpg
  Browse_Graphic_File_Description: Depicts the relationships between spatial data layers and attribute data tables for the Columbia River ESI data.
  Browse_Graphic_File_Type: JPEG

Data_Set_Credit:
This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; Coastal Storms Initiative; U.S. Fish and Wildlife Service; NOAA Fisheries; State of Oregon; and State of Washington.

Native_Data_Set_Environment:
The software packages used to develop the atlas are Environmental Systems Research Institute's
ARC/INFO(r) (version 8.3) and SQL SERVER(r) (version 7.0). The hardware configuration is PC's with Windows Operating System (NT4.0/2000).

The Spatial Data Organization Information section refers only to the source files in the ARC export format. The following files are included in that data set: birds.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mammal.e00, m_mampt.e00, mgt.e00, nests.e00, nw1.e00, reptiles.e00, socecon.e00, t_mammal.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biorels, breed, breed_dt, runs_dat, seasonal, soc_dat, soc_lut, sources, species, and status.

Data Quality Information:
Attribute_Accuracy:

Attribute_Accuracy_Report:
A multi-stage error checking process is used to verify both attribute accuracy and logical consistency throughout data production. The process includes a standardized data entry methodology, hardcopy data review by in-house and external resource experts, a final Quality Assurance/Quality Control (QA/QC) process, and multiple automated logical consistency checks. Quantitative data (such as densities, counts, abundances, or concentrations) provided by resource experts for inclusion in the data set may vary widely in attribute accuracy, depending upon the methodology used to collect and compile such data. For a more detailed evaluation of source data attribute accuracy, contact the sources listed in the Lineage section.

Logical_Consistency_Report:
A multi-stage error checking process, described in the above Attribute_Accuracy_Report, is used to verify both attribute accuracy and logical consistency throughout data production. This process includes multiple automated logical consistency checks that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and SQL SERVER(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where the data are written to CD-ROM and the metadata are written.

After the data are delivered to NOAA, they are again subjected to a number of quality and consistency checks. In the process of checking for topological and database consistencies, new ID's and RARNUM's or HUNUM's are also generated. The new ID's are a combination of atlas number, element number, and record number. In addition, the value used to represent the element is modified to reflect the type of feature being mapped. In the case of an element that is normally represented by a point or polygon, a value of 20 is added to the standard element value for mapping of linear features. In the case where an element usually mapped as a polygon is represented by a point, a value of 30 is added to the regular element value. The RARNUM's are also modified to include the atlas number, so multiple atlases can be combined and RARNUM's remain unique. RARNUM's are redefined on an element basis, so "resources at risk" groupings will contain only a single element. HUNUM's are also modified to include the atlas number.

Completeness_Report:
These data represent a synthesis of expert knowledge, digital data, and hardcopy maps on anadromous fish spawning runs in Columbia River. See also the FISH (Fish Polygons) data layer, part of the larger Columbia River ESI database, for additional fish information. These data do not necessarily represent all fish occurrences in Columbia River. The following species are included in this data set: (Species_ID, Common Name, Scientific Name, if applicable): 69, Coho salmon, Oncorhynchus kisutch; 72, Chum salmon, Oncorhynchus keta; 77, Eulachon, Thaleichthys pacificus; 219, Pacific lamprey, Lampetra tridentate; 490, Chinook salmon (fall), Oncorhynchus tshawytscha (fall); 493, Chinook salmon (spring), Oncorhynchus tshawytscha (spring); 963, Rainbow trout (winter), Oncorhynchus mykiss (winter); 965, Chinook salmon (summer), Oncorhynchus tshawytscha (summer).

Positional_Accuracy:
Horizontal_Positional_Accuracy:
Horizontal_Positional_Accuracy_Report:
Most of the spatial components of the biological data sets are developed using regional experts who estimate concentration areas. It is difficult to estimate the positional accuracy of such data, except to state that they are compiled on hardcopy base maps with a scale of 1:24,000. Some of the spatial components of the
biological data sets are developed from pre-existing digital sources and reflect the positional accuracy of these original data. See the Lineage and Process_Description sections for more information on the original data source and how these data were integrated or manipulated to create the final data set. Note that biological resource data by their very nature are considered "fuzzy", and this should be understood when considering the positional accuracy of vector digital objects representing these resources.

**Lineage:**

**Source Information:**

**Citation Information:**

**Originator:** North, J., Oregon Department of Fish and Wildlife (ODFW)

**Publication Date:** 200402

**Title:** Fish, Bird, and Mammal Distributions along the Columbia River

**Geospatial Data Presentation Form:** Expert knowledge

**Publication Information:**

**Publication Place:** Unpublished material

**Publisher:** Unpublished material

**Type of Source Media:** Personal communication

**Source Time Period of Content:**

**Time Period Information:**

**Single Date/Time:**

**Calendar Date:** 200402

**Source Currentness Reference:** Date of communication

**Source Citation Abbreviation:** None

**Source Contribution:** Distribution and seasonality information for fish

**Source Information:**

**Citation Information:**

**Originator:** Meyer, B., National Oceanic and Atmospheric Administration (NOAA)

**Publication Date:** 200402

**Title:** Fish, Bird, Mammal, and Plant Distributions in the Lower Columbia River

**Geospatial Data Presentation Form:** Expert Knowledge

**Publication Information:**

**Publication Place:** Unpublished material

**Publisher:** Unpublished material

**Type of Source Media:** Personal communication

**Source Time Period of Content:**

**Time Period Information:**

**Single Date/Time:**

**Calendar Date:** 200402

**Source Currentness Reference:** Date of communication

**Source Citation Abbreviation:** None

**Source Contribution:** Distribution and seasonality information for fish

**Source Information:**

**Citation Information:**

**Originator:** Stone, S., National Oceanic and Atmospheric Administration (NOAA)

**Publication Date:** 200402

**Title:** Anadromous Fish Data for Washington and Oregon

**Geospatial Data Presentation Form:** Expert knowledge

**Publication Information:**

**Publication Place:** Unpublished material

**Publisher:** Unpublished material
Three main sources of data were used to depict spawning runs for this data layer: (1) personal interviews with the resource experts from the Oregon Department of Fish and Wildlife (ODFW) and the U.S. Fish and Wildlife Service (USFWS); (2) the 2003 Draft Lower Columbia Fish Recovery Board Recovery/Subbasin Plan, Technical Foundation; and (3) NOAA-synthesized digital ODFW and Washington Department of Fish and Wildlife (WDFW) anadromous fish data. Note that the digital lines were adapted from the original ODFW and WDFW data. Information gathered during initial interviews and from hardcopy sources was compiled onto U.S. Geological Survey 1:24,000 topographic quadrangles. The compiled data were digitized off of the base maps into an ArcInfo system to
create the FISHL data layer. All ESI, biology, and human-use data were plotted onto hardcopy draft maps. Following the delivery of draft maps to the participating resource experts, a second set of interviews was conducted to review the maps. Edits to the FISHL data layer were made based on the recommendations of the resource experts, and final hardcopy maps were created.

Process_Date: 200408

Process_Contact:

Contact_Information:

  Contact_Organization_Primary:
  Contact_Organization: NOAA, Office of Response and Restoration
  Contact_Person: Jill Petersen

Contact_Address:

  Address_Type: Physical address
  Address: 7600 Sand Point Way N.E.
  City: Seattle
  State_or_Province: Washington
  Postal_Code: 98115-6349

Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: Jill.Petersen@noaa.gov

Spatial_Data_Organization_Information:

  Direct_Spatial_Reference_Method: Vector

Point_and_Vector_Object_Information:

  SDTS_Terms_Description:
  SDTS_Point_and_Vector_Object_Type: Complete chain
  Point_and_Vector_Object_Count: 568

  SDTS_Terms_Description:
  SDTS_Point_and_Vector_Object_Type: Link
  Point_and_Vector_Object_Count: 22507

  SDTS_Terms_Description:
  SDTS_Point_and_Vector_Object_Type: Node, planar graph
  Point_and_Vector_Object_Count: 830

Spatial_Reference_Information:

  Horizontal_Coordinate_System_Definition:
  Geographic:
    Latitude_Resolution: 0.0000001
    Longitude_Resolution: 0.0000001
    Geographic_Coordinate_Units: Decimal degrees

  Geodetic_Model:
    Horizontal_Datum_Name: North American Datum of 1927
    Ellipsoid_Name: Clark 1866
    Semi-major_Axis: 6378206.4
    Denominator_of_Flattening_Ratio: 294.978698

Entity_and_Attribute_Information:

  Overview_Description:

    In addition to the geographic data layers, six relational attribute or data tables, BIORES, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, are used to store the complex biological data in the ESI data structure. The geographic data layer containing biological resource information (in this case, FISHL) is linked to the Biological Resources table

Due to the complexity of the relational database model, the data items are also post-processed into a flat file format. This table, called BIOFILE, may be used in place of the relational files described below to ease simple data queries. The items in the flat file are ELEMENT, SUBELEMENT, NAME, GEN_SPEC, S, F, NHP, DATE_PUB, CONC, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC, BREED1, BREED2, BREED3, BREED4, BREED5, RARNUM, G_SOURCE, S_SOURCE, and BREED. All of these items are the same as their counterparts in the individual data tables described below, except the BREED1-BREED5 and BREED items. BREED is a newly generated variable used to link to the BREED_DT data table, a modified, more compact version of the relational BREED data table. BREED1-BREED5 give a text summary of when each life stage occurs within the associated map object. The life stages referred to are the same as those listed in the Detailed_Description of the BREED data table. The link to the BIOFILE may be made through the BIO_LUT, using ID to link to RARNUM, or BIOFILE may be linked directly to the RARNUM in each of the geographic layer's attribute data tables. As mentioned, BREED_DT is an auxiliary support data table to the flat file structure, which allows the user to do searches based on month for seasonal breeding activities. The link from the flat file to BREED_DT is the BREED item.

A second supporting data table is SOURCES. This is the same as the source file described above, and the link from the flat file is both G_SOURCE and S_SOURCE. It should be noted that although the flat file eases data query, it is not a normalized database structure, and actual updates performed by the states and other responsible agencies should be done using the relational data tables. The entity-relationship diagram, describing relationships between attribute tables in the ESI data structure, does NOT include the BIOFILE data table, and this data table is NOT described in detail below.
**Attribute Definition:**
An identifier that links directly to the BIORES table or the flat format BIOFILE table.

**Attribute Definition Source:** NOAA

**Attribute Domain Values:**

**Range Domain:**
- **Range Domain Minimum:** 41000133
- **Range Domain Maximum:** 41000179

**Detailed Description:**

**Entity Type:**

**Entity Type Label:** BIO_LUT

**Entity Type Definition:**
The data table BIO_LUT is a lookup table that contains items necessary for linking vector objects in the biological data layers with the BIORES data table. Note that all attribute information is stored in a series of relational files, described below. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.

**Entity Type Definition Source:** Research Planning, Inc.

**Attribute:**

**Attribute Label:** RARNUM

**Attribute Definition:**
An identifier that links records in the BIO_LUT data table to records in the BIORES data table or the flat format BIOFILE data table. RARNUM values of 0 are holes in polygons and do not contain information.

**Attribute Definition Source:** NOAA

**Attribute Domain Values:**

**Range Domain:**
- **Range Domain Minimum:** 41000001
- **Range Domain Maximum:** 41000290

**Attribute:**

**Attribute Label:** ID

**Attribute Definition:**
An identifier that links vector objects in the biology data layers to records in the BIO_LUT data table. ID is a concatenation of atlas number (41), element number (22; 20 because it is a line feature, plus 2, the element value for FISH), and record number. ID values of 9999 are holes in polygons and do not contain information.

**Attribute Definition Source:** NOAA

**Attribute Domain Values:**

**Range Domain:**
- **Range Domain Minimum:** 410100002
- **Range Domain Maximum:** 413400015

**Detailed Description:**

**Entity Type:**

**Entity Type Label:** BIORES

**Entity Type Definition:**
The data table BIORES contains both biological attribute data and items necessary for linking vector objects in the biological data layers via the BIO_LUT data table to other associated data tables. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.

**Entity Type Definition Source:** Research Planning, Inc.

**Attribute:**

**Attribute Label:** RARNUM

**Attribute Definition:**
An identifier that links records in the BIORES data table to records in the BIO_LUT data table or the flat format BIOFILE data table.

**Attribute Definition Source:** NOAA

**Attribute Domain Values:**

**Range Domain:**
- **Range Domain Minimum:** 041000001
Range_Domain_Maximum: 041000290

Attribute:
  Attribute_Label: SPECIES_ID
  Attribute_Definition:
  Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 1
      Range_Domain_Maximum: N

Attribute:
  Attribute_Label: CONC
  Attribute_Definition:
  The field CONC refers to "concentration," abundance, or density of a species at a particular location. No concentration data were available for anadromous fish, so the field is populated with "."
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
  Attribute_Label: SEASON_ID
  Attribute_Definition:
  Numeric identifier for the unique monthly presence and life history characteristics of each species at a given location.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 1
      Range_Domain_Maximum: N

Attribute:
  Attribute_Label: G_SOURCE
  Attribute_Definition:
  Geographic source identifier that links records in the BIORES data table to records in the SOURCES data table.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 1
      Range_Domain_Maximum: N

Attribute:
  Attribute_Label: S_SOURCE
  Attribute_Definition:
  Seasonality source identifier that links records in the BIORES data table to records in the SOURCES data table.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 1
      Range_Domain_Maximum: N

Attribute:
  Attribute_Label: ELEMENT
  Attribute_Definition:
  Major categories of biological data
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: BIRD
      Enumerated_Domain_Value_Definition: Birds
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Enumerated Domain:
- **Enumerated_Domain_Value**: FISH
  - **Enumerated_Domain_Value_Definition**: Fish
  - **Enumerated_Domain_Value_Definition_Source**: Research Planning, Inc.

Attribute Domain Values:
- **Enumerated_Domain**:
  - **Enumerated_Domain_Value**: HABITAT
    - **Enumerated_Domain_Value_Description**: Habitats and Plants
    - **Enumerated_Domain_Value_Source**: Research Planning, Inc.

Attribute Domain Values:
- **Enumerated_Domain**:
  - **Enumerated_Domain_Value**: INVERT
    - **Enumerated_Domain_Value_Description**: Invertebrates
    - **Enumerated_Domain_Value_Source**: Research Planning, Inc.

Attribute Domain Values:
- **Enumerated_Domain**:
  - **Enumerated_Domain_Value**: M_MAMMAL
    - **Enumerated_Domain_Value_Description**: Marine Mammals
    - **Enumerated_Domain_Value_Source**: Research Planning, Inc.

Attribute Domain Values:
- **Enumerated_Domain**:
  - **Enumerated_Domain_Value**: REPTILE
    - **Enumerated_Domain_Value_Description**: Reptiles and Amphibians
    - **Enumerated_Domain_Value_Source**: Research Planning, Inc.

Attribute Domain Values:
- **Enumerated_Domain**:
  - **Enumerated_Domain_Value**: T_MAMMAL
    - **Enumerated_Domain_Value_Description**: Terrestrial Mammals
    - **Enumerated_Domain_Value_Source**: Research Planning, Inc.

Attribute:
- **Attribute_Label**: EL_SPE
  - **Attribute_Description**: Concatenation of ELEMENT and SPECIES_ID. This item links records in the BIORES data table to records in the SPECIES and STATUS data tables.
  - **Attribute_Description_Source**: Research Planning, Inc.

Attribute Domain Values:
- **Enumerated_Domain**:
  - **Enumerated_Domain_Value**: E####
    - **Enumerated_Domain_Value_Description**: Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g., ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = 'B00001').
    - **Enumerated_Domain_Value_Source**: Research Planning, Inc.

Attribute:
- **Attribute_Label**: EL_SPE_SEA
  - **Attribute_Description**: Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the BIORES data table to records in the SEASONAL and BREED data tables.
  - **Attribute_Description_Source**: Research Planning, Inc.

Attribute Domain Values:
- **Enumerated_Domain**:
  - **Enumerated_Domain_Value**: E#######
    - Where E is the first character of ELEMENT, the next five characters are SPECIES_ID, and the last two characters are SEASON_ID (e.g., ELEMENT = 'BIRD', SPECIES_ID = 1, SEASON_ID = 1; EL_SPE_SEA = 'B0000101').
    - **Enumerated_Domain_Value_Source**: Research Planning, Inc.
Entity_Type:
  Entity_Type_Label: SPECIES
  Entity_Type_Definition: The data table SPECIES identifies all species in the ESI data set. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure. Refer to the Completeness_Report for a list of layer-specific species.
  Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: SPECIES_ID
  Attribute_Definition: Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 1
      Range_Domain_Maximum: N

Attribute:
  Attribute_Label: NAME
  Attribute_Definition: Species common name for the entire ESI data set
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
  Attribute_Label: GEN_SPEC
  Attribute_Definition: Species scientific name for the entire ESI data set
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
  Attribute_Label: ELEMENT
  Attribute_Definition: Major categories of biological data
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: BIRD
      Enumerated_Domain_Value_Definition: Birds
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: FISH
      Enumerated_Domain_Value_Definition: Fish
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: HABITAT
      Enumerated_Domain_Value_Definition: Habitats and Plants
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: INVERT
      Enumerated_Domain_Value_Definition: Invertebrates
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: M_MAMMAL
      Enumerated_Domain_Value_Definition: Marine Mammals
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Enumerated_Domain:
  Enumerated_Domain_Value: REPTILE
  Enumerated_Domain_Value_Definition: Reptiles and Amphibians
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: T_MAMMAL
    Enumerated_Domain_Value_Definition: Terrestrial Mammals
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: SUBELEMENT
  Attribute_Definition: Element subgroup delineating a logical grouping of species
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: bivalve
      Enumerated_Domain_Value_Definition: Bivalve
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain:
      Enumerated_Domain_Value: crab
      Enumerated_Domain_Value_Definition: Crab
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain:
      Enumerated_Domain_Value: diadromous
      Enumerated_Domain_Value_Definition: Diadromous fish
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain:
      Enumerated_Domain_Value: diving
      Enumerated_Domain_Value_Definition: Diving bird
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain:
      Enumerated_Domain_Value: e_nursery
      Enumerated_Domain_Value_Definition: Estuarine nursery fish
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain:
      Enumerated_Domain_Value: fav
      Enumerated_Domain_Value_Definition: Floating aquatic vegetation
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain:
      Enumerated_Domain_Value: freshwater
      Enumerated_Domain_Value_Definition: Freshwater fish
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain:
      Enumerated_Domain_Value: gull_tern
      Enumerated_Domain_Value_Definition: Gull or tern
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain:
      Enumerated_Domain_Value: passerine
      Enumerated_Domain_Value_Definition: Passerine bird
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain:

\textit{Columbia River ESI: FISHL (Fish Lines)\textit{Page: 12}
Enumerated_Domain_Value: pinniped
Enumerated_Domain_Value_Definition: Pinniped
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
   Enumerated_Domain:
   Enumerated_Domain_Value: raptor
   Enumerated_Domain_Value_Definition: Raptor
   Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
   Enumerated_Domain:
   Enumerated_Domain_Value: sav
   Enumerated_Domain_Value_Definition: Submerged aquatic vegetation
   Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
   Enumerated_Domain:
   Enumerated_Domain_Value: shorebird
   Enumerated_Domain_Value_Definition: Shorebird
   Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
   Enumerated_Domain:
   Enumerated_Domain_Value: sm_mammal
   Enumerated_Domain_Value_Definition: Small mammal
   Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
   Enumerated_Domain:
   Enumerated_Domain_Value: turtle
   Enumerated_Domain_Value_Definition: Turtle
   Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
   Enumerated_Domain:
   Enumerated_Domain_Value: ungulate
   Enumerated_Domain_Value_Definition: Ungulate
   Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
   Enumerated_Domain:
   Enumerated_Domain_Value: wading
   Enumerated_Domain_Value_Definition: Wading bird
   Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
   Enumerated_Domain:
   Enumerated_Domain_Value: waterfowl
   Enumerated_Domain_Value_Definition: Waterfowl
   Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
   Attribute_Label: NHP
   Attribute_Definition:
   Natural Heritage Program global ranking. When no information was provided
   on the global rank for a species, the field is blank.
   Attribute_Definition_Source: Network of Natural Heritage Program
   Attribute_Domain_Values:
      Codeset_Domain:
         Codeset_Name: NHP Global Conservation Status Rank
         Codeset_Source: Natural Heritage Program

Attribute:
   Attribute_Label: DATE_PUB
   Attribute_Definition:
   Date of NHP listing
   Attribute_Definition_Source: Research Planning, Inc.
   Attribute_Domain_Values:
      Enumerated_Domain:
         Enumerated_Domain_Value: YYYYMM
Enumerated_Domain_Value_Definition: YYY for year and optionally MM for month

Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values: Enumerated_Domain:

Enumerated_Domain_Value: 0

Enumerated_Domain_Value_Definition: No information was provided on the global rank for the species

Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:

Attribute_Label: EL_SPE

Attribute_Definition: Concatenation of ELEMENT and SPECIES_ID. This item links records in the SPECIES data table to records in the BIORES and STATUS data tables.

Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: E####

Enumerated_Domain_Value_Definition: Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = 'B00001').

Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Detailed_Description:

Entity_Type:

Entity_Type_Label: SEASONAL

Entity_Type_Definition: The data table SEASONAL contains information on the seasonal presence of each species associated with each spatial vector object. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.

Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:

Attribute_Label: ELEMENT

Attribute_Definition: Major categories of biological data

Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: BIRD

Enumerated_Domain_Value_Definition: Birds

Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: FISH

Enumerated_Domain_Value_Definition: Fish

Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: HABITAT

Enumerated_Domain_Value_Definition: Habitats and Plants

Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: INVERT

Enumerated_Domain_Value_Definition: Invertebrates

Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: M_MAMMAL

Enumerated_Domain_Value_Definition: Marine Mammals
**Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

<table>
<thead>
<tr>
<th>Enumerated_Domain</th>
<th>Enumerated_Domain_Value</th>
<th>Enumerated_Domain_Value_Definition</th>
<th>Enumerated_Domain_Value_Definition_Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>REPTILE</td>
<td>X</td>
<td>Present in January</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>T_MAMMAL</td>
<td>X</td>
<td>Present in February</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>Present in March</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>Present in April</td>
<td>Research Planning, Inc.</td>
</tr>
</tbody>
</table>

**Attribute:**

<table>
<thead>
<tr>
<th>Attribute_Label</th>
<th>Attribute_Definition</th>
<th>Attribute_Definition_Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECIES_ID</td>
<td>Numeric identifier for each species that is unique within each element and refers to a nationwide ESI species list maintained at NOAA.</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>SEASON_ID</td>
<td>Numeric identifier for the unique monthly presence and life history characteristics of each species at a given location.</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>JAN</td>
<td>January</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>FEB</td>
<td>February</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>MAR</td>
<td>March</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>APR</td>
<td>April</td>
<td>Research Planning, Inc.</td>
</tr>
</tbody>
</table>
Attribute Definition: April  
Attribute Definition Source: Research Planning, Inc.  
Attribute Domain Values:  
Enumerated Domain:  
  Enumerated Domain Value: X  
  Enumerated Domain Value Definition: Present in April  
  Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:  
Attribute Label: MAY  
Attribute Definition: May  
Attribute Definition Source: Research Planning, Inc.  
Attribute Domain Values:  
Enumerated Domain:  
  Enumerated Domain Value: X  
  Enumerated Domain Value Definition: Present in May  
  Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:  
Attribute Label: JUN  
Attribute Definition: June  
Attribute Definition Source: Research Planning, Inc.  
Attribute Domain Values:  
Enumerated Domain:  
  Enumerated Domain Value: X  
  Enumerated Domain Value Definition: Present in June  
  Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:  
Attribute Label: JUL  
Attribute Definition: July  
Attribute Definition Source: Research Planning, Inc.  
Attribute Domain Values:  
Enumerated Domain:  
  Enumerated Domain Value: X  
  Enumerated Domain Value Definition: Present in July  
  Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:  
Attribute Label: AUG  
Attribute Definition: August  
Attribute Definition Source: Research Planning, Inc.  
Attribute Domain Values:  
Enumerated Domain:  
  Enumerated Domain Value: X  
  Enumerated Domain Value Definition: Present in August  
  Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:  
Attribute Label: SEP  
Attribute Definition: September  
Attribute Definition Source: Research Planning, Inc.  
Attribute Domain Values:  
Enumerated Domain:  
  Enumerated Domain Value: X  
  Enumerated Domain Value Definition: Present in September  
  Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:  
Attribute Label: OCT  
Attribute Definition: October  
Attribute Definition Source: Research Planning, Inc.  
Attribute Domain Values:  
Enumerated Domain:  
  Enumerated Domain Value: X  
  Enumerated Domain Value Definition: Present in October
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: NOV
  Attribute_Definition: November
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: X
      Enumerated_Domain_Value_Definition: Present in November
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: DEC
  Attribute_Definition: December
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: X
      Enumerated_Domain_Value_Definition: Present in December
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: EL_SPE_SEA
  Attribute_Definition: Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the SEASONAL data table to records in the BIORES and BREED data tables.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: E############
      Enumerated_Domain_Value_Definition:
        Where E is the first character of ELEMENT, the next five characters are SPECIES_ID, and the last two characters are SEASON_ID (e.g. ELEMENT = 'BIRD', SPECIES_ID = 1 and SEASON_ID = 1; EL_SPE_SEA = 'B0000101').
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Detailed_Description:
Entity_Type:
  Entity_Type_Label: BREED
  Entity_Type_Definition: The data table BREED identifies the monthly presence of certain life-history stages or activities for each species at a given location.
  Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: EL_SPE_SEA
  Attribute_Definition: Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the BREED data table to records in the BIORES and SEASONAL data tables.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: E############
      Enumerated_Domain_Value_Definition:
        Where E is the first character of ELEMENT, the next five characters are SPECIES_ID, and the last two characters are SEASON_ID (e.g. ELEMENT = 'BIRD', SPECIES_ID = 1 and SEASON_ID = 1; EL_SPE_SEA = 'B0000101').
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: MONTH
Attribute Definition:
Two-digit calendar month. Each life history stage or activity type for a particular species can have up to 12 records to account for each month of the year.

Attribute Definition Source: Research Planning, Inc.

Attribute Domain Values:
Range Domain:
Range Domain Minimum: 1
Range Domain Maximum: 12

Attribute:
Attribute Label: BREED1
Attribute Definition:
Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED1 = nesting; if ELEMENT is "FISH" then BREED1 = spawning; if ELEMENT is "INVERT" then BREED1 = spawning; if ELEMENT is "REPTILE" then BREED1 = nesting; if ELEMENT is "M_MAMMAL" then BREED1 = mating. This attribute is not used for HABITAT or T_MAMMAL elements.

Attribute Definition Source: Research Planning, Inc.

Attribute Domain Values:
Enumerated Domain:
Enumerated Domain Value: Y
Enumerated Domain Value Definition: Life-history stage or activity present
Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:
Enumerated Domain:
Enumerated Domain Value: N
Enumerated Domain Value Definition: Life-history stage or activity not present
Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:
Enumerated Domain:
Enumerated Domain Value: -
Enumerated Domain Value Definition: Breed category not used or not appropriate for record(s) in question
Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:
Attribute Label: BREED2
Attribute Definition:
Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED2 = migrating; if ELEMENT is "FISH" then BREED2 = eggs; if ELEMENT is "INVERT" then BREED2 = eggs; if ELEMENT is "REPTILE" then BREED2 = hatching; if ELEMENT is "M_MAMMAL" then BREED2 = calving. This attribute is not used for HABITAT or T_MAMMAL elements.

Attribute Definition Source: Research Planning, Inc.

Attribute Domain Values:
Enumerated Domain:
Enumerated Domain Value: Y
Enumerated Domain Value Definition: Life-history stage or activity present
Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:
Enumerated Domain:
Enumerated Domain Value: N
Enumerated Domain Value Definition: Life-history stage or activity not present
Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:
Enumerated Domain:
Enumerated Domain Value: -
Enumerated Domain Value Definition:
Breed category not used or not appropriate for record(s) in question

Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:
Attribute Label: BREED3
Attribute Definition:
Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED3 = molting; if ELEMENT is "FISH" then BREED3 = larvae; if ELEMENT is "INVERT" then BREED3 = larvae; if ELEMENT is "REPTILE" then BREED3 = internesting; if ELEMENT is "M_MAMMAL" then BREED3 = pupping. This attribute is not used for HABITAT or T_MAMMAL elements.

Attribute Definition Source: Research Planning, Inc.

Attribute Domain Values:
Enumerated Domain:
Enumerated Domain Value: Y
Enumerated Domain Value Definition: Life-history stage or activity present

Enumerated Domain Value Definition Source: Research Planning, Inc.

Enumerated Domain Value: N
Enumerated Domain Value Definition: Life-history stage or activity not present

Enumerated Domain Value Definition Source: Research Planning, Inc.

Enumerated Domain Value: -
Enumerated Domain Value Definition: Breed category not used or not appropriate for record(s) in question

Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:
Attribute Label: BREED4
Attribute Definition:
Life history stage or activity type, where: if ELEMENT is "FISH" then BREED4 = juveniles; if ELEMENT is "INVERT" then BREED4 = juveniles; if ELEMENT is "REPTILE" then BREED4 = juveniles; if ELEMENT is "M_MAMMAL" then BREED4 = molting. This attribute is not used for BIRD, HABITAT, or T_MAMMAL elements.

Attribute Definition Source: Research Planning, Inc.

Attribute Domain Values:
Enumerated Domain:
Enumerated Domain Value: Y
Enumerated Domain Value Definition: Life-history stage or activity present

Enumerated Domain Value Definition Source: Research Planning, Inc.

Enumerated Domain Value: N
Enumerated Domain Value Definition: Life-history stage or activity not present

Enumerated Domain Value Definition Source: Research Planning, Inc.

Enumerated Domain Value: -
Enumerated Domain Value Definition: Breed category not used or not appropriate for record(s) in question

Enumerated Domain Value Definition Source: Research Planning, Inc.
Attribute:

Attribute_Label: BREED5

Attribute_Definition:
Life history stage or activity type, where: if ELEMENT is "FISH" then BREED5 = adults; if ELEMENT is "INVERT" then BREED5 = adults; if ELEMENT is "REPTILE" then BREED5 = adults. This attribute is not used for BIRD, M_MAMMAL, HABITAT, or T_MAMMAL elements.

Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Y
Enumerated_Domain_Value_Definition: Life-history stage or activity present
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:

Enumerated_Domain_Value: N
Enumerated_Domain_Value_Definition: Life-history stage or activity not present
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:

Enumerated_Domain_Value: -
Enumerated_Domain_Value_Definition: Breed category not used or not appropriate for record(s) in question
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Detailed_Description:

Entity_Type:

Entity_Type_Label: SOURCES

Entity_Type_Definition:
The data table SOURCES contains the primary sources used to create the ESI data set. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.

Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:

Attribute_Label: SOURCE_ID

Attribute_Definition:
Source identifier that links records in the SOURCES data table to the items G_SOURCE and A_SOURCE in the SOC_DAT table, and to G_SOURCE and S_SOURCE in the BIORES table.

Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 1
Range_Domain_Maximum: N

Attribute:

Attribute_Label: ORIGINATOR

Attribute_Definition: Author or developer of source material or data set

Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:

Attribute_Label: DATE_PUB

Attribute_Definition: Date of source material, publication, or date of personal communication with expert source

Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
- Enumerated_Domain_Value: YYYYMM
  Enumerated_Domain_Value_Definition: YYY for year and optionally MM for month
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
- Attribute_Label: TITLE
  Attribute_Definition: Title of source material or data
  Attribute_Definition_Source: Research Planning, Inc.

- Attribute Domain Values:
  Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
- Attribute_Label: DATA_FORMAT
  Attribute_Definition: The format of the source material
  Attribute_Definition_Source: Research Planning, Inc.

- Attribute Domain Values:
  Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
- Attribute_Label: PUBLICATION
  Attribute_Definition: Additional citation information
  Attribute_Definition_Source: Research Planning, Inc.

- Attribute Domain Values:
  Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
- Attribute_Label: SCALE
  Attribute_Definition: Scale denominator of the source
  Attribute_Definition_Source: Research Planning, Inc.

  Enumerated_Domain:
  - Enumerated_Domain_Value: integer
    Enumerated_Domain_Value_Definition: Any integer
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
- Attribute_Label: TIME_PERIOD
  Attribute_Definition: Date(s) of data collection that the source material is based upon.
  Attribute_Definition_Source: Research Planning, Inc.

  Enumerated_Domain:
  - Enumerated_Domain_Value: MM/DD/YY
    Enumerated_Domain_Value_Definition: Month/Day/Year
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

  Attribute Domain Values:
  - Enumerated_Domain_Value: MM/YYYY
    Enumerated_Domain_Value_Definition: Month/Year
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

  Attribute Domain Values:
  - Enumerated_Domain_Value: UNKNOWN
    Enumerated_Domain_Value_Definition: Date information unknown
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Detailed_Description:
- Entity_Type: STATUS
  Entity_Type_Label: STATUS
  Entity_Type_Definition:
  The data table STATUS identifies the species that are listed as threatened or endangered by a state or federal authority. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
**Entity_Type_Definition_SOURCE:** Research Planning, Inc.

**Attribute:**

**Attribute_Label:** ELEMENT
**Attribute_Definition:** Major categories of biological data
**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Enumerated_Domain:**
- **Enumerated_Domain_Value:** BIRD
  - **Enumerated_Domain_Value_Definition:** Birds
  - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Enumerated_Domain:**
- **Enumerated_Domain_Value:** FISH
  - **Enumerated_Domain_Value_Definition:** Fish
  - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Enumerated_Domain:**
- **Enumerated_Domain_Value:** HABITAT
  - **Enumerated_Domain_Value_Definition:** Habitats and Plants
  - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Enumerated_Domain:**
- **Enumerated_Domain_Value:** INVERT
  - **Enumerated_Domain_Value_Definition:** Invertebrates
  - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Enumerated_Domain:**
- **Enumerated_Domain_Value:** M_MAMMAL
  - **Enumerated_Domain_Value_Definition:** Marine Mammals
  - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Enumerated_Domain:**
- **Enumerated_Domain_Value:** REPTILE
  - **Enumerated_Domain_Value_Definition:** Reptiles and Amphibians
  - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Enumerated_Domain:**
- **Enumerated_Domain_Value:** T_MAMMAL
  - **Enumerated_Domain_Value_Definition:** Terrestrial Mammals
  - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute:**

**Attribute_Label:** SPECIES_ID
**Attribute_Definition:** Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.
**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Range_Domain:**
- **Range_Domain_Minimum:** 1
- **Range_Domain_Maximum:** N

**Attribute:**

**Attribute_Label:** S
**Attribute_Definition:** State threatened or endangered status
**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Enumerated_Domain:**
- **Enumerated_Domain_Value:** E
  - **Enumerated_Domain_Value_Definition:** Endangered on state list
  - **Enumerated_Domain_Value_Definition_Source:** U.S. Fish and Wildlife Service
Attribute Domain Values:
Enumerated Domain:
    Enumerated Domain Value: T
    Enumerated Domain Value Definition: Threatened on state list
    Enumerated Domain Value Definition Source: U.S. Fish and Wildlife Service

Attribute Domain Values:
Enumerated Domain:
    Enumerated Domain Value: C
    Enumerated Domain Value Definition: Species of Special Concern
    Enumerated Domain Value Definition Source: U.S. Fish and Wildlife Service

Attribute Domain Values:
Enumerated Domain:
    Enumerated Domain Value: *
    Enumerated Domain Value Definition:
        Refer to the table RUNS_DAT for threatened or endangered status.
    Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:
    Attribute Label: STATE
    Attribute Definition: Two-letter state abbreviation
    Attribute Definition Source: Research Planning, Inc.
    Attribute Domain Values:
        Unrepresentable Domain: Acceptable values change from atlas to atlas

Attribute:
    Attribute Label: S_DATE
    Attribute Definition: Publication date of source material used to assign state status values for each species, if used.
    Attribute Definition Source: Research Planning, Inc.
    Attribute Domain Values:
        Enumerated Domain:
**Enumerated_Domain_Value**: YYY/MM
**Enumerated_Domain_Value_Definition**: YYY for year and optionally MM for month
**Enumerated_Domain_Value_Definition_Source**: Research Planning, Inc.

**Attribute**:
- **Attribute_Label**: F_DATE
  - **Attribute_Definition**: Publication date of source material used to assign federal status values for each species, if used.
  - **Attribute_Definition_Source**: Research Planning, Inc.
- **Attribute_Domain_Values**:
  - **Enumerated_Domain**:
    - **Enumerated_Domain_Value**: YYY/MM
    - **Enumerated_Domain_Value_Definition**: YYY for year and optionally MM for month
    - **Enumerated_Domain_Value_Definition_Source**: Research Planning, Inc.

**Attribute**:
- **Attribute_Label**: EL_SPE
  - **Attribute_Definition**: Concatenation of ELEMENT and SPECIES_ID. This item links records in the STATUS data table to records in the BIORES, SPECIES, and RUNS_DAT data tables.
  - **Attribute_Definition_Source**: Research Planning, Inc.
- **Attribute_Domain_Values**:
  - **Enumerated_Domain**:
    - **Enumerated_Domain_Value**: E#####
    - **Enumerated_Domain_Value_Definition**: Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = 'B00001').
    - **Enumerated_Domain_Value_Definition_Source**: Research Planning, Inc.

**Detailed_Description**:
- **Entity_Type**:
  - **Entity_Type_Label**: RUNS_DAT
  - **Entity_Type_Definition**: The data table RUNS_DAT identifies anadromous fish runs that are listed as threatened, endangered, sensitive-critical, or candidate by a state or federal authority. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
  - **Entity_Type_Definition_Source**: Research Planning, Inc.

**Attribute**:
- **Attribute_Label**: EL_SPE
  - **Attribute_Definition**: Concatenation of ELEMENT and SPECIES_ID. This item links records in the RUNS_DAT table to records in the STATUS table.
  - **Attribute_Definition_Source**: Research Planning, Inc.
- **Attribute_Domain_Values**:
  - **Enumerated_Domain**:
    - **Enumerated_Domain_Value**: E#####
    - **Enumerated_Domain_Value_Definition**: Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = 'B00001').
    - **Enumerated_Domain_Value_Definition_Source**: Research Planning, Inc.

**Attribute**:
- **Attribute_Label**: SPECIES
  - **Attribute_Definition**: Species common name. This field may also include the season in which the species is running [for example, "Chinook Salmon (Spring)"].
  - **Attribute_Definition_Source**: Research Planning, Inc.
### Attribute: RUN
**Attribute_Domain_Values:**
- **Unrepresentable_Domain:** Acceptable values change from atlas to atlas

**Attribute:** RUN
**Attribute_Definition:** Location of the run in which the species is listed as threatened, endangered, sensitive-critical, or a candidate.
**Attribute_Definition_Source:** Research Planning, Inc.

### Attribute: OR
**Attribute_Domain_Values:**
- **Unrepresentable_Domain:** Acceptable values change from atlas to atlas

**Attribute:** OR
**Attribute_Definition:** Threatened or endangered status for the state of Oregon.
**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**
- **Enumerated_Domain:**
  - **Enumerated_Domain_Value:** E
    - **Enumerated_Domain_Value_Definition:** Listed as endangered by the state of Oregon
    - **Enumerated_Domain_Value_Definition_Source:** U.S. Fish and Wildlife Service

- **Enumerated_Domain:**
  - **Enumerated_Domain_Value:** T
    - **Enumerated_Domain_Value_Definition:** Listed as threatened by the state of Oregon
    - **Enumerated_Domain_Value_Definition_Source:** U.S. Fish and Wildlife Service

- **Enumerated_Domain:**
  - **Enumerated_Domain_Value:** S-C
    - **Enumerated_Domain_Value_Definition:** Listed as a sensitive-critical species by the state of Oregon
    - **Enumerated_Domain_Value_Definition_Source:** U.S. Fish and Wildlife Service

- **Enumerated_Domain:**
  - **Enumerated_Domain_Value:** NL
    - **Enumerated_Domain_Value_Definition:** Not listed by the state of Oregon
    - **Enumerated_Domain_Value_Definition_Source:** U.S. Fish and Wildlife Service

### Attribute: WA
**Attribute_Domain_Values:**
- **Unrepresentable_Domain:** Acceptable values change from atlas to atlas

**Attribute:** WA
**Attribute_Definition:** Threatened or endangered status for the state of Washington
**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**
- **Enumerated_Domain:**
  - **Enumerated_Domain_Value:** Cand.
    - **Enumerated_Domain_Value_Definition:** Listed as candidate species by the state of Washington
    - **Enumerated_Domain_Value_Definition_Source:** U.S. Fish and Wildlife Service

- **Enumerated_Domain:**
  - **Enumerated_Domain_Value:** NL
    - **Enumerated_Domain_Value_Definition:** Not listed by the state of Washington
    - **Enumerated_Domain_Value_Definition_Source:** U.S. Fish and Wildlife Service

**Attribute:**
**Attribute**

- **Attribute Label:** FEDERAL
- **Attribute Definition:** Threatened or endangered status for the Federal Endangered Species Act
- **Attribute Definition Source:** Research Planning, Inc.
- **Attribute Domain Values:**
  - **Enumerated Domain:**
    - **Enumerated Domain Value:** E
      - **Enumerated Domain Value Definition:** Listed as endangered by the Federal Endangered Species Act
      - **Enumerated Domain Value Definition Source:** U.S. Fish and Wildlife Service
  - **Enumerated Domain:**
    - **Enumerated Domain Value:** T
      - **Enumerated Domain Value Definition:** Listed as threatened by the Federal Endangered Species Act
      - **Enumerated Domain Value Definition Source:** U.S. Fish and Wildlife Service
  - **Enumerated Domain:**
    - **Enumerated Domain Value:** Cand.
      - **Enumerated Domain Value Definition:** Listed as candidate species by the Federal Endangered Species Act
      - **Enumerated Domain Value Definition Source:** U.S. Fish and Wildlife Service
  - **Enumerated Domain:**
    - **Enumerated Domain Value:** NL
      - **Enumerated Domain Value Definition:** Not listed by the Federal Endangered Species Act
      - **Enumerated Domain Value Definition Source:** U.S. Fish and Wildlife Service

- **Attribute Label:** ESA_YEAR
- **Attribute Definition:** Year the species was listed by the Federal Endangered Species Act.
- **Attribute Definition Source:** Research Planning, Inc.
- **Attribute Domain Values:**
  - **Enumerated Domain:**
    - **Enumerated Domain Value:** YYYYMM
      - **Enumerated Domain Value Definition:** YYYY for year and optionally MM for month
      - **Enumerated Domain Value Definition Source:** Research Planning, Inc.
  - **Enumerated Domain:**
    - **Enumerated Domain Value:** 0
      - **Enumerated Domain Value Definition:** Species is not federally ranked
      - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Distribution Information:**

**Distributor:**

**Contact Information:**

- **Contact Person Primary:**
  - **Contact Person:** John Kaperick
  - **Contact Organization:** NOAA, Office of Response and Restoration

**Contact Address:**

- **Address Type:** Physical Address
- **Address:** 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6400
Contact_Facsimile_Telephone: (206) 526-6329

Resource_Description: ESI Atlas for Columbia River

Distribution_Liability:
Although these data have been processed successfully on a computer system at the National Oceanic
and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the
utility of the data on any other system, nor shall the act of distribution constitute any such warranty.

NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement
copy of the product when the product is determined unreadable by computer-input peripherals, or
when the physical medium is delivered in damaged condition.

Custom_Order_Process:
Contact NOAA for distribution options (see Distributor). ESI data are processed into multiple
formats to make them useful to a wider community of GIS/mapping users. Distribution formats
include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project
and ESI_Viewer product are also included on the distribution CDs for ease of use of the ESI data.
The database files are distributed both in the NOAA standard relational database format (see NOAA
Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata
document includes information on both of these database formats.

Metadata_Reference_Information:
Metadata_Date: 200411
Metadata_Review_Date: 200411
Metadata_Contact:
Contact_Information:
Contact_Person_Primary:
  Contact_Person: Jill Petersen
  Contact_Organization: NOAA, Office of Response and Restoration
  Contact_Position: GIS Manager
Contact_Address:
  Address_Type: Physical Address
  Address: 7600 Sand Point Way N.E.
  City: Seattle
  State_or_Province: Washington
  Postal_Code: 98115-6349
  Contact_Voice_Telephone: (206) 526-6944
  Contact_Facsimile_Telephone: (206) 526-6329
  Contact_Electronic_Mail_Address: Jill.Petersen@noaa.gov

Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata

Generated by mp version 2.8.2 on Tue Dec 07 17:50:42 2004
Columbia River ESI: INVERT (Invertebrate Polygons)

Metadata also available as - [Parseable text] - [SGML]

Metadata:

- Identification_Information
- Data_Quality_Information
- Spatial_Data_Organization_Information
- Spatial_Reference_Information
- Entity_and_Attribute_Information
- Distribution_Information
- Metadata_Reference_Information

Identification_Information:

Citation:

Originator:

Publication_Date: 200411
Title: Columbia River ESI: INVERT (Invertebrate Polygons)
Edition: First
Geospatial_Data_Presentation_Form: Vector digital data
Series_Information:
Series_Name: None
Issue_Identification: Columbia River
Publication_Information:
Publication_PLACE: Seattle, Washington
Publisher:

Other_Citation_Details:

Description:

Abstract:
This data set contains sensitive biological resource data for clams, oysters, crabs, and other invertebrate species in Columbia River. Vector polygons in this data set represent locations of concentrations areas for these invertebrate species. Species-specific abundance, seasonality, status, life history, and source information are stored in relational data tables (described below) designed to be used in conjunction with this spatial data layer.

This data set comprises a portion of the Environmental Sensitivity Index (ESI) data for Columbia River. ESI data characterize the marine and coastal environments and wildlife by their sensitivity to spilled oil. The ESI data include information for three main components: shoreline habitats, sensitive biological resources, and human-use resources.
Purpose:
The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response. The Clean Water Act with amendments by the Oil Pollution Act of 1990 requires response plans for immediate and effective protection of sensitive resources.

Time_Period_of_Content:

Time_Period_Information:
Range_of_Dates/Times:
   Beginning_Date: 1990
   Ending_Date: 2004

Currentness_Reference:
The biological data were compiled during 2003-2004. The currentness dates for these data range from 1990 to 2004 and are documented in the Lineage section.

Status:
Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:
   West_BoundingCoordinate: -124.125
   East_BoundingCoordinate: -120.67375
   North_BoundingCoordinate: 46.375
   South_BoundingCoordinate: 45.3

Keywords:

Theme:
   Theme_Keyword_Thesaurus: None
   Theme_Keyword: ESI
   Theme_Keyword: Sensitivity maps
   Theme_Keyword: Coastal resources
   Theme_Keyword: Oil spill planning
   Theme_Keyword: Coastal Zone Management
   Theme_Keyword: Wildlife
   Theme_Keyword: Invertebrate

Place:
   Place_Keyword_Thesaurus: None
   Place_Keyword: Columbia River

Access_Constraints: None
Use_Constraints:
   DO NOT USE MAPS FOR NAVIGATIONAL PURPOSES. Besides the above warning, there are no use constraints on these data. Note that the ESI database should not be used to the exclusion of other pertinent data or information held by state or federal agencies or other organizations. Likewise, information contained in the database cannot be used in place of consultations with environmental, natural resource, and cultural resource agencies, or in place of field surveys. Recognize that the information contained in the ESI database represents known concentration areas or occurrences of natural, cultural, and human-use resources, but does not necessarily represent the full distribution or range of each species or resource. This is particularly important to recognize when considering potential impacts to protected resources, such as endangered species, wetlands, etc. Acknowledgment of the originators, publishers, contributors, and sources listed would be appreciated in products derived from these data.

Browse_Graphic:
Browse_Graphic_File_Name: datafig.jpg
Browse_Graphic_File_Description:
   Depicts the relationships between spatial data layers and attribute data tables for the Columbia River ESI data.
Browse_Graphic_File_Type: JPEG

Data_Set_Credit:
This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; Coastal Storms Initiative; U.S. Fish and Wildlife Service; NOAA Fisheries; State of Oregon; and State of Washington.

Native_Data_Set_Environment:
The software packages used to develop the atlas are Environmental Systems Research Institute's...
ARC/INFO(r) (version 8.3) and SQL SERVER(r) (version 7.0). The hardware configuration is PC’s with Windows Operating System (NT4.0/2000).

The Spatial_Data_Organization_Information section refers only to the source files in the ARC export format. The following files are included in that data set: birds.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mammal.e00, m_mampt.e00, mgt.e00, nests.e00, nwi.e00, reptiles.e00, socecon.e00, t_mammal.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biores, breed, breed_dt, runs_dat, seasonal, soc_dat, soc_lut, sources, species, and status.

**Data_Quality_Information:**

**Attribute_Accuracy:**

A multi-stage error checking process is used to verify both attribute accuracy and logical consistency throughout data production. The process includes a standardized data entry methodology, hardcopy data review by in-house and external resource experts, a final Quality Assurance/Quality Control (QA/QC) process, and multiple automated logical consistency checks. Quantitative data (such as densities, counts, abundances, or concentrations) provided by resource experts for inclusion in the data set may vary widely in attribute accuracy, depending upon the methodology used to collect and compile such data. For a more detailed evaluation of source data attribute accuracy, contact the sources listed in the Lineage section.

**Logical_Consistency_Report:**

A multi-stage error checking process, described in the above Attribute_Accuracy_Report, is used to verify both attribute accuracy and logical consistency throughout data production. This process includes multiple automated logical consistency checks that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and SQL SERVER(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where the data are written to CD-ROM and the metadata are written.

After the data are delivered to NOAA, they are again subjected to a number of quality and consistency checks. In the process of checking for topological and database consistencies, new ID's and RARNUM's or HUNUM's are also generated. The new ID's are a combination of atlas number, element number, and record number. In addition, the value used to represent the element is modified to reflect the type of feature being mapped. In the case of an element that is normally represented by a point or polygon, a value of 20 is added to the standard element value for mapping of linear features. In the case where an element usually mapped as a polygon is represented by a point, a value of 30 is added to the regular element value. The RARNUM's are also modified to include the atlas number, so "resource at risk" groupings will contain only a single element. HUNUM's are also modified to include the atlas number.

**Completeness_Report:**

These data represent a synthesis of expert knowledge and available hardcopy reports and digital data on invertebrate concentration areas. Locations of some invertebrate concentration areas were adapted from Washington Priority Habitat data. Contact Washington Department of Fish and Wildlife (WDFW) for additional information on these data. The ESI data do not necessarily represent all invertebrate occurrences in Columbia River. The following species are included in this data set: (Species_ID, Common Name, Scientific Name, if applicable): 14, Dungeness crab, Cancer magister; 25, Softshell clam, Mya arenaria; 28, Pacific razor clam, Siliqua patula; 29, Pacific littleneck, Protothaca staminea; 76, Nuttall cockle, Clinocardium nuttallii; 504, Freshwater mussel, Anodonta spp.

**Positional_Accuracy:**

**Horizontal_Positional_Accuracy:**

Most of the spatial components of the biological data sets are developed using regional experts who estimate concentration areas. It is difficult to estimate the positional accuracy of such data, except to state that they are compiled on hardcopy base maps with a scale of 1:24,000. Some of the spatial components of the biological data sets are developed from pre-existing digital sources and reflect the
positional accuracy of these original data. See the Lineage and Process_Description sections for more information on the original data source and how these data were integrated or manipulated to create the final data set. Note that biological resource data by their very nature are considered "fuzzy", and this should be understood when considering the positional accuracy of vector digital objects representing these resources.

**Lineage:**

**Source_Information:**

**Source_Citation:**

**Citation_Information:**

- **Originator:** Kohl, K., Oregon Department of Fish and Wildlife (ODFW)
- **Publication_Date:** 200401
- **Title:** Bird and Mammal Distribution along the Columbia River
- **Geospatial_Data_Presentation_Form:** Expert knowledge
- **Publication_Information:**
  - **Publication_Place:** Unpublished material
  - **Publisher:** Unpublished material

- **Type_of_Source_Media:** Personal communication
- **Source_Time_Period_of_Content:**
  - **Single_Date/Time:**
    - **Calendar_Date:** 200401
- **Source_Currentness_Reference:** Date of communication
- **Source_Citation_Abbreviation:** None
- **Source_Contribution:** Distribution information for invertebrates

**Source_Information:**

**Source_Citation:**

**Citation_Information:**

- **Originator:** Meyer, B., National Oceanic and Atmospheric Administration (NOAA)
- **Publication_Date:** 200402
- **Title:** Fish, Bird, Mammal, and Plant Distributions in the Lower Columbia River
- **Geospatial_Data_Presentation_Form:** Expert Knowledge
- **Publication_Information:**
  - **Publication_Place:** Unpublished material
  - **Publisher:** Unpublished material

- **Type_of_Source_Media:** Personal communication
- **Source_Time_Period_of_Content:**
  - **Single_Date/Time:**
    - **Calendar_Date:** 200402
- **Source_Currentness_Reference:** Date of communication
- **Source_Citation_Abbreviation:** None
- **Source_Contribution:** Distribution and seasonality information for invertebrates

**Source_Information:**

**Source_Citation:**

**Citation_Information:**

- **Originator:** Hunter, M., Oregon Department of Fish and Wildlife (ODFW)
- **Publication_Date:** 200402
- **Title:** Invertebrate Abundance and Distribution in the Columbia River Estuary
- **Geospatial_Data_Presentation_Form:** Hardcopy map
- **Publication_Information:**
  - **Publication_Place:** Unpublished material
  - **Publisher:** Unpublished material
Process Step:

Three main sources were used to depict invertebrate distribution and seasonality for this data layer: (1) personal interviews with resource experts from Oregon Department of Fish and Wildlife (ODFW); (2) numerous published and unpublished reports; and (3) information and locations adapted from Washington Priority Habitat data. Information gathered during initial interviews and from hardcopy sources was compiled onto U.S. Geological Survey 1:24,000 topographic...
quadrangles.

The compiled data were digitized off of the base maps into an ArcInfo system to create the INVERT data layer. All ESI, biology, and human-use data were plotted onto hardcopy draft maps. Following the delivery of draft maps to the participating resource experts, a second set of interviews was conducted to review the maps. Edits to the INVERT data layer were made based on the recommendations of the resource experts, and final hardcopy maps were created. Concentration information varied, and in general, no numerical counts of invertebrates were available. Therefore, for some species and locations, descriptive terms such as "HIGH" or "COMMON" were used. Concentration and seasonality information was provided by resource experts, or was extracted from published sources, reports, and survey data.

Process_Date: 200408
Process_Contact:
Contact_Information:
  Contact_Organization_Primary:
    Contact_Organization: NOAA, Office of Response and Restoration
    Contact Person: Jill Petersen
  Contact_Address:
    Address_Type: Physical address
    Address: 7600 Sand Point Way N.E.
    City: Seattle
    State_or_Province: Washington
    Postal_Code: 98115-6349
  Contact_Voice_Telephone: (206) 526-6944
  Contact_Facsimile_Telephone: (206) 526-6329
  Contact_Electronic_Mail_Address: Jill.Petersen@noaa.gov

Spatial_Data_Organization_Information:
  Direct_Spatial_Reference_Method: Vector
  Point_and_Vector_Object_Information:
    SDTS_Terms_Description:
      SDTS_Point_and_Vector_Object_Type: GT-polygon composed of rings
      Point_and_Vector_Object_Count: 33
    SDTS_Terms_Description:
      SDTS_Point_and_Vector_Object_Type: Area point
      Point_and_Vector_Object_Count: 33
    SDTS_Terms_Description:
      SDTS_Point_and_Vector_Object_Type: Complete chain
      Point_and_Vector_Object_Count: 120
    SDTS_Terms_Description:
      SDTS_Point_and_Vector_Object_Type: Link
      Point_and_Vector_Object_Count: 40396
    SDTS_Terms_Description:
      SDTS_Point_and_Vector_Object_Type: Node, planar graph
      Point_and_Vector_Object_Count: 110

Spatial_Reference_Information:
  Horizontal_Coordinate_System_Definition:
    Geographic:
      Latitude_Resolution: 0.0000001
      Longitude_Resolution: 0.0000001
      Geographic_Coordinate_Units: Decimal degrees
    Geodetic_Model:
      Horizontal_Datum_Name: North American Datum of 1927
**Ellipsoid_Name:** Clark 1866  
**Semi-major_Axis:** 6378206.4  
**Denominator_of_Flattening_Ratio:** 294.978698

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**Entity_and_Attribute_Information:**

**Overview_Description:**

In addition to the geographic data layers, six relational attribute or data tables, BIORES, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, are used to store the complex biological data in the ESI data structure. The geographic data layer containing biological resource information (in this case, INVERT) is linked to the Biological Resources table (BIORES) using the unique ID and the lookup table BIO_LUT, or it can be linked directly using RARNUM. The ID is a unique combination of the atlas number (for the Columbia River atlas, the number is 41), an element/layer specific number (BIRDS are layer 1, FISH are layer 2, etc.), and a unique record number. The RARNUM represents a unique combination of species, seasonalities, concentrations, and source information. For each of these groupings, a number is generated. That number is concatenated with the atlas number to create a "resource at risk" number that is unique across atlases. BIORES and the other relational data tables are described below in detail. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way these tables relate to the geographic data layers and other attribute tables in the ESI data structure.

Due to the complexity of the relational database model, the data items are also post-processed into a flat file format. This table, called BIOFILE, may be used in place of the relational files described below to ease simple data queries. The items in the flat file are ELEMENT, SUBELEMENT, NAME, GEN_SPEC, S, F, NHP, DATE_PUB, CONC, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC, BREED1, BREED2, BREED3, BREED4, BREED5, RARNUM, G_SOURCE, S_SOURCE, and BREED. All of these items are the same as their counterparts in the individual data tables described below, except the BREED1-BREED5 and BREED items. BREED is a newly generated variable used to link to the BREED_DT data table, a modified, more compact version of the relational BREED data table. BREED1-BREED5 give a text summary of when each life stage occurs within the associated map object. The life stages referred to are the same as those listed in the Detailed_Description of the BREED data table. The link to the BIOFILE may be made through the BIO_LUT, using ID to link to RARNUM, or BIOFILE may be linked directly to the RARNUM in each of the geographic layer's attribute data tables. As mentioned, BREED_DT is an auxiliary support data table to the flat file structure, which allows the user to do searches based on month for seasonal breeding activities. The link from the flat file to BREED_DT is the BREED item.

A second supporting data table is SOURCES. This is the same as the source file described above, and the link from the flat file is both G_SOURCE and S_SOURCE. It should be noted that although the flat file eases data query, it is not a normalized database structure, and actual updates performed by the states and other responsible agencies should be done using the relational data tables. The entity-relationship diagram, describing relationships between attribute tables in the ESI data structure, does NOT include the BIOFILE data table, and this data table is NOT described in detail below.

**Detailed_Description:**

**Entity_Type:**

**Entity_Type_Label:** INVERT.PAT  
**Entity_Type_Definition:**

The INVERT.PAT table contains attribute information for the vector polygons representing invertebrate concentration areas. Note that all attribute information is stored in a series of relational files, described below. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the relationships between attribute tables in the ESI data structure.

**Entity_Type_Definition_Source:** Research Planning, Inc.

**Attribute:**
Attribute Label: ID
Attribute Definition:
An identifier that links vector objects in the biology data layers to records in the BIO_LUT data table. ID is a concatenation of atlas number (41), element number (7), and record number. ID values of 9999 are holes in polygons and do not contain information.
Attribute Definition Source: NOAA
Attribute Domain Values:
Range Domain:
- Range Domain Minimum: 410700002
- Range Domain Maximum: 410700034

Attribute:
Attribute Label: RARNUM
Attribute Definition:
An identifier that links directly to the BIORES table or the flat format BIOFILE table. RARNUM values of 0 are holes in polygons and do not contain information.
Attribute Definition Source: NOAA
Attribute Domain Values:
Range Domain:
- Range Domain Minimum: 41000250
- Range Domain Maximum: 41000263

Detailed Description:
Entity Type:
Entity Type Label: BIO_LUT
Entity Type Definition:
The data table BIO_LUT is a lookup table that contains items necessary for linking vector objects in the biological data layers with the BIORES data table. Note that all attribute information is stored in a series of relational files, described below. See the Browse Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
Entity Type Definition Source: Research Planning, Inc.

Attribute:
Attribute Label: RARNUM
Attribute Definition:
An identifier that links records in the BIO_LUT data table to records in the BIORES data table or the flat format BIOFILE data table. RARNUM values of 0 are holes in polygons and do not contain information.
Attribute Definition Source: NOAA
Attribute Domain Values:
Range Domain:
- Range Domain Minimum: 41000001
- Range Domain Maximum: 41000290

Attribute:
Attribute Label: ID
Attribute Definition:
An identifier that links vector objects in the biology data layers to records in the BIO_LUT data table. ID is a concatenation of atlas number (41), element number (7), and record number. ID values of 9999 are holes in polygons and do not contain information.
Attribute Definition Source: NOAA
Attribute Domain Values:
Range Domain:
- Range Domain Minimum: 410100002
- Range Domain Maximum: 413400015

Detailed Description:
Entity Type:
Entity Type Label: BIORES
Entity Type Definition:
The data table BIORES contains both biological attribute data and items necessary for linking vector objects in the biological data layers via the BIO_LUT data table to
other associated data tables. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.

*Entity_Type_Definition_Source:* Research Planning, Inc.

**Attribute:**

- **Attribute_Label:** RARNUM
  - **Attribute_Definition:** An identifier that links records in the BIORES data table to records in the BIO_LUT data table or the flat format BIOFILE data table.
  - **Attribute_Definition_Source:** NOAA
  - **Attribute_Domain_Values:**
    - Range_Domain:
      - Range_Domain_Minimum: 041000001
      - Range_Domain_Maximum: 041000290

**Attribute:**

- **Attribute_Label:** SPECIES_ID
  - **Attribute_Definition:** Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.
  - **Attribute_Definition_Source:** Research Planning, Inc.
  - **Attribute_Domain_Values:**
    - Range_Domain:
      - Range_Domain_Minimum: 1
      - Range_Domain_Maximum: N

**Attribute:**

- **Attribute_Label:** CONC
  - **Attribute_Definition:** The field CONC refers to "concentration," abundance, or density values. In the case of invertebrates, no quantitative count data were available, so the field may contain a descriptive term, such as "HIGH" or "COMMON". If no concentration information was available from any source, the field is populated with ".-". Concentration estimates were derived from a variety of surveys.
  - **Attribute_Definition_Source:** Research Planning, Inc.
  - **Attribute_Domain_Values:**
    - Unrepresentable_Domain: Acceptable values change from atlas to atlas

**Attribute:**

- **Attribute_Label:** SEASON_ID
  - **Attribute_Definition:** Numeric identifier for the unique monthly presence and life history characteristics of each species at a given location.
  - **Attribute_Definition_Source:** Research Planning, Inc.
  - **Attribute_Domain_Values:**
    - Range_Domain:
      - Range_Domain_Minimum: 1
      - Range_Domain_Maximum: N

**Attribute:**

- **Attribute_Label:** G_SOURCE
  - **Attribute_Definition:** Geographic source identifier that links records in the BIORES data table to records in the SOURCES data table.
  - **Attribute_Definition_Source:** Research Planning, Inc.
  - **Attribute_Domain_Values:**
    - Range_Domain:
      - Range_Domain_Minimum: 1
      - Range_Domain_Maximum: N

**Attribute:**

- **Attribute_Label:** S_SOURCE
  - **Attribute_Definition:** Seasonality source identifier that links records in the BIORES data table to records in the SOURCES data table.
Attribute: **AttributeLabel:** ELEMENT  
**AttributeDefinition:** Major categories of biological data  
**AttributeDefinitionSource:** Research Planning, Inc.  
**AttributeDomainValues:**  
**EnumeratedDomain:**  
**EnumeratedDomainValue:** BIRD  
**EnumeratedDomainValueDefinition:** Birds  
**EnumeratedDomainValueDefinitionSource:** Research Planning, Inc.  
**AttributeDomainValues:**  
**EnumeratedDomain:**  
**EnumeratedDomainValue:** FISH  
**EnumeratedDomainValueDefinition:** Fish  
**EnumeratedDomainValueDefinitionSource:** Research Planning, Inc.  
**AttributeDomainValues:**  
**EnumeratedDomain:**  
**EnumeratedDomainValue:** HABITAT  
**EnumeratedDomainValueDefinition:** Habitats and Plants  
**EnumeratedDomainValueDefinitionSource:** Research Planning, Inc.  
**AttributeDomainValues:**  
**EnumeratedDomain:**  
**EnumeratedDomainValue:** INVERT  
**EnumeratedDomainValueDefinition:** Invertebrates  
**EnumeratedDomainValueDefinitionSource:** Research Planning, Inc.  
**AttributeDomainValues:**  
**EnumeratedDomain:**  
**EnumeratedDomainValue:** M_MAMMAL  
**EnumeratedDomainValueDefinition:** Marine Mammals  
**EnumeratedDomainValueDefinitionSource:** Research Planning, Inc.  
**AttributeDomainValues:**  
**EnumeratedDomain:**  
**EnumeratedDomainValue:** REPTILE  
**EnumeratedDomainValueDefinition:** Reptiles and Amphibians  
**EnumeratedDomainValueDefinitionSource:** Research Planning, Inc.  
**AttributeDomainValues:**  
**EnumeratedDomain:**  
**EnumeratedDomainValue:** T_MAMMAL  
**EnumeratedDomainValueDefinition:** Terrestrial Mammals  
**EnumeratedDomainValueDefinitionSource:** Research Planning, Inc.  

Attribute: **AttributeLabel:** EL_SPE  
**AttributeDefinition:** Concatenation of ELEMENT and SPECIES_ID. This item links records in the BIORES data table to records in the SPECIES and STATUS data tables.  
**AttributeDefinitionSource:** Research Planning, Inc.  
**AttributeDomainValues:**  
**EnumeratedDomain:**  
**EnumeratedDomainValue:** E#####  
**EnumeratedDomainValueDefinition:** Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = 'B00001').  
**EnumeratedDomainValueDefinitionSource:** Research Planning, Inc.  

Attribute: **AttributeLabel:** EL_SPE_SEA
Attribute Definition:

Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the BIORES data table to records in the SEASONAL and BREED data tables.

Attribute Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: E#######

Enumerated Domain Value Definition:

Where E is the first character of ELEMENT, the next five characters are SPECIES_ID, and the last two characters are SEASON_ID (e.g. ELEMENT = 'BIRD', SPECIES_ID = 1 and SEASON_ID = 1; EL_SPE_SEA = 'B0000101').

Enumerated Domain Value Definition Source: Research Planning, Inc.

Detailed Description:

Entity Type:

Entity Type Label: SPECIES

Entity Type Definition:

The data table SPECIES identifies all species in the ESI data set. See the Browse Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure. Refer to the Completeness Report for a list of layer-specific species.

Entity Type Definition Source: Research Planning, Inc.

Attribute:

Attribute Label: SPECIES_ID

Attribute Definition:

Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.

Attribute Definition Source: Research Planning, Inc.

Attribute Domain Values:

Range Domain:

Range Domain Minimum: 1
Range Domain Maximum: N

Attribute:

Attribute Label: NAME

Attribute Definition: Species common name for the entire ESI data set

Attribute Definition Source: Research Planning, Inc.

Attribute Domain Values:

Unrepresentable Domain: Acceptable values change from atlas to atlas

Attribute:

Attribute Label: GEN_SPEC

Attribute Definition: Species scientific name for the entire ESI data set

Attribute Definition Source: Research Planning, Inc.

Attribute Domain Values:

Unrepresentable Domain: Acceptable values change from atlas to atlas

Attribute:

Attribute Label: ELEMENT

Attribute Definition: Major categories of biological data

Attribute Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: BIRD
Enumerated Domain Value Definition: Birds
Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: FISH
Enumerated Domain Value Definition: Fish
Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:
Enumerated_Domain:
  Enumerated_Domain_Value: HABITAT
  Enumerated_Domain_Value_Definition: Habitats and Plants
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: INVERT
    Enumerated_Domain_Value_Definition: Invertebrates
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: M_MAMMAL
    Enumerated_Domain_Value_Definition: Marine Mammals
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: REPTILE
    Enumerated_Domain_Value_Definition: Reptiles and Amphibians
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: T_MAMMAL
    Enumerated_Domain_Value_Definition: Terrestrial Mammals
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: SUBELEMENT
  Attribute_Definition: Element subgroup delineating a logical grouping of species
  Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: bivalve
    Enumerated_Domain_Value_Definition: Bivalve
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: crab
    Enumerated_Domain_Value_Definition: Crab
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: diadromous
    Enumerated_Domain_Value_Definition: Diadromous fish
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: diving
    Enumerated_Domain_Value_Definition: Diving bird
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: e_nursery
    Enumerated_Domain_Value_Definition: Estuarine nursery fish
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: fav
    Enumerated_Domain_Value_Definition: Floating aquatic vegetation
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
Enumerated_Domain_Value: freshwater
Enumerated_Domain_Value_Definition: Freshwater fish
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: gull_tern
    Enumerated_Domain_Value_Definition: Gull or tern
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: passerine
    Enumerated_Domain_Value_Definition: Passerine bird
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: pinniped
    Enumerated_Domain_Value_Definition: Pinniped
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: raptor
    Enumerated_Domain_Value_Definition: Raptor
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: sav
    Enumerated_Domain_Value_Definition: Submerged aquatic vegetation
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: shorebird
    Enumerated_Domain_Value_Definition: Shorebird
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: sm_mammal
    Enumerated_Domain_Value_Definition: Small mammal
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: turtle
    Enumerated_Domain_Value_Definition: Turtle
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: ungulate
    Enumerated_Domain_Value_Definition: Ungulate
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: wading
    Enumerated_Domain_Value_Definition: Wading bird
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: waterfowl
    Enumerated_Domain_Value_Definition: Waterfowl
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: NHP
**Attribute Definition:**
Natural Heritage Program global ranking. When no information was provided on the global rank for a species, the field is blank.

**Attribute Definition Source:** Network of Natural Heritage Program

**Attribute Domain Values:**

- **Codeset Domain:**
  - **Codeset Name:** NHP Global Conservation Status Rank
  - **Codeset Source:** Natural Heritage Program

**Attribute:**

**Attribute Label:** DATE_PUB

**Attribute Definition:** Date of NHP listing

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

- **Enumerated Domain:**
  - **Enumerated Domain Value:** YYYYMM
  - **Enumerated Domain Value Definition:** YYYY for year and optionally MM for month
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Attribute:**

**Attribute Label:** EL_SPE

**Attribute Definition:** Concatenation of ELEMENT and SPECIES_ID. This item links records in the SPECIES data table to records in the BIOPHES and STATUS data tables.

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

- **Enumerated Domain:**
  - **Enumerated Domain Value:** E####
  - **Enumerated Domain Value Definition:** Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = 'B00001').
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Detailed Description:**

**Entity Type:**

- **Entity Type Label:** SEASONAL
  - **Entity Type Definition:** The data table SEASONAL contains information on the seasonal presence of each species associated with each spatial vector object. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.

**Entity Type Definition Source:** Research Planning, Inc.

**Attribute:**

**Attribute Label:** ELEMENT

**Attribute Definition:** Major categories of biological data

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

- **Enumerated Domain:**
  - **Enumerated Domain Value:** BIRD
  - **Enumerated Domain Value Definition:** Birds
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

- **Enumerated Domain:**
  - **Enumerated Domain Value:** FISH
  - **Enumerated Domain Value Definition:** Fish
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: HABITAT
Enumerated_Domain_Value_Definition: Habitats and Plants
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: INVERT
Enumerated_Domain_Value_Definition: Invertebrates
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: M_MAMMAL
Enumerated_Domain_Value_Definition: Marine Mammals
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: REPTILE
Enumerated_Domain_Value_Definition: Reptiles and Amphibians
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: T_MAMMAL
Enumerated_Domain_Value_Definition: Terrestrial Mammals
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: SPECIES_ID
Attribute_Definition:
Numeric identifier for each species that is unique within each element and refers to a nationwide ESI species list maintained at NOAA.
Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 1
Range_Domain_Maximum: N

Attribute:
Attribute_Label: SEASON_ID
Attribute_Definition:
Numeric identifier for the unique monthly presence and life history characteristics of each species at a given location.
Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 1
Range_Domain_Maximum: N

Attribute:
Attribute_Label: JAN
Attribute_Definition: January
Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: X
Enumerated_Domain_Value_Definition: Present in January
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: FEB
Attribute_Definition: February
Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
    Enumerated_Domain_Value: X
    Enumerated_Domain_Value_Definition: Present in February
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
    Attribute_Label: MAR
    Attribute_Definition: March
    Attribute_Definition_Source: Research Planning, Inc.
    Attribute_Domain_Values:
        Enumerated_Domain:
            Enumerated_Domain_Value: X
            Enumerated_Domain_Value_Definition: Present in March
            Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
    Attribute_Label: APR
    Attribute_Definition: April
    Attribute_Definition_Source: Research Planning, Inc.
    Attribute_Domain_Values:
        Enumerated_Domain:
            Enumerated_Domain_Value: X
            Enumerated_Domain_Value_Definition: Present in April
            Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
    Attribute_Label: MAY
    Attribute_Definition: May
    Attribute_Definition_Source: Research Planning, Inc.
    Attribute_Domain_Values:
        Enumerated_Domain:
            Enumerated_Domain_Value: X
            Enumerated_Domain_Value_Definition: Present in May
            Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
    Attribute_Label: JUN
    Attribute_Definition: June
    Attribute_Definition_Source: Research Planning, Inc.
    Attribute_Domain_Values:
        Enumerated_Domain:
            Enumerated_Domain_Value: X
            Enumerated_Domain_Value_Definition: Present in June
            Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
    Attribute_Label: JUL
    Attribute_Definition: July
    Attribute_Definition_Source: Research Planning, Inc.
    Attribute_Domain_Values:
        Enumerated_Domain:
            Enumerated_Domain_Value: X
            Enumerated_Domain_Value_Definition: Present in July
            Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
    Attribute_Label: AUG
    Attribute_Definition: August
    Attribute_Definition_Source: Research Planning, Inc.
    Attribute_Domain_Values:
        Enumerated_Domain:
            Enumerated_Domain_Value: X
            Enumerated_Domain_Value_Definition: Present in August
            Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
    Attribute_Label: SEP
Attribute Definition: September
Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Enumerated Domain:
    Enumerated Domain Value: X
    Enumerated Domain Value Definition: Present in September
    Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:
Attribute Label: OCT
Attribute Definition: October
Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Enumerated Domain:
    Enumerated Domain Value: X
    Enumerated Domain Value Definition: Present in October
    Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:
Attribute Label: NOV
Attribute Definition: November
Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Enumerated Domain:
    Enumerated Domain Value: X
    Enumerated Domain Value Definition: Present in November
    Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:
Attribute Label: DEC
Attribute Definition: December
Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Enumerated Domain:
    Enumerated Domain Value: X
    Enumerated Domain Value Definition: Present in December
    Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:
Attribute Label: EL_SPE_SEA
Attribute Definition:
  Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links
  records in the SEASONAL data table to records in the BIORES and BREED data
  tables.
  Attribute Definition Source: Research Planning, Inc.
  Enumerated Domain:
    Enumerated Domain Value: E####
    Enumerated Domain Value Definition: Where E is the first character of ELEMENT, the next five
      characters are SPECIES_ID, and the last two characters are
      SEASON_ID (e.g. ELEMENT = 'BIRD', SPECIES_ID = 1 and
      SEASON_ID = 1; EL_SPE_SEA = 'B0000101').
    Enumerated Domain Value Definition Source: Research Planning, Inc.

Detailed Description:
Entity Type:
  Entity Type Label: BREED
  Entity Type Definition:
    The data table BREED identifies the monthly presence of certain life-history stages
    or activities for each species at a given location.
    Entity Type Definition Source: Research Planning, Inc.

Attribute:
Attribute Label: EL_SPE_SEA
Attribute Definition:
Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the BREED data table to records in the BIORES and SEASONAL data tables.

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

<table>
<thead>
<tr>
<th>Enumerated Domain Value</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>E#-----------</td>
<td>Where E is the first character of ELEMENT, the next five characters are SPECIES_ID, and the last two characters are SEASON_ID (e.g. ELEMENT = 'BIRD', SPECIES_ID = 1 and SEASON_ID = 1; EL_SPE_SEA = 'B0000101').</td>
</tr>
</tbody>
</table>

**Attribute:**

**Attribute Label:** MONTH

**Attribute Definition:**

Two-digit calendar month. Each life history stage or activity type for a particular species can have up to 12 records to account for each month of the year.

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

<table>
<thead>
<tr>
<th>Range Domain Minimum</th>
<th>Range Domain Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12</td>
</tr>
</tbody>
</table>

**Attribute:**

**Attribute Label:** BREED1

**Attribute Definition:**

Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED1 = nesting; if ELEMENT is "FISH" then BREED1 = spawning; if ELEMENT is "INVERT" then BREED1 = spawning; if ELEMENT is "REPTILE" then BREED1 = nesting; if ELEMENT is "M_MAMMAL" then BREED1 = mating. This attribute is not used for HABITAT or T_MAMMAL elements.

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

<table>
<thead>
<tr>
<th>Enumerated Domain Value</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>Life-history stage or activity present</td>
</tr>
<tr>
<td>N</td>
<td>Life-history stage or activity not present</td>
</tr>
<tr>
<td>-</td>
<td>Breed category not used or not appropriate for record(s) in question</td>
</tr>
</tbody>
</table>

**Attribute Definition Source:** Research Planning, Inc.

**Attribute:**

**Attribute Label:** BREED2

**Attribute Definition:**

Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED2 = migrating; if ELEMENT is "FISH" then BREED2 = eggs; if ELEMENT is "INVERT" then BREED2 = eggs; if ELEMENT is "REPTILE" then BREED2 = hatching; if ELEMENT is "M_MAMMAL" then BREED2 = calving. This attribute is not used for HABITAT or T_MAMMAL elements.

**Attribute Definition Source:** Research Planning, Inc.
Attribute Domain Values:

Enumerated Domain:

- Enumerated Domain Value: Y
  - Enumerated Domain Value Definition: Life-history stage or activity present
  - Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

- Enumerated Domain Value: N
  - Enumerated Domain Value Definition: Life-history stage or activity not present
  - Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

- Enumerated Domain Value: -
  - Enumerated Domain Value Definition: Breed category not used or not appropriate for record(s) in question
  - Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:

Attribute Label: BREED3

Attribute Definition:

Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED3 = molting; if ELEMENT is "FISH" then BREED3 = larvae; if ELEMENT is "INVERT" then BREED3 = larvae; if ELEMENT is "REPTILE" then BREED3 = internesting; if ELEMENT is "M_MAMMAL" then BREED3 = pupping. This attribute is not used for HABITAT or T_MAMMAL elements.

Attribute Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

- Enumerated Domain Value: Y
  - Enumerated Domain Value Definition: Life-history stage or activity present
  - Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

- Enumerated Domain Value: N
  - Enumerated Domain Value Definition: Life-history stage or activity not present
  - Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

- Enumerated Domain Value: -
  - Enumerated Domain Value Definition: Breed category not used or not appropriate for record(s) in question
  - Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:

Attribute Label: BREED4

Attribute Definition:

Life history stage or activity type, where: if ELEMENT is "FISH" then BREED4 = juveniles; if ELEMENT is "INVERT" then BREED4 = juveniles; if ELEMENT is "REPTILE" then BREED4 = juveniles; if ELEMENT is "M_MAMMAL" then BREED4 = molting. This attribute is not used for BIRD, HABITAT, or T_MAMMAL elements.

Attribute Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

- Enumerated Domain Value: Y
  - Enumerated Domain Value Definition: Life-history stage or activity present
**Enumerated_Domain_Value_Definition_Source**: Research Planning, Inc.

**Attribute_Domain_Values**:

**Enumerated_Domain**:

**Enumerated_Domain_Value**: N
**Enumerated_Domain_Value_Definition**: Life-history stage or activity not present
**Enumerated_Domain_Value_Definition_Source**: Research Planning, Inc.

**Enumerated_Domain**:

**Enumerated_Domain_Value**: -
**Enumerated_Domain_Value_Definition**: Breed category not used or not appropriate for record(s) in question
**Enumerated_Domain_Value_Definition_Source**: Research Planning, Inc.

**Attribute**:

**Attribute_Label**: BREED5
**Attribute_Definition**: Life history stage or activity type, where: if ELEMENT is "FISH" then BREED5 = adults; if ELEMENT is "INVERT" then BREED5 = adults; if ELEMENT is "REPTILE" then BREED5 = adults. This attribute is not used for BIRD, M_MAMMAL, HABITAT, or T_MAMMAL elements.
**Attribute_Definition_Source**: Research Planning, Inc.

**Enumerated_Domain**:

**Enumerated_Domain_Value**: Y
**Enumerated_Domain_Value_Definition**: Life-history stage or activity present
**Enumerated_Domain_Value_Definition_Source**: Research Planning, Inc.

**Enumerated_Domain**:

**Enumerated_Domain_Value**: N
**Enumerated_Domain_Value_Definition**: Life-history stage or activity not present
**Enumerated_Domain_Value_Definition_Source**: Research Planning, Inc.

**Enumerated_Domain**:

**Enumerated_Domain_Value**: -
**Enumerated_Domain_Value_Definition**: Breed category not used or not appropriate for record(s) in question
**Enumerated_Domain_Value_Definition_Source**: Research Planning, Inc.

**Detailed_Description**:

**Entity_Type**:

**Entity_Type_Label**: SOURCES
**Entity_Type_Definition**: The data table SOURCES contains the primary sources used to create the ESI data set. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
**Entity_Type_Definition_Source**: Research Planning, Inc.

**Attribute**:

**Attribute_Label**: SOURCE_ID
**Attribute_Definition**: Source identifier that links records in the SOURCES data table to the items G_SOURCE and A_SOURCE in the SOC_DAT table, and to G_SOURCE and S_SOURCE in the BIORES table.
**Attribute_Definition_Source**: Research Planning, Inc.
Attribute:
Attribute_Label: ORIGINATOR
Attribute_Definition: Author or developer of source material or data set
Attribute_Definition_Source: Research Planning, Inc.
Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
Attribute_Label: DATE_PUB
Attribute_Definition: Date of source material, publication, or date of personal communication with expert source
Attribute_Definition_Source: Research Planning, Inc.
Enumerated_Domain:
Enumerated_Domain_Value: YYYYMM
Enumerated_Domain_Value_Definition: YYYY for year and optionally MM for month
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: TITLE
Attribute_Definition: Title of source material or data
Attribute_Definition_Source: Research Planning, Inc.
Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
Attribute_Label: DATA_FORMAT
Attribute_Definition: The format of the source material
Attribute_Definition_Source: Research Planning, Inc.
Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
Attribute_Label: PUBLICATION
Attribute_Definition: Additional citation information
Attribute_Definition_Source: Research Planning, Inc.
Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
Attribute_Label: SCALE
Attribute_Definition: Scale denominator of the source
Attribute_Definition_Source: Research Planning, Inc.
Enumerated_Domain:
Enumerated_Domain_Value: integer
Enumerated_Domain_Value_Definition: Any integer
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: TIME_PERIOD
Attribute_Definition: Date(s) of data collection that the source material is based upon.
Attribute_Definition_Source: Research Planning, Inc.
Enumerated_Domain:
Enumerated_Domain_Value: MM/DD/YY
Enumerated_Domain_Value_Definition: Month/Day/Year
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: MM/YYYY
Enumerated_Domain_Value_Definition: Month/Year
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
	Enumerated_Domain:
		Enumerated_Domain_Value: UNKNOWN
	Enumerated_Domain_Value_Definition: Date information unknown
	Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Detailed_Description:
Entity_Type:
	Entity_Type_Label: STATUS
	Entity_Type_Definition:
The data table STATUS identifies the species that are listed as threatened or endangered by a state or federal authority. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
	Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: ELEMENT
Attribute_Definition: Major categories of biological data
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
	Enumerated_Domain:
		Enumerated_Domain_Value: BIRD
	Enumerated_Domain_Value_Definition: Birds
	Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
	Enumerated_Domain:
		Enumerated_Domain_Value: FISH
	Enumerated_Domain_Value_Definition: Fish
	Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
	Enumerated_Domain:
		Enumerated_Domain_Value: HABITAT
	Enumerated_Domain_Value_Definition: Habitats and Plants
	Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
	Enumerated_Domain:
		Enumerated_Domain_Value: INVERT
	Enumerated_Domain_Value_Definition: Invertebrates
	Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
	Enumerated_Domain:
		Enumerated_Domain_Value: M_MAMMAL
	Enumerated_Domain_Value_Definition: Marine Mammals
	Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
	Enumerated_Domain:
		Enumerated_Domain_Value: REPTILE
	Enumerated_Domain_Value_Definition: Reptiles and Amphibians
	Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
	Enumerated_Domain:
		Enumerated_Domain_Value: T_MAMMAL
	Enumerated_Domain_Value_Definition: Terrestrial Mammals
	Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: SPECIES_ID
Attribute_Definition:
Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.
Attribute\_Definition\_Source: Research Planning, Inc.

Attribute\_Domain\_Values:
  Range\_Domain:
    Range\_Domain\_Minimum: 1
    Range\_Domain\_Maximum: N

Attribute:
  Attribute\_Label: S
  Attribute\_Definition: State threatened or endangered status
  Attribute\_Definition\_Source: Research Planning, Inc.
  Attribute\_Domain\_Values:
    Enumerated\_Domain:
      Enumerated\_Domain\_Value: E
      Enumerated\_Domain\_Value\_Definition: Endangered on state list
      Enumerated\_Domain\_Value\_Definition\_Source: U.S. Fish and Wildlife Service
  Attribute\_Domain\_Values:
    Enumerated\_Domain:
      Enumerated\_Domain\_Value: T
      Enumerated\_Domain\_Value\_Definition: Threatened on state list
      Enumerated\_Domain\_Value\_Definition\_Source: U.S. Fish and Wildlife Service
  Attribute\_Domain\_Values:
    Enumerated\_Domain:
      Enumerated\_Domain\_Value: C
      Enumerated\_Domain\_Value\_Definition: Species of Special Concern
      Enumerated\_Domain\_Value\_Definition\_Source: U.S. Fish and Wildlife Service

Attribute:
  Attribute\_Label: F
  Attribute\_Definition: Federal threatened or endangered status
  Attribute\_Definition\_Source: Research Planning, Inc.
  Attribute\_Domain\_Values:
    Enumerated\_Domain:
      Enumerated\_Domain\_Value: E
      Enumerated\_Domain\_Value\_Definition: Endangered on federal list
      Enumerated\_Domain\_Value\_Definition\_Source: U.S. Fish and Wildlife Service
  Attribute\_Domain\_Values:
    Enumerated\_Domain:
      Enumerated\_Domain\_Value: T
      Enumerated\_Domain\_Value\_Definition: Threatened on federal list
      Enumerated\_Domain\_Value\_Definition\_Source: U.S. Fish and Wildlife Service
  Attribute\_Domain\_Values:
    Enumerated\_Domain:
      Enumerated\_Domain\_Value: C
      Enumerated\_Domain\_Value\_Definition: Species of Special Concern
      Enumerated\_Domain\_Value\_Definition\_Source: U.S. Fish and Wildlife Service

Attribute:
  Attribute\_Label: STATE
  Attribute\_Definition: Two-letter state abbreviation
  Attribute\_Definition\_Source: Research Planning, Inc.
  Attribute\_Domain\_Values:
    Unrepresentable\_Domain: Acceptable values change from atlas to atlas

Attribute:
  Attribute\_Label: S\_DATE
  Attribute\_Definition: Publication date of source material used to assign state status values for each species, if used.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: YYYYMM
    Enumerated_Domain_Value_Definition: YYYY for year and optionally MM for month
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: F_DATE
  Attribute_Definition:
    Publication date of source material used to assign federal status values for each species, if used.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: YYYYMM
      Enumerated_Domain_Value_Definition: YYYY for year and optionally MM for month
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: EL_SPE
  Attribute_Definition:
    Concatenation of ELEMENT and SPECIES_ID. This item links the STATUS data table to the BIORES and SPECIES data tables.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: E####
      Enumerated_Domain_Value_Definition:
        Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = 'B00001').
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Distribution_Information:
  Distributor:
    Contact_Information:
      Contact_Person_Primary: John Kaperick
      Contact_Person: John Kaperick
      Contact_Organization: NOAA, Office of Response and Restoration
    Contact_Address:
      Address_Type: Physical Address
      Address: 7600 Sand Point Way N.E.
      City: Seattle
      State_or_Province: Washington
      Postal_Code: 98115-6349
      Contact_Voice_Telephone: (206) 526-6400
      Contact_Facsimile_Telephone: (206) 526-6329
  Resource_Description: ESI Atlas for Columbia River
  Distribution_Liability:
    Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement copy of the product when the product is determined unreadable by computer-input peripherals, or when the physical medium is delivered in damaged condition.
    Custom_Order_Process:
      Contact NOAA for distribution options (see Distributor). ESI data are processed into multiple
formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the distribution CDs for ease of use of the ESI data. The database files are distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats.

**Metadata Reference Information:**

**Metadata Date:** 200411  
**Metadata Review Date:** 200411  
**Metadata Contact:**

- **Contact Person Primary:** Jill Petersen  
- **Contact Organization:** NOAA, Office of Response and Restoration  
- **Contact Position:** GIS Manager  
- **Address Type:** Physical Address  
- **Address:** 7600 Sand Point Way N.E.  
- **City:** Seattle  
- **State or Province:** Washington  
- **Postal Code:** 98115-6349  
- **Contact Voice Telephone:** (206) 526-6944  
- **Contact Facsimile Telephone:** (206) 526-6329  
- **Contact Electronic Mail Address:** Jill.Petersen@noaa.gov  

**Metadata Standard Name:** Content Standards for Digital Geospatial Metadata  
**Metadata Standard Version:** FGDC-STD-001-1998  

Generated by mp version 2.8.2 on Tue Dec 07 18:04:53 2004
Columbia River ESI: REPTILES (Reptile and Amphibian Polygons)

Metadata also available as - [Parseable text] - [SGML]

Metadata:

- **Identification_Information**
- **Data_Quality_Information**
- **Spatial_Data_Organization_Information**
- **Spatial_Reference_Information**
- **Entity_and_Attribute_Information**
- **Distribution_Information**
- **Metadata_Reference_Information**

Identification_Information:

Citation:

**Originator:**

**Publication_Date:** 200411

**Title:** Columbia River ESI: REPTILES (Reptile and Amphibian Polygons)

**Edition:** First

**Geospatial_Data_Presentation_Form:** Vector digital data

Series_Information:

**Series_Name:** None

**Issue_Identification:** Columbia River

Publication_Information:

**Publication_Place:** Seattle, Washington

**Publisher:**

Other_Citation_Details:


Description:

**Abstract:**

This data set contains sensitive biological resource data for western pond turtles and western painted turtles in Columbia River. Vector polygons in this data set represent locations of turtle distributions. Species-specific abundance, seasonality, status, life history, and source information are stored in relational data tables (described below) designed to be used in conjunction with this spatial data layer.

This data set comprises a portion of the Environmental Sensitivity Index (ESI) data for Columbia River. ESI data characterize the marine and coastal environments and wildlife by their sensitivity to spilled oil. The ESI data include information for three main components: shoreline habitats, sensitive biological resources, and human-use resources.
Purpose:
The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response. The Clean Water Act with amendments by the Oil Pollution Act of 1990 requires response plans for immediate and effective protection of sensitive resources.

Time_Period_of_Content:

Time_Period_Information:
Range_of_Dates/Times:
  Beginning_Date: 2003
  Ending_Date: 2004

Currentness_Reference:
The biological data were compiled during 2003-2004. The currentness date for these data is 2004 and is documented in the Lineage section.

Status:
Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:
Bounding_Coordinates:
  West_Bounding_Coordinate: -124.125
  East_Bounding_Coordinate: -120.67375
  North_Bounding_Coordinate: 46.375
  South_Bounding_Coordinate: 45.3

Keywords:
Theme:
  Theme_Keyword_Thesaurus: None
  Theme_Keyword: ESI
  Theme_Keyword: Sensitivity maps
  Theme_Keyword: Coastal resources
  Theme_Keyword: Oil spill planning
  Theme_Keyword: Coastal Zone Management
  Theme_Keyword: Wildlife
  Theme_Keyword: Reptile

Place:
  Place_Keyword_Thesaurus: None
  Place_Keyword: Columbia River

Access_Constraints: None
Use_Constraints: DO NOT USE MAPS FOR NAVIGATIONAL PURPOSES. Besides the above warning, there are no use constraints on these data. Note that the ESI database should not be used to the exclusion of other pertinent data or information held by state or federal agencies or other organizations. Likewise, information contained in the database cannot be used in place of consultations with environmental, natural resource, and cultural resource agencies, or in place of field surveys. Recognize that the information contained in the ESI database represents known concentration areas or occurrences of natural, cultural, and human-use resources, but does not necessarily represent the full distribution or range of each species or resource. This is particularly important to recognize when considering potential impacts to protected resources, such as endangered species, wetlands, etc. Acknowledgment of the originators, publishers, contributors, and sources listed would be appreciated in products derived from these data.

Browse_Graphic:
  Browse_Graphic_File_Name: datafig.jpg
  Browse_Graphic_File_Description: Depicts the relationships between spatial data layers and attribute data tables for the Columbia River ESI data.
  Browse_Graphic_File_Type: JPEG

Data_Set_Credit:
This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; Coastal Storms Initiative; U.S. Fish and Wildlife Service; NOAA Fisheries; State of Oregon; and State of Washington.

Native_Data_Set_Environment:
The software packages used to develop the atlas are Environmental Systems Research Institute's
ARC/INFO(r) (version 8.3) and SQL SERVER(r) (version 7.0). The hardware configuration is PC's
with Windows Operating System (NT4.0/2000).

The Spatial_Data_Organization_Information section refers only to the source files in the ARC
export format. The following files are included in that data set: birds.e00, esi.e00, fish.e00,
fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mammal.e00, m_mampt.e00, mgt.e00,
nests.e00, nwi.e00, reptiles.e00, socecon.e00, t_mammal.e00. Associated relational and desktop data
tables provided in Arc export and text format are bio_lut, biofile, biorres, breed, breed_dt, runs_dat,
seasonal, soc_dat, soc_lut, sources, species, and status.

Data_Quality_Information:
Attribute_Accuracy:
Attribute_Accuracy_Report:
A multi-stage error checking process is used to verify both attribute accuracy and logical
consistency throughout data production. The process includes a standardized data entry
methodology, hardcopy data review by in-house and external resource experts, a final Quality
Assurance/Quality Control (QA/QC) process, and multiple automated logical consistency
checks. Quantitative data (such as densities, counts, abundances, or concentrations) provided
by resource experts for inclusion in the data set may vary widely in attribute accuracy,
depending upon the methodology used to collect and compile such data. For a more detailed
evaluation of source data attribute accuracy, contact the sources listed in the Lineage section.

Logical_Consistency_Report:
A multi-stage error checking process, described in the above Attribute_Accuracy_Report, is used to
verify both attribute accuracy and logical consistency throughout data production. This process
includes multiple automated logical consistency checks that test the files for missing or duplicate data,
rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and
SQL SERVER(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where
the data are written to CD-ROM and the metadata are written.

After the data are delivered to NOAA, they are again subjected to a number of quality and consistency
checks. In the process of checking for topological and database consistencies, new ID's and
RARNUM's or HUNUM's are also generated. The new ID's are a combination of atlas number,
element number, and record number. In addition, the value used to represent the element is modified
to reflect the type of feature being mapped. In the case of an element that is normally represented by a
point or polygon, a value of 20 is added to the standard element value for mapping of linear features.
In the case where an element usually mapped as a polygon is represented by a point, a value of 30 is
added to the regular element value. The RARNUM's are also modified to include the atlas number, so
multiple atlases can be combined and RARNUM's remain unique. RARNUM's are redefined on an
element basis, so "resource at risk" groupings will contain only a single element. HUNUM's are also
modified to include the atlas number.

Completeness_Report:
These data represent a synthesis of expert knowledge and available digital data on turtle distribution.
These data do not necessarily represent all reptile occurrences in Columbia River. The following
species are included in this data set: (Species_ID, Common Name, Scientific Name, if applicable): 58,
Western pond turtle, Clemmys marmorata; 151, Western painted turtle, Chrysemys picta bellii.

Positional_Accuracy:
Horizontal_Positional_Accuracy:
Horizontal_Positional_Accuracy_Report:
Most of the spatial components of the biological data sets are developed using
regional experts who estimate concentration areas. It is difficult to estimate the
positional accuracy of such data, except to state that they are compiled on hardcopy
base maps with a scale of 1:24,000. Some of the spatial components of the
biological data sets are developed from pre-existing digital sources and reflect the
positional accuracy of these original data. See the Lineage and Process_Description
sections for more information on the original data source and how these data were
integrated or manipulated to create the final data set. Note that biological resource
data by their very nature are considered "fuzzy", and this should be understood
when considering the positional accuracy of vector digital objects representing these
resources.

Source_Information:
Citation_Information:
Originator: Kohl, K., Oregon Department of Fish and Wildlife (ODFW)
Publication_Date: 200401
Title: Bird and Mammal Distribution along the Columbia River
Geospatial_Data_Presentation_Form: Expert knowledge
Publication_Information:
Publication_Date: 200401
Publication_Place: Unpublished material
Publisher: Unpublished material
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 200401
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Distribution information for reptiles
Source_Information:
Citation_Information:
Originator: Anderson, E., U.S. Fish and Wildlife Service (USFWS)
Publication_Date: 200401
Title: Distribution of Wildlife on the Lower Columbia River
Geospatial_Data_Presentation_Form: Expert Knowledge
Publication_Information:
Publication_Date: 200401
Publication_Place: Unpublished material
Publisher: Unpublished material
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 200401
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Distribution and seasonality information for reptiles
Source_Information:
Citation_Information:
Originator: Nebeker, M., Oregon Department of Fish and Wildlife (ODFW)
Publication_Date: 200402
Title: Distribution of Wildlife on Sauvie Island and Surrounding Areas
Geospatial_Data_Presentation_Form: Expert Knowledge
Publication_Information:
Publication_Date: 200402
Publication_Place: Unpublished material
Publisher: Unpublished material
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 200402
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Distribution and seasonality information of reptiles on Sauvie Island and surrounding areas
Source_Information:
Process_Description:
Two main sources of data were used to depict turtle distribution for this data layer: (1) personal interviews with resource experts from the Oregon Department of Fish and Wildlife (ODFW) and U.S. Fish and Wildlife Service (USFWS) and (2) published and unpublished reports. Information gathered during initial interviews and from hardcopy sources was compiled onto U.S. Geological Survey 1:24,000 topographic quadrangles.

The compiled data were digitized off of the base maps into an ArcInfo system to create the REPTILES data layer. All ESI, biology, and human-use data were plotted onto hardcopy draft maps. Following the delivery of draft maps to the participating resource experts, a second set of interviews was conducted to review the maps. Edits to the REPTILES data layer were made based on the recommendations of the resource experts, and final hardcopy maps were created.

Process_Date: 200408

Process_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Person: Jill Petersen
Contact_Address:
Address_Type: Physical address
Columbia River ESI: REPTILES (Reptile and Amphibian Polygons)

Address: 7600 Sand Point Way N.E.
City: Seattle
State_orProvince: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: Jill.Petersen@noaa.gov

Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:

SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: GT-polygon composed of rings
Point_and_Vector_Object_Count: 15

SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Area point
Point_and_Vector_Object_Count: 15

SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Complete chain
Point_and_Vector_Object_Count: 25

SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Link
Point_and_Vector_Object_Count: 7114

SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Node, planar graph
Point_and_Vector_Object_Count: 24

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Geographic:
Latitude_Resolution: 0.0000001
Longitude_Resolution: 0.0000001
Geographic_Coordinate_Units: Decimal degrees

Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1927
Ellipsoid_Name: Clark 1866
Semi-major_Axis: 6378206.4
Denominator_of_Flattening_Ratio: 294.978698

Entity_and_Attribute_Information:
Overview_Description:
Entity_and_Attribute_Overview:
In addition to the geographic data layers, six relational attribute or data tables, BIORES, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, are used to store the complex biological data in the ESI data structure. The geographic data layer containing biological resource information (in this case, REPTILES) is linked to the Biological Resources table (BIORES) using the unique ID and the lookup table BIO_LUT, or it can be linked directly using RARNUM. The ID is a unique combination of the atlas number (for the Columbia River atlas, the number is 41), an element/layer specific number (BIRDS are layer 1, FISH are layer 2, etc.), and a unique record number. The RARNUM represents a unique combination of species, seasonalities, concentrations, and source information. For each of these groupings, a number is generated. That number is concatenated with the atlas number to create a "resource at risk" number that is unique across atlases. BIORES and the other relational data tables are described below in detail. See the Browse_Graphic section for a link
to the entity-relationship diagram, which describes the way these tables relate to the geographic data layers and other attribute tables in the ESI data structure.

Due to the complexity of the relational database model, the data items are also post-processed into a flat file format. This table, called BIOFILE, may be used in place of the relational files described below to ease simple data queries. The items in the flat file are ELEMENT, SUBELEMENT, NAME, GEN_SPEC, S, F, NHP, DATE_PUB, CONC, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC, BREED1, BREED2, BREED3, BREED4, BREED5, RARNUM, G_SOURCE, S_SOURCE, and BREED. All of these items are the same as their counterparts in the individual data tables described below, except the BREED1-BREED5 and BREED items. BREED is a newly generated variable used to link to the BREED_DT data table, a modified, more compact version of the relational BREED data table. BREED1-BREED5 give a text summary of when each life stage occurs within the associated map object. The life stages referred to are the same as those listed in the Detailed_Description of the BREED data table. The link to the BIOFILE may be made through the BIO_LUT, using ID to link to RARNUM, or BIOFILE may be linked directly to the RARNUM in each of the geographic layer's attribute data tables. As mentioned, BREED_DT is an auxiliary support data table to the flat file structure, which allows the user to do searches based on month for seasonal breeding activities. The link from the flat file to BREED_DT is the BREED item.

A second supporting data table is SOURCES. This is the same as the source file described above, and the link from the flat file is both G_SOURCE and S_SOURCE. It should be noted that although the flat file eases data query, it is not a normalized database structure, and actual updates performed by the states and other responsible agencies should be done using the relational data tables. The entity-relationship diagram, describing relationships between attribute tables in the ESI data structure, does NOT include the BIOFILE data table, and this data table is NOT described in detail below.

**Detailed_Description:**  
**Entity_Type:**  
**Entity_Type_Label:** REPTILES.PAT  
**Entity_Type_Definition:**  
The REPTILES.PAT table contains attribute information for the vector polygons representing turtle distributions. Note that all attribute information is stored in a series of relational files, described below. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the relationships between attribute tables in the ESI data structure.  
**Entity_Type_Definition_Source:** Research Planning, Inc.

**Attribute:**  
**Attribute_Label:** ID  
**Attribute_Definition:**  
An identifier that links vector objects in the biology data layers to records in the BIO_LUT data table. ID is a concatenation of atlas number (41), element number (6), and record number. ID values of 9999 are holes in polygons and do not contain information.  
**Attribute_Definition_Source:** NOAA  
**Attribute_Domain_Values:**  
**Range_Domain:**  
*Range_Domain_Minimum:* 410600002   
*Range_Domain_Maximum:* 410600016

**Attribute:**  
**Attribute_Label:** RARNUM  
**Attribute_Definition:**  
An identifier that links directly to the BIORES table or the flat format BIOFILE table. RARNUM values of 0 are holes in polygons and do not contain information.  
**Attribute_Definition_Source:** NOAA  
**Attribute_Domain_Values:**  
**Range_Domain:**  
*Range_Domain_Minimum:* 41000273   
*Range_Domain_Maximum:* 41000278
Detailed_Description:
Entity_Type:
  Entity_Type_Label: BIO_LUT
  Entity_Type_Definition:
  The data table BIO_LUT is a lookup table that contains items necessary for linking vector objects in the biological data layers with the BIORES data table. Note that all attribute information is stored in a series of relational files, described below. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
  Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: RARNUM
  Attribute_Definition:
  An identifier that links records in the BIO_LUT data table to records in the BIORES data table or the flat format BIOFILE data table. RARNUM values of 0 are holes in polygons and do not contain information.
  Attribute_Definition_Source: NOAA
  Attribute_Domain_Values:
  Range_Domain:
    Range_Domain_Minimum: 41000001
    Range_Domain_Maximum: 41000290

Attribute:
  Attribute_Label: ID
  Attribute_Definition:
  An identifier that links vector objects in the biology data layers to records in the BIO_LUT data table. ID is a concatenation of atlas number (41), element number (6), and record number. ID values of 9999 are holes in polygons and do not contain information.
  Attribute_Definition_Source: NOAA
  Attribute_Domain_Values:
  Range_Domain:
    Range_Domain_Minimum: 410100002
    Range_Domain_Maximum: 413400015

Detailed_Description:
Entity_Type:
  Entity_Type_Label: BIORES
  Entity_Type_Definition:
  The data table BIORES contains both biological attribute data and items necessary for linking vector objects in the biological data layers via the BIO_LUT data table to other associated data tables. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
  Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: RARNUM
  Attribute_Definition:
  An identifier that links records in the BIORES data table to records in the BIO_LUT data table or the flat format BIOFILE data table.
  Attribute_Definition_Source: NOAA
  Attribute_Domain_Values:
  Range_Domain:
    Range_Domain_Minimum: 041000001
    Range_Domain_Maximum: 041000290

Attribute:
  Attribute_Label: SPECIES_ID
  Attribute_Definition:
  Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
**Range_Domain:**
- **Range_Domain_Minimum:** 1
- **Range_Domain_Maximum:** N

**Attribute:**
- **Attribute_Label:** CONC
- **Attribute_Definition:** The field CONC refers to "concentration," abundance, or density values of a species at a particular location. In cases where no quantitative count data were available, the field may contain a descriptive term such as "HIGH" or "COMMON". If no concentration information was available from any source, the field is populated with ".". Counts were derived from a variety of surveys, and may range in date.
- **Attribute_Definition_Source:** Research Planning, Inc.
- **Attribute_Domain_Values:**
  - **Unrepresentable_Domain:** Acceptable values change from atlas to atlas

**Attribute:**
- **Attribute_Label:** SEASON_ID
- **Attribute_Definition:** Numeric identifier for the unique monthly presence and life history characteristics of each species at a given location.
- **Attribute_Definition_Source:** Research Planning, Inc.
- **Attribute_Domain_Values:**
  - **Range_Domain:**
    - **Range_Domain_Minimum:** 1
    - **Range_Domain_Maximum:** N

**Attribute:**
- **Attribute_Label:** G_SOURCE
- **Attribute_Definition:** Geographic source identifier that links records in the BIORES data table to records in the SOURCES data table.
- **Attribute_Definition_Source:** Research Planning, Inc.
- **Attribute_Domain_Values:**
  - **Range_Domain:**
    - **Range_Domain_Minimum:** 1
    - **Range_Domain_Maximum:** N

**Attribute:**
- **Attribute_Label:** S_SOURCE
- **Attribute_Definition:** Seasonality source identifier that links records in the BIORES data table to records in the SOURCES data table.
- **Attribute_Definition_Source:** Research Planning, Inc.
- **Attribute_Domain_Values:**
  - **Range_Domain:**
    - **Range_Domain_Minimum:** 1
    - **Range_Domain_Maximum:** N

**Attribute:**
- **Attribute_Label:** ELEMENT
- **Attribute_Definition:** Major categories of biological data
- **Attribute_Definition_Source:** Research Planning, Inc.
- **Attribute_Domain_Values:**
  - **Enumerated_Domain:**
    - **Enumerated_Domain_Value:** BIRD
    - **Enumerated_Domain_Value_Definition:** Birds
    - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.
  - **Enumerated_Domain:**
    - **Enumerated_Domain_Value:** FISH
    - **Enumerated_Domain_Value_Definition:** Fish
    - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.
Enumerated_DOMAIN_VALUE: HABITAT
Enumerated_DOMAIN_VALUE_DEFINITION: Habitats and Plants
Enumerated_DOMAIN_VALUE_DEFINITION_SOURCE: Research Planning, Inc.

Attribute_DOMAIN_VALUES:
Enumerated_DOMAIN:
Enumerated_DOMAIN_VALUE: INVERT
Enumerated_DOMAIN_VALUE_DEFINITION: Invertebrates
Enumerated_DOMAIN_VALUE_DEFINITION_SOURCE: Research Planning, Inc.

Attribute_DOMAIN_VALUES:
Enumerated_DOMAIN:
Enumerated_DOMAIN_VALUE: M_MAMMAL
Enumerated_DOMAIN_VALUE_DEFINITION: Marine Mammals
Enumerated_DOMAIN_VALUE_DEFINITION_SOURCE: Research Planning, Inc.

Attribute_DOMAIN_VALUES:
Enumerated_DOMAIN:
Enumerated_DOMAIN_VALUE: REPTILE
Enumerated_DOMAIN_VALUE_DEFINITION: Reptiles and Amphibians
Enumerated_DOMAIN_VALUE_DEFINITION_SOURCE: Research Planning, Inc.

Attribute_DOMAIN_VALUES:
Enumerated_DOMAIN:
Enumerated_DOMAIN_VALUE: T_MAMMAL
Enumerated_DOMAIN_VALUE_DEFINITION: Terrestrial Mammals
Enumerated_DOMAIN_VALUE_DEFINITION_SOURCE: Research Planning, Inc.

Attribute:
Attribute_LABEL: EL_SPE
Attribute_DEFINITION:
Concatenation of ELEMENT and SPECIES_ID. This item links records in the BIORES data table to records in the SPECIES and STATUS data tables.
Attribute_DEFINITION_SOURCE: Research Planning, Inc.
Attribute_DOMAIN_VALUES:
Enumerated_DOMAIN:
Enumerated_DOMAIN_VALUE: E#####
Enumerated_DOMAIN_VALUE_DEFINITION:
Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = 'B00001').
Enumerated_DOMAIN_VALUE_DEFINITION_SOURCE: Research Planning, Inc.

Attribute:
Attribute_LABEL: EL_SPE_SEA
Attribute_DEFINITION:
Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the BIORES data table to records in the SEASONAL and BREED data tables.
Attribute_DEFINITION_SOURCE: Research Planning, Inc.
Attribute_DOMAIN_VALUES:
Enumerated_DOMAIN:
Enumerated_DOMAIN_VALUE: E########
Enumerated_DOMAIN_VALUE_DEFINITION:
Where E is the first character of ELEMENT, the next five characters are SPECIES_ID, and the last two characters are SEASON_ID (e.g. ELEMENT = 'BIRD', SPECIES_ID = 1 and SEASON_ID = 1; EL_SPE_SEA = 'B0000101').
Enumerated_DOMAIN_VALUE_DEFINITION_SOURCE: Research Planning, Inc.

Detailed_Description:
Entity_Type:
Entity_Type_Label: SPECIES
Entity_Type_Definition:
The data table SPECIES identifies all species in the ESI data set. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
Refer to the Completeness_Report for a list of layer-specific species.

*Entity_Type_Definition_Source*: Research Planning, Inc.

**Attribute:**
- **Attribute_Label**: SPECIES_ID
- **Attribute_Definition**: Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.
- **Attribute_Definition_Source**: Research Planning, Inc.
- **Attribute_Domain_Values**:
  - **Range_Domain**:
    - **Range_Domain_Minimum**: 1
    - **Range_Domain_Maximum**: N

**Attribute:**
- **Attribute_Label**: NAME
- **Attribute_Definition**: Species common name for the entire ESI data set
- **Attribute_Definition_Source**: Research Planning, Inc.
- **Attribute_Domain_Values**:
  - **Unrepresentable_Domain**: Acceptable values change from atlas to atlas

**Attribute:**
- **Attribute_Label**: GEN_SPEC
- **Attribute_Definition**: Species scientific name for the entire ESI data set
- **Attribute_Definition_Source**: Research Planning, Inc.
- **Attribute_Domain_Values**:
  - **Unrepresentable_Domain**: Acceptable values change from atlas to atlas

**Attribute:**
- **Attribute_Label**: ELEMENT
- **Attribute_Definition**: Major categories of biological data
- **Attribute_Definition_Source**: Research Planning, Inc.
- **Attribute_Domain_Values**:
  - **Enumerated_Domain**:
    - **Enumerated_Domain_Value**: BIRD
      - **Enumerated_Domain_Value_Definition**: Birds
      - **Enumerated_Domain_Value_Definition_Source**: Research Planning, Inc.
    - **Enumerated_Domain_Value**: FISH
      - **Enumerated_Domain_Value_Definition**: Fish
      - **Enumerated_Domain_Value_Definition_Source**: Research Planning, Inc.
    - **Enumerated_Domain_Value**: HABITAT
      - **Enumerated_Domain_Value_Definition**: Habitats and Plants
      - **Enumerated_Domain_Value_Definition_Source**: Research Planning, Inc.
    - **Enumerated_Domain_Value**: INVERT
      - **Enumerated_Domain_Value_Definition**: Invertebrates
      - **Enumerated_Domain_Value_Definition_Source**: Research Planning, Inc.
    - **Enumerated_Domain_Value**: M_MAMMAL
      - **Enumerated_Domain_Value_Definition**: Marine Mammals
      - **Enumerated_Domain_Value_Definition_Source**: Research Planning, Inc.
    - **Enumerated_Domain_Value**: REPTILE
      - **Enumerated_Domain_Value_Definition**: Reptiles and Amphibians
      - **Enumerated_Domain_Value_Definition_Source**: Research Planning, Inc.
Enumerated Domain Value: T_MAMMAL
Enumerated Domain Value Definition: Terrestrial Mammals
Enumerated Domain Value Definition Source: Research Planning, Inc.

**Attribute:**

**Attribute Label:** SUBELEMENT
**Attribute Definition:** Element subgroup delineating a logical grouping of species
**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

<table>
<thead>
<tr>
<th>Enumerated Domain</th>
<th>Enumerated Domain Value</th>
<th>Enumerated Domain Value Definition</th>
<th>Enumerated Domain Value Definition Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enumerated Domain</td>
<td>bivalve</td>
<td>Bivalve</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>Enumerated Domain</td>
<td>crab</td>
<td>Crab</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>Enumerated Domain</td>
<td>diadromous</td>
<td>Diadromous fish</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>Enumerated Domain</td>
<td>diving</td>
<td>Diving bird</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>Enumerated Domain</td>
<td>e_nursery</td>
<td>Estuarine nursery fish</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>Enumerated Domain</td>
<td>fav</td>
<td>Floating aquatic vegetation</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>Enumerated Domain</td>
<td>freshwater</td>
<td>Freshwater fish</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>Enumerated Domain</td>
<td>gull_tern</td>
<td>Gull or tern</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>Enumerated Domain</td>
<td>passerine</td>
<td>Passerine bird</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>Enumerated Domain</td>
<td>pinniped</td>
<td>Pinniped</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>Enumerated Domain</td>
<td>raptor</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Enumerated_Domain_Value_Definition: Raptor
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: sav
Enumerated_Domain_Value_Definition: Submerged aquatic vegetation
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: shorebird
Enumerated_Domain_Value_Definition: Shorebird
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: sm_mammal
Enumerated_Domain_Value_Definition: Small mammal
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: turtle
Enumerated_Domain_Value_Definition: Turtle
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: ungulate
Enumerated_Domain_Value_Definition: Ungulate
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: wading
Enumerated_Domain_Value_Definition: Wading bird
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: waterfowl
Enumerated_Domain_Value_Definition: Waterfowl
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: NHP
Attribute_Definition: Natural Heritage Program global ranking
Attribute_Definition_Source: Network of Natural Heritage Program
Attribute_Domain_Values:
Codeset_Domain:
Codeset_Name: NHP Global Conservation Status Rank
Codeset_Source: Natural Heritage Program

Attribute:
Attribute_Label: DATE_PUB
Attribute_Definition: Date of NHP listing
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: YYYYMM
Enumerated_Domain_Value_Definition: YYYY for year and optionally
MM for month
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: EL_SPE
Attribute_Definition: Concatenation of ELEMENT and SPECIES_ID. This item links records in the SPECIES data table to records in the BIORES and STATUS data tables.
Attribute Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: BIRD
Enumerated Domain Value Definition: Birds
Enumerated Domain Value Definition Source: Research Planning, Inc.

Enumerated Domain Value: FISH
Enumerated Domain Value Definition: Fish
Enumerated Domain Value Definition Source: Research Planning, Inc.

Enumerated Domain Value: HABITAT
Enumerated Domain Value Definition: Habitats and Plants
Enumerated Domain Value Definition Source: Research Planning, Inc.

Enumerated Domain Value: INVERT
Enumerated Domain Value Definition: Invertebrates
Enumerated Domain Value Definition Source: Research Planning, Inc.

Enumerated Domain Value: M_MAMMAL
Enumerated Domain Value Definition: Marine Mammals
Enumerated Domain Value Definition Source: Research Planning, Inc.

Enumerated Domain Value: REPTILE
Enumerated Domain Value Definition: Reptiles and Amphibians
Enumerated Domain Value Definition Source: Research Planning, Inc.

Enumerated Domain Value: T_MAMMAL
Enumerated Domain Value Definition: Terrestrial Mammals
Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain Value: SPECIES_ID

Detailed Description:

Entity Type:

Entity Type Label: SEASONAL
Entity Type Definition: The data table SEASONAL contains information on the seasonal presence of each species associated with each spatial vector object. See the Browse Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.

Entity Type Definition Source: Research Planning, Inc.
Numeric identifier for each species that is unique within each element and refers to a nationwide ESI species list maintained at NOAA.

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

**Range Domain:**
- **Range Domain Minimum:** 1
- **Range Domain Maximum:** N

**Attribute:**

**Attribute Label:** SEASON_ID
**Attribute Definition:** Numeric identifier for the unique monthly presence and life history characteristics of each species at a given location.

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

**Range Domain:**
- **Range Domain Minimum:** 1
- **Range Domain Maximum:** N

**Attribute:**

**Attribute Label:** JAN
**Attribute Definition:** January

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

**Enumerated Domain:**
- **Enumerated Domain Value:** X
- **Enumerated Domain Value Definition:** Present in January
- **Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Attribute:**

**Attribute Label:** FEB
**Attribute Definition:** February

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

**Enumerated Domain:**
- **Enumerated Domain Value:** X
- **Enumerated Domain Value Definition:** Present in February
- **Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Attribute:**

**Attribute Label:** MAR
**Attribute Definition:** March

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

**Enumerated Domain:**
- **Enumerated Domain Value:** X
- **Enumerated Domain Value Definition:** Present in March
- **Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Attribute:**

**Attribute Label:** APR
**Attribute Definition:** April

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

**Enumerated Domain:**
- **Enumerated Domain Value:** X
- **Enumerated Domain Value Definition:** Present in April
- **Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Attribute:**

**Attribute Label:** MAY
**Attribute Definition:** May

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

**Enumerated Domain:**
- **Enumerated Domain Value:** X
Enumerated_Domain_Value_Definition: Present in May
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: JUN
Attribute_Definition: June
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: X
Enumerated_Domain_Value_Definition: Present in June
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: JUL
Attribute_Definition: July
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: X
Enumerated_Domain_Value_Definition: Present in July
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: AUG
Attribute_Definition: August
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: X
Enumerated_Domain_Value_Definition: Present in August
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: SEP
Attribute_Definition: September
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: X
Enumerated_Domain_Value_Definition: Present in September
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: OCT
Attribute_Definition: October
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: X
Enumerated_Domain_Value_Definition: Present in October
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: NOV
Attribute_Definition: November
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: X
Enumerated_Domain_Value_Definition: Present in November
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: DEC
Attribute_Definition: December
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: X
Enumerated_Domain_Value_Definition: Present in December
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:

Attribute_Label: EL_SPE_SEA
Attribute_Definition:
Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the SEASONAL data table to records in the BIORES and BREED data tables.
Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: E############
Enumerated_Domain_Value_Definition:
Where E is the first character of ELEMENT, the next five characters are SPECIES_ID, and the last two characters are SEASON_ID (e.g. ELEMENT = 'BIRD', SPECIES_ID = 1 and SEASON_ID = 1; EL_SPE_SEA = 'B0000101').
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Detailed_Description:

Entity_Type:

Entity_Type_Label: BREED
Entity_Type_Definition:
The data table BREED identifies the monthly presence of certain life-history stages or activities for each species at a given location.
Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:

Attribute_Label: EL_SPE_SEA
Attribute_Definition:
Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the BREED data table to records in the BIORES and SEASONAL data tables.
Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: E############
Enumerated_Domain_Value_Definition:
Where E is the first character of ELEMENT, the next five characters are SPECIES_ID, and the last two characters are SEASON_ID (e.g. ELEMENT = 'BIRD', SPECIES_ID = 1 and SEASON_ID = 1; EL_SPE_SEA = 'B0000101').
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:

Attribute_Label: MONTH
Attribute_Definition:
Two-digit calendar month. Each life history stage or activity type for a particular species can have up to 12 records to account for each month of the year.
Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 1
Range_Domain_Maximum: 12

Attribute:

Attribute_Label: BREED1
Attribute_Definition:
Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED1 = nesting; if ELEMENT is "FISH" then BREED1 = spawning; if ELEMENT is "INVERT" then BREED1 = spawning; if ELEMENT is "REPTILE" then BREED1
= nesting; if ELEMENT is "M_MAMMAL" then BREED1 = mating. This attribute is not used for HABITAT or T_MAMMAL elements.

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

- **Enumerated Domain:**
  - **Enumerated Domain Value:** Y
  - **Enumerated Domain Value Definition:** Life-history stage or activity present
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

- **Enumerated Domain:**
  - **Enumerated Domain Value:** N
  - **Enumerated Domain Value Definition:** Life-history stage or activity not present
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

- **Enumerated Domain:**
  - **Enumerated Domain Value:** -
  - **Enumerated Domain Value Definition:** Breed category not used or not appropriate for record(s) in question
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Attribute:**

**Attribute Label:** BREED2

**Attribute Definition:**

Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED2 = migrating; if ELEMENT is "FISH" then BREED2 = eggs; if ELEMENT is "INVERT" then BREED2 = eggs; if ELEMENT is "REPTILE" then BREED2 = hatching; if ELEMENT is "M_MAMMAL" then BREED2 = calving. This attribute is not used for HABITAT or T_MAMMAL elements.

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

- **Enumerated Domain:**
  - **Enumerated Domain Value:** Y
  - **Enumerated Domain Value Definition:** Life-history stage or activity present
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

- **Enumerated Domain:**
  - **Enumerated Domain Value:** N
  - **Enumerated Domain Value Definition:** Life-history stage or activity not present
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

- **Enumerated Domain:**
  - **Enumerated Domain Value:** -
  - **Enumerated Domain Value Definition:** Breed category not used or not appropriate for record(s) in question
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Attribute:**

**Attribute Label:** BREED3

**Attribute Definition:**

Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED3 = molting; if ELEMENT is "FISH" then BREED3 = larvae; if ELEMENT is "INVERT" then BREED3 = larvae; if ELEMENT is "REPTILE" then BREED3 = internesting; if ELEMENT is "M_MAMMAL" then BREED3 = pupping. This attribute is not used for HABITAT or T_MAMMAL elements.

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**
**Enumerated_Domain:**
- **Enumerated_Domain_Value:** Y  
  **Enumerated_Domain_Value_Definition:** Life-history stage or activity present  
  **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**
- **Enumerated_Domain:**
  - **Enumerated_Domain_Value:** Y  
    **Enumerated_Domain_Value_Definition:** Life-history stage or activity present  
    **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute:**
- **Attribute_Label:** BREED4
  **Attribute_Definition:** Life history stage or activity type, where: if ELEMENT is "FISH" then BREED4 = juveniles; if ELEMENT is "INVERT" then BREED4 = juveniles; if ELEMENT is "REPTILE" then BREED4 = juveniles; if ELEMENT is "M_MAMMAL" then BREED4 = molting. This attribute is not used for BIRD, HABITAT, or T_MAMMAL elements.
  **Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**
- **Enumerated_Domain:**
  - **Enumerated_Domain_Value:** Y  
    **Enumerated_Domain_Value_Definition:** Life-history stage or activity present  
    **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute:**
- **Attribute_Label:** BREED5
  **Attribute_Definition:** Life history stage or activity type, where: if ELEMENT is "FISH" then BREED5 = adults; if ELEMENT is "INVERT" then BREED5 = adults; if ELEMENT is "REPTILE" then BREED5 = adults. This attribute is not used for BIRD, M_MAMMAL, HABITAT, or T_MAMMAL elements.
  **Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**
- **Enumerated_Domain:**
  - **Enumerated_Domain_Value:** Y  
    **Enumerated_Domain_Value_Definition:** Life-history stage or activity present  
    **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.
**Attribute Domain Values:**

**Enumerated Domain:**
- **Enumerated Domain Value**: N
  - **Enumerated Domain Value Definition**: Life-history stage or activity not present
  - **Enumerated Domain Value Definition Source**: Research Planning, Inc.

**Attribute Domain Values:**

**Enumerated Domain:**
- **Enumerated Domain Value**: -
  - **Enumerated Domain Value Definition**: Breed category not used or not appropriate for record(s) in question
  - **Enumerated Domain Value Definition Source**: Research Planning, Inc.

**Detailed Description:**

**Entity Type:**
- **Entity Type Label**: SOURCES
  - **Entity Type Definition**: The data table SOURCES contains the primary sources used to create the ESI data set. See the Browse Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
  - **Entity Type Definition Source**: Research Planning, Inc.

**Attribute:**
- **Attribute Label**: SOURCE_ID
  - **Attribute Definition**: Source identifier that links records in the SOURCES data table to the items G_SOURCE and A_SOURCE in the SOC_DAT table, and to G_SOURCE and S_SOURCE in the BIORES table.
  - **Attribute Definition Source**: Research Planning, Inc.
  - **Attribute Domain Values**:
    - **Range Domain**:
      - **Range Domain Minimum**: 1
      - **Range Domain Maximum**: N

**Attribute:**
- **Attribute Label**: ORIGINATOR
  - **Attribute Definition**: Author or developer of source material or data set
  - **Attribute Definition Source**: Research Planning, Inc.
  - **Attribute Domain Values**:
    - **Unrepresentable Domain**: Acceptable values change from atlas to atlas

**Attribute:**
- **Attribute Label**: DATE_PUB
  - **Attribute Definition**: Date of source material, publication, or date of personal communication with expert source
  - **Attribute Definition Source**: Research Planning, Inc.
  - **Attribute Domain Values**:
    - **Enumerated Domain**:
      - **Enumerated Domain Value**: YYYYMM
      - **Enumerated Domain Value Definition**: YYYY for year and optionally MM for month
      - **Enumerated Domain Value Definition Source**: Research Planning, Inc.

**Attribute:**
- **Attribute Label**: TITLE
  - **Attribute Definition**: Title of source material or data
  - **Attribute Definition Source**: Research Planning, Inc.
  - **Attribute Domain Values**:
    - **Unrepresentable Domain**: Acceptable values change from atlas to atlas

**Attribute:**
- **Attribute Label**: DATA_FORMAT
  - **Attribute Definition**: The format of the source material
**Attribute**

**Attribute_Label:** PUBLICATION
**Attribute_Definition:** Additional citation information
**Attribute_Definition_Source:** Research Planning, Inc.
**Attribute_Domain_Values:**
  *Unrepresentable_Domain:* Acceptable values change from atlas to atlas

**Attribute:**

**Attribute_Label:** SCALE
**Attribute_Definition:** Scale denominator of the source
**Attribute_Definition_Source:** Research Planning, Inc.
**Attribute_Domain_Values:**
  *Enumerated_Domain:*
  - **Enumerated_Domain_Value:** integer
  - **Enumerated_Domain_Value_Definition:** Any integer
  - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute:**

**Attribute_Label:** TIME_PERIOD
**Attribute_Definition:** Date(s) of data collection that the source material is based upon.
**Attribute_Definition_Source:** Research Planning, Inc.
**Attribute_Domain_Values:**
  *Enumerated_Domain:*
  - **Enumerated_Domain_Value:** YYYYMM
  - **Enumerated_Domain_Value_Definition:** YYYY for year and optionally MM for month
  - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Detailed_Description:**

**Entity_Type:**

**Entity_Type_Label:** STATUS
**Entity_Type_Definition:** The data table STATUS identifies the species that are listed as threatened or endangered by a state or federal authority. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
**Entity_Type_Definition_Source:** Research Planning, Inc.

**Attribute:**

**Attribute_Label:** ELEMENT
**Attribute_Definition:** Major categories of biological data
**Attribute_Definition_Source:** Research Planning, Inc.
**Attribute_Domain_Values:**
  *Enumerated_Domain:*
  - **Enumerated_Domain_Value:** BIRD
  - **Enumerated_Domain_Value_Definition:** Birds
  - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**
  *Enumerated_Domain:*
  - **Enumerated_Domain_Value:** FISH
  - **Enumerated_Domain_Value_Definition:** Fish
  - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**
  *Enumerated_Domain:*
  - **Enumerated_Domain_Value:** HABITAT
  - **Enumerated_Domain_Value_Definition:** Habitats and Plants
  - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**
  *Enumerated_Domain:*
  - **Enumerated_Domain_Value:** INVERT
Enumerated_Domain_Value_Definition: Invertebrates
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: M_MAMMAL
Enumerated_Domain_Value_Definition: Marine Mammals
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: REPTILE
Enumerated_Domain_Value_Definition: Reptiles and Amphibians
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: T_MAMMAL
Enumerated_Domain_Value_Definition: Terrestrial Mammals
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: SPECIES_ID
Attribute_Definition: Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.
Attribute_Definition_Source: Research Planning, Inc.

Range_Domain:
Range_Domain_Minimum: 1
Range_Domain_Maximum: N

Attribute:
Attribute_Label: S
Attribute_Definition: State threatened or endangered status
Attribute_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: E
Enumerated_Domain_Value_Definition: Endangered on state list
Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Enumerated_Domain:
Enumerated_Domain_Value: T
Enumerated_Domain_Value_Definition: Threatened on state list
Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Enumerated_Domain:
Enumerated_Domain_Value: C
Enumerated_Domain_Value_Definition: Species of Special Concern
Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute:
Attribute_Label: F
Attribute_Definition: Federal threatened or endangered status
Attribute_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: E
Enumerated_Domain_Value_Definition: Endangered on federal list
Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service
Enumerated_Domain:
Enumerated_Domain_Value: T
Enumerated_Domain_Value_Definition: Threatened on federal list
Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: C
Enumerated_Domain_Value_Definition: Species of Special Concern
Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute:
Attribute_Label: STATE
Attribute_Definition: Two-letter state abbreviation
Attribute_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: YYYYMM
Enumerated_Domain_Value_Definition: YYYY for year and optionally MM for month
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: S_DATE
Attribute_Definition: Publication date of source material used to assign state status values for each species, if used.
Attribute_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: YYYYMM
Enumerated_Domain_Value_Definition: YYYY for year and optionally MM for month
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: F_DATE
Attribute_Definition: Date of publication of source material used to assign federal status values for each species, if used.
Attribute_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: YYYYMM
Enumerated_Domain_Value_Definition: YYYY for year and optionally MM for month
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: EL_SPE
Attribute_Definition: Concatenation of ELEMENT and SPECIES_ID. This item links the STATUS data table to the BIORES and SPECIES data tables.
Attribute_Definition_Source: Research Planning, Inc.

Enumerated_Domain:
Enumerated_Domain_Value: E####
Enumerated_Domain_Value_Definition: Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = 'B00001').
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Distribution_Information:
Distributor:
Contact Information:
  Contact Person Primary:
    Contact Person: John Kaperick
    Contact Organization: NOAA, Office of Response and Restoration
  Contact Address:
    Address Type: Physical Address
    Address: 7600 Sand Point Way N.E.
    City: Seattle
    State or Province: Washington
    Postal Code: 98115-6349
    Contact Voice Telephone: (206) 526-6400
    Contact Facsimile Telephone: (206) 526-6329

Resource Description: ESI Atlas for Columbia River

Distribution Liability:
Although these data have been processed successfully on a computer system at the National Oceanic
and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the
utility of the data on any other system, nor shall the act of distribution constitute any such warranty.
NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement
copy of the product when the product is determined unreadable by computer-input peripherals, or
when the physical medium is delivered in damaged condition.

Custom Order Process:
Contact NOAA for distribution options (see Distributor). ESI data are processed into multiple
formats to make them useful to a wider community of GIS/mapping users. Distribution formats
include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project
and ESI Viewer product are also included on the distribution CDs for ease of use of the ESI data.
The database files are distributed both in the NOAA standard relational database format (see NOAA
Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata
document includes information on both of these database formats.

Metadata Reference Information:
  Metadata Date: 200411
  Metadata Review Date: 200411
  Metadata Contact:
    Contact Information:
      Contact Person Primary:
        Contact Person: Jill Petersen
        Contact Organization: NOAA, Office of Response and Restoration
      Contact Position: GIS Manager
      Contact Address:
        Address Type: Physical Address
        Address: 7600 Sand Point Way N.E.
        City: Seattle
        State or Province: Washington
        Postal Code: 98115-6349
        Contact Voice Telephone: (206) 526-6944
        Contact Facsimile Telephone: (206) 526-6329
        Contact Electronic Mail Address: Jill.Petersen@noaa.gov
  Metadata Standard Name: Content Standards for Digital Geospatial Metadata

Generated by mp version 2.8.2 on Fri Dec 10 11:08:19 2004
Columbia River ESI: M_MAMMAL (Marine Mammal Polygons)

Metadata also available as - [Parseable text] - [SGML]

Metadata:

- Identification_Information
- Data_Quality_Information
- Spatial_Data_Organization_Information
- Spatial_Reference_Information
- Entity_and_Attribute_Information
- Distribution_Information
- Metadata_Reference_Information

Identification_Information:

Citation:

Originator:

Publication_Date: 200411
Title: Columbia River ESI: M_MAMMAL (Marine Mammal Polygons)
Edition: First
Geospatial_Data_Presentation_Form: Vector digital data

Series_Information:

Series_Name: None
Issue_Identification: Columbia River

Publication_Information:

Publication_Place: Seattle, Washington
Publisher:

Other_Citation_Details:

Description:

Abstract:
This data set contains sensitive biological resource data for Steller sea lions, harbor seals, and California sea lions in Columbia River. Vector polygons in this data set represent locations of marine mammal distribution and haul-out sites. Species-specific abundance, seasonality, status, life history, and source information are stored in relational data tables (described below) designed to be used in conjunction with this spatial data layer.

This data set comprises a portion of the Environmental Sensitivity Index (ESI) data for Columbia River. ESI data characterize the marine and coastal environments and wildlife by their sensitivity to spilled oil. The ESI data include information for three main components: shoreline habitats, sensitive biological resources, and human-use resources. See also the
M_MAMPT (Marine Mammal Points) data layer, part of the larger Columbia River ESI database, for additional marine mammal information.

**Purpose:**
The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response. The Clean Water Act with amendments by the Oil Pollution Act of 1990 requires response plans for immediate and effective protection of sensitive resources.

**Time_Period_of_Content:**
**Time_Period_Information:**
**Range_of_Dates/Times:**
Beginning_Date: 1984
Ending_Date: 2004

**Currentness_Reference:**
The biological data were compiled during 2003-2004. The currentness dates for these data range from 1984 to 2004 and are documented in the Lineage section.

**Status:**
**Progress:** Complete
**Maintenance_and_Update_Frequency:** None Scheduled

**Spatial_Domain:**
**Bounding_Coordinates:**
West_BoundingCoordinate: -124.125
East_BoundingCoordinate: -120.67375
North_BoundingCoordinate: 46.375
South_BoundingCoordinate: 45.3

**Keywords:**
**Theme:**
Theme_Keyword_Thesaurus: None
Theme_Keyword: ESI
Theme_Keyword: Sensitivity maps
Theme_Keyword: Coastal resources
Theme_Keyword: Oil spill planning
Theme_Keyword: Coastal Zone Management
Theme_Keyword: Wildlife
Theme_Keyword: Marine Mammal

**Place:**
Place_Keyword_Thesaurus: None
Place_Keyword: Columbia River

**Access_Constraints:** None

**Use_Constraints:**
DO NOT USE MAPS FOR NAVIGATIONAL PURPOSES. Besides the above warning, there are no use constraints on these data. Note that the ESI database should not be used to the exclusion of other pertinent data or information held by state or federal agencies or other organizations. Likewise, information contained in the database cannot be used in place of consultations with environmental, natural resource, and cultural resource agencies, or in place of field surveys. Recognize that the information contained in the ESI database represents known concentration areas or occurrences of natural, cultural, and human-use resources, but does not necessarily represent the full distribution or range of each species or resource. This is particularly important to recognize when considering potential impacts to protected resources, such as endangered species, wetlands, etc. Acknowledgment of the originators, publishers, contributors, and sources listed would be appreciated in products derived from these data.

**Browse_Graphic:**
**Browse_Graphic_File_Name:** datafig.jpg
**Browse_Graphic_File_Description:** Depicts the relationships between spatial data layers and attribute data tables for the Columbia River ESI data.
**Browse_Graphic_File_Type:** JPEG

**Data_Set_Credit:**
This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; Coastal Storms Initiative; U.S. Fish and Wildlife Service; NOAA Fisheries; State of Oregon; and State of Washington.
Native_Data_Set_Environment:
The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 8.3) and SQL SERVER(r) (version 7.0). The hardware configuration is PC's with Windows Operating System (NT4.0/2000).

The Spatial_Data_Organization Information section refers only to the source files in the ARC export format. The following files are included in that data set: birds.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mammal.e00, m_mampt.e00, mgt.e00, nests.e00, nwi.e00, reptiles.e00, socecon.e00, t_mammal.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biores, breed, breed_dt, runs_dat, seasonal, soc_dat, soc_lut, sources, species, and status.

Data_Quality_Information:
Attribute_Accuracy:
Attribute_Accuracy_Report:
A multi-stage error checking process is used to verify both attribute accuracy and logical consistency throughout data production. The process includes a standardized data entry methodology, hardcopy data review by in-house and external resource experts, a final Quality Assurance/Quality Control (QA/QC) process, and multiple automated logical consistency checks. Quantitative data (such as densities, counts, abundances, or concentrations) provided by resource experts for inclusion in the data set may vary widely in attribute accuracy, depending upon the methodology used to collect and compile such data. For a more detailed evaluation of source data attribute accuracy, contact the sources listed in the Lineage section.

Logical_Consistency_Report:
A multi-stage error checking process, described in the above Attribute_Accuracy_Report, is used to verify both attribute accuracy and logical consistency throughout data production. This process includes multiple automated logical consistency checks that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and SQL SERVER(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where the data are written to CD-ROM and the metadata are written.

After the data are delivered to NOAA, they are again subjected to a number of quality and consistency checks. In the process of checking for topological and database consistencies, new ID's and RARNUM's or HUNUM's are also generated. The new ID's are a combination of atlas number, element number, and record number. In addition, the value used to represent the element is modified to reflect the type of feature being mapped. In the case of an element that is normally represented by a point or polygon, a value of 20 is added to the standard element value for mapping of linear features. In the case where an element usually mapped as a polygon is represented by a point, a value of 30 is added to the regular element value. The RARNUM's are also modified to include the atlas number, so multiple atlases can be combined and RARNUM's remain unique. RARNUM's are redefined on an element basis, so "resource at risk" groupings will contain only a single element. HUNUM's are also modified to include the atlas number.

Completeness_Report:
These data represent a synthesis of expert knowledge and available hardcopy reports and digital data on marine mammal distribution. Information on marine mammal haulouts and concentrations was also adapted from Washington Priority habitat data. Contact Washington Department of Fish and Wildlife (WDFW) for more information on these data. See also the M_MAMPT (Marine Mammal Points) data layer, part of the larger Columbia River ESI database, for additional marine mammal information. These data do not necessarily represent all marine mammal occurrences in Columbia River. The following species are included in this data set: (Species_ID, Common Name, Scientific Name, if applicable): 1, Steller sea lion, Eumetopias jubatus; 2, Harbor seal, Phoca vitulina; 22, California sea lion, Zalophus californianus.

Positional_Accuracy:
Horizontal_Positional_Accuracy:
Horizontal_Positional_Accuracy_Report:
Most of the spatial components of the biological data sets are developed using regional experts who estimate concentration areas. It is difficult to estimate the positional accuracy of such data, except to state that they are compiled on hardcopy
base maps with a scale of 1:24,000. Some of the spatial components of the biological data sets are developed from pre-existing digital sources and reflect the positional accuracy of these original data. See the Lineage and Process_Description sections for more information on the original data source and how these data were integrated or manipulated to create the final data set. Note that biological resource data by their very nature are considered "fuzzy", and this should be understood when considering the positional accuracy of vector digital objects representing these resources.

**Lineage:**

**Source Information:**

**Source Citation:**

- **Citation Information:**
  - **Originator:** North, J., Oregon Department of Fish and Wildlife (ODFW)
  - **Publication Date:** 200402
  - **Title:** Fish, Bird, and Mammal Distributions along the Columbia River
  - **Geospatial Data Presentation Form:** Expert knowledge

**Publication Information:**

- **Publication Place:** Unpublished material
- **Publisher:** Unpublished material

- **Type of Source Media:** Personal communication

**Source Time Period of Content:**

- **Time Period Information:**
  - **Single Date/Time:**
    - **Calendar Date:** 200402

- **Source Currentness Reference:** Date of communication
- **Source Citation Abbreviation:** None
- **Source Contribution:** Distribution information for marine mammals

**Source Information:**

**Source Citation:**

- **Citation Information:**
  - **Originator:** Tennis, M., Oregon Department of Fish and Wildlife (ODFW)
  - **Publication Date:** 200402
  - **Title:** Marine Mammal Abundance and Distribution in the Columbia River Estuary
  - **Geospatial Data Presentation Form:** Expert knowledge

**Publication Information:**

- **Publication Place:** Unpublished material
- **Publisher:** Unpublished material

- **Type of Source Media:** Personal communication

**Source Time Period of Content:**

- **Time Period Information:**
  - **Single Date/Time:**
    - **Calendar Date:** 200402

- **Source Currentness Reference:** Date of communication
- **Source Citation Abbreviation:** None
- **Source Contribution:** Distribution and abundance information for marine mammals

**Source Information:**

**Source Citation:**

- **Citation Information:**
  - **Originator:** Columbia River Estuary Data Development Program
  - **Publication Date:** 1984
  - **Title:** The Columbia River Estuary Atlas of Physical and Biological Characteristics
  - **Geospatial Data Presentation Form:** Hardcopy atlas

**Publication Information:**

- **Publication Place:** Seattle, Washington
- **Publisher:** Northwest Cartography, Inc.
Three main sources of data were used to depict marine mammal distributions and haulout sites for this data layer: (1) personal interviews with resource experts from Oregon Department of Fish and Wildlife (ODFW), Washington Department of Fish and Wildlife (WDFW), and U.S. Fish and Wildlife Service (USFWS); (2) numerous published and unpublished reports; and (3) information adapted from Washington Priority Habitat data. (Contact WDFW for more information regarding the Washington Priority Habitat data.) Information gathered during initial interviews and from hardcopy sources was compiled onto U.S. Geological Survey 1:24,000 topographic quadrangles.

The compiled data were digitized off of the base maps into an ArcInfo system to create the M_MAMMAL data layer. All ESI, biology, and human-use data were plotted onto hardcopy draft maps. Following the delivery of draft maps to the participating resource experts, a second set of interviews was conducted to review the maps. Edits to the M_MAMMAL data layer were made based on the recommendations of the resource experts, and final hardcopy maps were created.

Process_Step:

Process_Description:

Process_Date: 200408

Process_Contact:

Contact_Organization: NOAA, Office of Response and Restoration
Contact_Person: Jill Petersen

Contact_Address: Physical address
Address: 7600 Sand Point Way N.E.
City: Seattle
State or Province: Washington
Postal Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
  SDTS_Terms_Description:
    SDTS_Point_and_Vector_Object_Type: GT-polygon composed of rings
    Point_and_Vector_Object_Count: 10
  SDTS_Terms_Description:
    SDTS_Point_and_Vector_Object_Type: Area point
    Point_and_Vector_Object_Count: 10
  SDTS_Terms_Description:
    SDTS_Point_and_Vector_Object_Type: Complete chain
    Point_and_Vector_Object_Count: 19
  SDTS_Terms_Description:
    SDTS_Point_and_Vector_Object_Type: Link
    Point_and_Vector_Object_Count: 6274
  SDTS_Terms_Description:
    SDTS_Point_and_Vector_Object_Type: Node, planar graph
    Point_and_Vector_Object_Count: 19

Spatial_Reference_Information:
  Horizontal_Coordinate_System_Definition:
    Geographic:
      Latitude_Resolution: 0.0000001
      Longitude_Resolution: 0.0000001
      Geographic_Coordinate_Units: Decimal degrees
    Geodetic_Model:
      Horizontal_Datum_Name: North American Datum of 1927
      Ellipsoid_Name: Clark 1866
      Semi-major_Axis: 6378206.4
      Denominator_of_Flattening_Ratio: 294.978698

Entity_and_Attribute_Information:
  Overview_Description:
    Entity_and_Attribute_Overview:
      In addition to the geographic data layers, six relational attribute or data tables, BIORES,
      BREED, SEASONAL, SOURCES, SPECIES, and STATUS, are used to store the complex
      biological data in the ESI data structure. The geographic data layer containing biological
      resource information (in this case, M_MAMMAL) is linked to the Biological Resources
      table (BIORES) using the unique ID and the lookup table BIO_LUT, or it can be linked
      directly using RARNUM. The ID is a unique combination of the atlas number (for the
      Columbia River atlas, the number is 41), an element/layer specific number (BIRDS are layer
      1, FISH are layer 2, etc.), and a unique record number. The RARNUM represents a unique
      combination of species, seasonalities, concentrations, and source information. For each of
      these groupings, a number is generated. That number is concatenated with the atlas number
      to create a "resource at risk" number that is unique across atlases. BIORES and the other
      relational data tables are described below in detail. See the Browse_Graphic section for a link
      to the entity-relationship diagram, which describes the way these tables relate to the
      geographic data layers and other attribute tables in the ESI data structure.

      Due to the complexity of the relational database model, the data items are also post-processed
      into a flat file format. This table, called BIOFILE, may be used in place of the relational files
described below to ease simple data queries. The items in the flat file are ELEMENT, SUBELEMENT, NAME, GEN_SPEC, S, F, NHP, DATE_PUB, CONC, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC, BREED1, BREED2, BREED3, BREED4, BREED5, RARNUM, G_SOURCE, S_SOURCE, and BREED. All of these items are the same as their counterparts in the individual data tables described below, except the BREED1-BREED5 and BREED items. BREED is a newly generated variable used to link to the BREED_DT data table, a modified, more compact version of the relational BREED data table. BREED1-BREED5 give a text summary of when each life stage occurs within the associated map object. The life stages referred to are the same as those listed in the Detailed_Description of the BREED data table. The link to the BIOFILE may be made through the BIO_LUT, using ID to link to RARNUM, or BIOFILE may be linked directly to the RARNUM in each of the geographic layer's attribute data tables. As mentioned, BREED_DT is an auxiliary support data table to the flat file structure, which allows the user to do searches based on month for seasonal breeding activities. The link from the flat file to BREED_DT is the BREED item.

A second supporting data table is SOURCES. This is the same as the source file described above, and the link from the flat file is both G_SOURCE and S_SOURCE. It should be noted that although the flat file eases data query, it is not a normalized database structure, and actual updates performed by the states and other responsible agencies should be done using the relational data tables. The entity-relationship diagram, describing relationships between attribute tables in the ESI data structure, does NOT include the BIOFILE data table, and this data table is NOT described in detail below.

**Detailed_Description:**

**Entity_Type:** M_MAMMAL.PAT

**Entity_Type_Definition:**

The M_MAMMAL.PAT table contains attribute information for the vector polygons representing marine mammal haulouts and distribution areas. Note that all attribute information is stored in a series of relational files, described below. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the relationships between attribute tables in the ESI data structure.

**Entity_Type_Definition_Source:** Research Planning, Inc.

**Attribute:**

**Attribute_Label:** ID

**Attribute_Definition:** An identifier that links vector objects in the biology data layers to records in the BIO_LUT data table. ID is a concatenation of atlas number (41), element number (4), and record number. ID values of 9999 are holes in polygons and do not contain information.

**Attribute_Definition_Source:** NOAA

**Attribute_Domain_Values:**

**Range_Domain:**

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<th>Range_Domain_Minimum</th>
<th>Range_Domain_Maximum</th>
</tr>
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<tbody>
<tr>
<td>410400002</td>
<td>410400011</td>
</tr>
</tbody>
</table>

**Attribute:**

**Attribute_Label:** RARNUM

**Attribute_Definition:** An identifier that links directly to the BIORES table or the flat format BIOFILE table. RARNUM values of 0 are holes in the polygons and do not contain information.

**Attribute_Definition_Source:** NOAA

**Attribute_Domain_Values:**

**Range_Domain:**

<table>
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<tbody>
<tr>
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<td>41000272</td>
</tr>
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**Detailed_Description:**

**Entity_Type:** BIO_LUT

**Entity_Type_Definition:**
The data table BIO_LUT is a lookup table that contains items necessary for linking vector objects in the biological data layers with the BIORES data table. Note that all attribute information is stored in a series of relational files, described below. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.

**Entity_Type_Definition_Source:** Research Planning, Inc.

**Attribute:**

**Attribute_Label:** RARNUM

**Attribute_Definition:**
An identifier that links records in the BIO_LUT data table to records in the BIORES data table or the flat format BIOFILE data table. RARNUM values of 0 are holes in polygons and do not contain information.

**Attribute_Definition_Source:** NOAA

**Attribute_Domain_Values:**

- **Range_Domain:**
  - **Range_Domain_Minimum:** 41000001
  - **Range_Domain_Maximum:** 41000290

**Attribute:**

**Attribute_Label:** ID

**Attribute_Definition:**
An identifier that links vector objects in the biology data layers to records in the BIO_LUT data table. ID is a concatenation of atlas number (41), element number (4), and record number. ID values of 9999 are holes in polygons and do not contain information.

**Attribute_Definition_Source:** NOAA

**Attribute_Domain_Values:**

- **Range_Domain:**
  - **Range_Domain_Minimum:** 410100002
  - **Range_Domain_Maximum:** 413400015

**Detailed_Description:**

**Entity_Type:**

**Entity_Type_Label:** BIORES

**Entity_Type_Definition:**
The data table BIORES contains both biological attribute data and items necessary for linking vector objects in the biological data layers via the BIO_LUT data table to other associated data tables. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.

**Entity_Type_Definition_Source:** Research Planning, Inc.

**Attribute:**

**Attribute_Label:** RARNUM

**Attribute_Definition:**
An identifier that links records in the BIORES data table to records in the BIO_LUT data table or the flat format BIOFILE data table.

**Attribute_Definition_Source:** NOAA

**Attribute_Domain_Values:**

- **Range_Domain:**
  - **Range_Domain_Minimum:** 041000001
  - **Range_Domain_Maximum:** 041000290

**Attribute:**

**Attribute_Label:** SPECIES_ID

**Attribute_Definition:**
Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

- **Range_Domain:**
  - **Range_Domain_Minimum:** 1
  - **Range_Domain_Maximum:** N
**Attribute Label**: CONC
**Attribute Definition**: The field CONC refers to "concentration," abundance, or density values. The field may contain counts of individuals (e.g., 500), a range count of individuals (e.g., 50-100), or a concentration approximation (e.g., 100s). Note that these numbers generally represent the peak concentrations of marine mammals present or potentially present. Counts were derived from a variety of surveys, and may range in date.
**Attribute Definition Source**: Research Planning, Inc.
**Attribute Domain Values**: Unrepresentable Domain: Acceptable values change from atlas to atlas

**Attribute**: ATTRIBUTE_LABEL: SEASON_ID
**Attribute Definition**: Numeric identifier for the unique monthly presence and life history characteristics of each species at a given location.
**Attribute Definition Source**: Research Planning, Inc.
**Attribute Domain Values**: Range Domain:
  - Range Domain Minimum: 1
  - Range Domain Maximum: N

**Attribute**: ATTRIBUTE_LABEL: G_SOURCE
**Attribute Definition**: Geographic source identifier that links records in the BIORES data table to records in the SOURCES data table.
**Attribute Definition Source**: Research Planning, Inc.
**Attribute Domain Values**: Range Domain:
  - Range Domain Minimum: 1
  - Range Domain Maximum: N

**Attribute**: ATTRIBUTE_LABEL: S_SOURCE
**Attribute Definition**: Seasonality source identifier that links records in the BIORES data table to records in the SOURCES data table.
**Attribute Definition Source**: Research Planning, Inc.
**Attribute Domain Values**: Range Domain:
  - Range Domain Minimum: 1
  - Range Domain Maximum: N

**Attribute**: ATTRIBUTE_LABEL: ELEMENT
**Attribute Definition**: Major categories of biological data
**Attribute Definition Source**: Research Planning, Inc.
**Attribute Domain Values**: Enumerated Domain:
  - Enumerated Domain Value: BIRD
    - Enumerated Domain Value Definition: Birds
    - Enumerated Domain Value Definition Source: Research Planning, Inc.
  - Enumerated Domain Value: FISH
    - Enumerated Domain Value Definition: Fish
    - Enumerated Domain Value Definition Source: Research Planning, Inc.
  - Enumerated Domain Value: HABITAT
    - Enumerated Domain Value Definition: Habitats and Plants
    - Enumerated Domain Value Definition Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: INVERT
    Enumerated_Domain_Value_Definition: Invertebrates
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: M_MAMMAL
    Enumerated_Domain_Value_Definition: Marine Mammals
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: REPTILE
    Enumerated_Domain_Value_Definition: Reptiles and Amphibians
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: T_MAMMAL
    Enumerated_Domain_Value_Definition: Terrestrial Mammals
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: EL_SPE
  Attribute_Definition: Concatenation of ELEMENT and SPECIES_ID. This item links records in the BIORES data table to records in the SPECIES and STATUS data tables.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: E#####
      Enumerated_Domain_Value_Definition:
        Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = 'B00001').
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: EL_SPE_SEA
  Attribute_Definition: Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the BIORES data table to records in the SEASONAL and BREED data tables.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: E########
      Enumerated_Domain_Value_Definition:
        Where E is the first character of ELEMENT, the next five characters are SPECIES_ID, and the last two characters are SEASON_ID (e.g. ELEMENT = 'BIRD', SPECIES_ID = 1 and SEASON_ID = 1; EL_SPE_SEA = 'B0000101').
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Detailed_Description:
  Entity_Type:
    Entity_Type_Label: SPECIES
    Entity_Type_Definition:
      The data table SPECIES identifies all species in the ESI data set. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
      Refer to the Completeness_Report for a list of layer-specific species.
    Entity_Type_Definition_Source: Research Planning, Inc.
Attribute Label: SPECIES_ID
Attribute Definition:
   Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.
Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:
   Range Domain:
      Range Domain Minimum: 1
      Range Domain Maximum: N

Attribute:
Attribute Label: NAME
Attribute Definition: Species common name for the entire ESI data set
Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:
   Unrepresentable Domain: Acceptable values change from atlas to atlas

Attribute:
Attribute Label: GEN_SPEC
Attribute Definition: Species scientific name for the entire ESI data set
Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:
   Unrepresentable Domain: Acceptable values change from atlas to atlas

Attribute:
Attribute Label: ELEMENT
Attribute Definition: Major categories of biological data
Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:
   Enumerated Domain:
      Enumerated Domain Value: BIRD
      Enumerated Domain Value Definition: Birds
      Enumerated Domain Value Definition Source: Research Planning, Inc.
   Enumerated Domain:
      Enumerated Domain Value: FISH
      Enumerated Domain Value Definition: Fish
      Enumerated Domain Value Definition Source: Research Planning, Inc.
   Enumerated Domain:
      Enumerated Domain Value: HABITAT
      Enumerated Domain Value Definition: Habitats and Plants
      Enumerated Domain Value Definition Source: Research Planning, Inc.
   Enumerated Domain:
      Enumerated Domain Value: INVERT
      Enumerated Domain Value Definition: Invertebrates
      Enumerated Domain Value Definition Source: Research Planning, Inc.
   Enumerated Domain:
      Enumerated Domain Value: M_MAMMAL
      Enumerated Domain Value Definition: Marine Mammals
      Enumerated Domain Value Definition Source: Research Planning, Inc.
   Enumerated Domain:
      Enumerated Domain Value: REPTILE
      Enumerated Domain Value Definition: Reptiles and Amphibians
      Enumerated Domain Value Definition Source: Research Planning, Inc.
   Enumerated Domain:
      Enumerated Domain Value: T_MAMMAL
      Enumerated Domain Value Definition: Terrestrial Mammals
      Enumerated Domain Value Definition Source: Research Planning, Inc.
Attribute:

Attribute_Label: SUBELEMENT
Attribute_Definition: Element subgroup delineating a logical grouping of species
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

  Enumerated_Domain:
    Enumerated_Domain_Value: bivalve
    Enumerated_Domain_Value_Definition: Bivalve
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

  Enumerated_Domain:
    Enumerated_Domain_Value: crab
    Enumerated_Domain_Value_Definition: Crab
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

  Enumerated_Domain:
    Enumerated_Domain_Value: diadromous
    Enumerated_Domain_Value_Definition: Diadromous fish
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

  Enumerated_Domain:
    Enumerated_Domain_Value: diving
    Enumerated_Domain_Value_Definition: Diving bird
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

  Enumerated_Domain:
    Enumerated_Domain_Value: e_nursery
    Enumerated_Domain_Value_Definition: Estuarine nursery fish
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

  Enumerated_Domain:
    Enumerated_Domain_Value: fav
    Enumerated_Domain_Value_Definition: Floating aquatic vegetation
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

  Enumerated_Domain:
    Enumerated_Domain_Value: freshwater
    Enumerated_Domain_Value_Definition: Freshwater fish
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

  Enumerated_Domain:
    Enumerated_Domain_Value: gull_tern
    Enumerated_Domain_Value_Definition: Gull or tern
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

  Enumerated_Domain:
    Enumerated_Domain_Value: passerine
    Enumerated_Domain_Value_Definition: Passerine bird
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

  Enumerated_Domain:
    Enumerated_Domain_Value: pinniped
    Enumerated_Domain_Value_Definition: Pinniped
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

  Enumerated_Domain:
    Enumerated_Domain_Value: raptor
    Enumerated_Domain_Value_Definition: Raptor
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
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    Enumerated_Domain_Value: sav
    Enumerated_Domain_Value_Name: Submerged aquatic vegetation
    Enumerated_Domain_Value_Description: Submerged aquatic vegetation
    Enumerated_Domain_Value_Source: Research Planning, Inc.

Attribute_Domain_Values:
    Enumerated_Domain:
        Enumerated_Domain_Value: shorebird
        Enumerated_Domain_Value_Name: Shorebird
        Enumerated_Domain_Value_Description: Shorebird
        Enumerated_Domain_Value_Source: Research Planning, Inc.

Attribute_Domain_Values:
    Enumerated_Domain:
        Enumerated_Domain_Value: sm_mammal
        Enumerated_Domain_Value_Name: Small mammal
        Enumerated_Domain_Value_Description: Small mammal
        Enumerated_Domain_Value_Source: Research Planning, Inc.

Attribute_Domain_Values:
    Enumerated_Domain:
        Enumerated_Domain_Value: turtle
        Enumerated_Domain_Value_Name: Turtle
        Enumerated_Domain_Value_Description: Turtle
        Enumerated_Domain_Value_Source: Research Planning, Inc.

Attribute_Domain_Values:
    Enumerated_Domain:
        Enumerated_Domain_Value: ungulate
        Enumerated_Domain_Value_Name: Ungulate
        Enumerated_Domain_Value_Description: Ungulate
        Enumerated_Domain_Value_Source: Research Planning, Inc.

Attribute_Domain_Values:
    Enumerated_Domain:
        Enumerated_Domain_Value: wading
        Enumerated_Domain_Value_Name: Wading bird
        Enumerated_Domain_Value_Description: Wading bird
        Enumerated_Domain_Value_Source: Research Planning, Inc.

Attribute_Domain_Values:
    Enumerated_Domain:
        Enumerated_Domain_Value: waterfowl
        Enumerated_Domain_Value_Name: Waterfowl
        Enumerated_Domain_Value_Description: Waterfowl
        Enumerated_Domain_Value_Source: Research Planning, Inc.

Attribute:
    Attribute_Label: NHP
    Attribute_Description: Natural Heritage Program global ranking. When no information was provided on the global rank for a species, the field is blank.
    Attribute_Description_Source: Network of Natural Heritage Program

Attribute_Domain_Values:
    Codeset_Domain:
        Codeset_Name: NHP Global Conservation Status Rank
        Codeset_Source: Natural Heritage Program

Attribute:
    Attribute_Label: DATE_PUB
    Attribute_Description: Date of NHP listing
    Attribute_Description_Source: Research Planning, Inc.

Attribute_Domain_Values:
    Enumerated_Domain:
        Enumerated_Domain_Value: YYYYMM
        Enumerated_Domain_Value_Name: YYYYMM
        Enumerated_Domain_Value_Description: YYYY for year and optionally MM for month
        Enumerated_Domain_Value_Source: Research Planning, Inc.

Attribute_Domain_Values:
    Enumerated_Domain:
        Enumerated_Domain_Value: 0
        Enumerated_Domain_Value_Name: No information was provided on the global rank for the species
        Enumerated_Domain_Value_Description: No information was provided on the global rank for the species
        Enumerated_Domain_Value_Source: Research Planning, Inc.
Attribute:
  Attribute_Label: EL_SPE
  Attribute_Definition:
  Concatenation of ELEMENT and SPECIES_ID. This item links records in the
  SPECIES data table to records in the BIORES and STATUS data tables.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: E####
    Enumerated_Domain_Value_Definition:
      Where E is the first character of ELEMENT and the next five
      characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and
      SPECIES_ID = 1; EL_SPE = 'B00001').
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Detailed_Description:
  Entity_Type:
    Entity_Type_Label: SEASONAL
    Entity_Type_Definition:
      The data table SEASONAL contains information on the seasonal presence of each
      species associated with each spatial vector object. See the Browse_Graphic section
      for a link to the entity-relationship diagram, which describes the way this table
      relates to other attribute tables in the ESI data structure.
    Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: ELEMENT
  Attribute_Definition: Major categories of biological data
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
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      Enumerated_Domain_Value_Definition: Birds
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      Enumerated_Domain_Value_Definition: Fish
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain:
      Enumerated_Domain_Value: HABITAT
      Enumerated_Domain_Value_Definition: Habitats and Plants
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain:
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      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
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      Enumerated_Domain_Value_Definition: Marine Mammals
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain:
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      Enumerated_Domain_Value_Definition: Reptiles and Amphibians
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain:
      Enumerated_Domain_Value: T_MAMMAL
**Enumerated_Domain_Value_Definition**: Terrestrial Mammals  
**Enumerated_Domain_Value_Definition_Source**: Research Planning, Inc.

**Attribute**

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<th>Attribute Definition</th>
<th>Attribute Definition Source</th>
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<tbody>
<tr>
<td>SPECIES_ID</td>
<td>Numeric identifier for each species that is unique within each element and refers to a nationwide ESI species list maintained at NOAA.</td>
<td>Research Planning, Inc.</td>
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**Attribute Domain Values**

<table>
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<th>Range Domain Minimum</th>
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**Attribute**

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<th>Attribute Definition Source</th>
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<tbody>
<tr>
<td>SEASON_ID</td>
<td>Numeric identifier for the unique monthly presence and life history characteristics of each species at a given location.</td>
<td>Research Planning, Inc.</td>
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**Attribute Domain Values**

<table>
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**Attribute**

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<th>Attribute Definition Source</th>
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<tbody>
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**Attribute Domain Values**

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<th>Enumerated Domain</th>
<th>Enumerated Domain Value</th>
<th>Enumerated Domain Value Definition</th>
<th>Enumerated Domain Value Definition Source</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td>Present in January</td>
<td>Research Planning, Inc.</td>
</tr>
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</table>

**Attribute**

<table>
<thead>
<tr>
<th>Attribute Label</th>
<th>Attribute Definition</th>
<th>Attribute Definition Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>FEB</td>
<td>February</td>
<td>Research Planning, Inc.</td>
</tr>
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</table>

**Attribute Domain Values**

<table>
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<th>Enumerated Domain Value</th>
<th>Enumerated Domain Value Definition</th>
<th>Enumerated Domain Value Definition Source</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td>Present in February</td>
<td>Research Planning, Inc.</td>
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</tbody>
</table>

**Attribute**

<table>
<thead>
<tr>
<th>Attribute Label</th>
<th>Attribute Definition</th>
<th>Attribute Definition Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAR</td>
<td>March</td>
<td>Research Planning, Inc.</td>
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</table>

**Attribute Domain Values**

<table>
<thead>
<tr>
<th>Enumerated Domain</th>
<th>Enumerated Domain Value</th>
<th>Enumerated Domain Value Definition</th>
<th>Enumerated Domain Value Definition Source</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td>Present in March</td>
<td>Research Planning, Inc.</td>
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</table>

**Attribute**

<table>
<thead>
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<th>Attribute Definition</th>
<th>Attribute Definition Source</th>
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</thead>
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<tr>
<td>APR</td>
<td>April</td>
<td>Research Planning, Inc.</td>
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**Attribute Domain Values**

<table>
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<tr>
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<th>Enumerated Domain Value</th>
<th>Enumerated Domain Value Definition</th>
<th>Enumerated Domain Value Definition Source</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td>Present in April</td>
<td>Research Planning, Inc.</td>
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</table>

**Attribute**

<table>
<thead>
<tr>
<th>Attribute Label</th>
<th>Attribute Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAY</td>
<td></td>
</tr>
</tbody>
</table>
Attribute Definition: May
Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Enumerated Domain:
    Enumerated Domain Value: X
    Enumerated Domain Value Definition: Present in May
    Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:
Attribute Label: JUN
Attribute Definition: June
Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Enumerated Domain:
    Enumerated Domain Value: X
    Enumerated Domain Value Definition: Present in June
    Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:
Attribute Label: JUL
Attribute Definition: July
Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Enumerated Domain:
    Enumerated Domain Value: X
    Enumerated Domain Value Definition: Present in July
    Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:
Attribute Label: AUG
Attribute Definition: August
Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Enumerated Domain:
    Enumerated Domain Value: X
    Enumerated Domain Value Definition: Present in August
    Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:
Attribute Label: SEP
Attribute Definition: September
Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Enumerated Domain:
    Enumerated Domain Value: X
    Enumerated Domain Value Definition: Present in September
    Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:
Attribute Label: OCT
Attribute Definition: October
Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Enumerated Domain:
    Enumerated Domain Value: X
    Enumerated Domain Value Definition: Present in October
    Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:
Attribute Label: NOV
Attribute Definition: November
Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Enumerated Domain:
    Enumerated Domain Value: X
    Enumerated Domain Value Definition: Present in November
### Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Attribute:**
- **Attribute_Label:** DEC
- **Attribute_Definition:** December
- **Attribute_Definition_Source:** Research Planning, Inc.
- **Attribute_Domain_Values:**
  - **Enumerated_Domain:**
    - **Enumerated_Domain_Value:** X
    - **Enumerated_Domain_Value_Definition:** Present in December
    - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute:**
- **Attribute_Label:** EL_SPE_SEA
- **Attribute_Definition:** Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the SEASONAL data table to records in the BIORES and BREED data tables.
- **Attribute_Definition_Source:** Research Planning, Inc.
- **Attribute_Domain_Values:**
  - **Enumerated_Domain:**
    - **Enumerated_Domain_Value:** E#######
    - **Enumerated_Domain_Value_Definition:** Where E is the first character of ELEMENT, the next five characters are SPECIES_ID, and the last two characters are SEASON_ID (e.g. ELEMENT = 'BIRD', SPECIES_ID = 1 and SEASON_ID = 1; EL_SPE_SEA = 'B0000101').
    - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

### Detailed_Description:

**Entity_Type:**
- **Entity_Type_Label:** BREED
- **Entity_Type_Definition:** The data table BREED identifies the monthly presence of certain life-history stages or activities for each species at a given location.
- **Entity_Type_Definition_Source:** Research Planning, Inc.

**Attribute:**
- **Attribute_Label:** EL_SPE_SEA
- **Attribute_Definition:** Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the BREED data table to records in the BIORES and SEASONAL data tables.
- **Attribute_Definition_Source:** Research Planning, Inc.
- **Attribute_Domain_Values:**
  - **Enumerated_Domain:**
    - **Enumerated_Domain_Value:** E#######
    - **Enumerated_Domain_Value_Definition:** Where E is the first character of ELEMENT, the next five characters are SPECIES_ID, and the last two characters are SEASON_ID (e.g. ELEMENT = 'BIRD', SPECIES_ID = 1 and SEASON_ID = 1; EL_SPE_SEA = 'B0000101').
    - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute:**
- **Attribute_Label:** MONTH
- **Attribute_Definition:** Two-digit calendar month. Each life history stage or activity type for a particular species can have up to 12 records to account for each month of the year.
- **Attribute_Definition_Source:** Research Planning, Inc.
- **Attribute_Domain_Values:**
  - **Range_Domain:**
    - **Range_Domain_Minimum:** 1
    - **Range_Domain_Maximum:** 12

---

**Attribute:**
**Attribute Label**: BREED1

**Attribute Definition**: Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED1 = nesting; if ELEMENT is "FISH" then BREED1 = spawning; if ELEMENT is "INVERT" then BREED1 = spawning; if ELEMENT is "REPTILE" then BREED1 = nesting; if ELEMENT is "M_MAMMAL" then BREED1 = mating. This attribute is not used for HABITAT or T_MAMMAL elements.

**Attribute Definition Source**: Research Planning, Inc.

**Attribute Domain Values**:  
- Enumerated Domain:  
  - Enumerated Domain Value: Y  
  - Enumerated Domain Value Definition: Life-history stage or activity present  
  - Enumerated Domain Value Definition Source: Research Planning, Inc.
- Enumerated Domain:  
  - Enumerated Domain Value: N  
  - Enumerated Domain Value Definition: Life-history stage or activity not present  
  - Enumerated Domain Value Definition Source: Research Planning, Inc.
- Enumerated Domain:  
  - Enumerated Domain Value: -  
  - Enumerated Domain Value Definition: Breed category not used or not appropriate for record(s) in question  
  - Enumerated Domain Value Definition Source: Research Planning, Inc.

**Attribute Label**: BREED2

**Attribute Definition**: Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED2 = migrating; if ELEMENT is "FISH" then BREED2 = eggs; if ELEMENT is "INVERT" then BREED2 = eggs; if ELEMENT is "REPTILE" then BREED2 = hatching; if ELEMENT is "M_MAMMAL" then BREED2 = calving. This attribute is not used for HABITAT or T_MAMMAL elements.

**Attribute Definition Source**: Research Planning, Inc.

**Attribute Domain Values**:  
- Enumerated Domain:  
  - Enumerated Domain Value: Y  
  - Enumerated Domain Value Definition: Life-history stage or activity present  
  - Enumerated Domain Value Definition Source: Research Planning, Inc.
- Enumerated Domain:  
  - Enumerated Domain Value: N  
  - Enumerated Domain Value Definition: Life-history stage or activity not present  
  - Enumerated Domain Value Definition Source: Research Planning, Inc.
- Enumerated Domain:  
  - Enumerated Domain Value: -  
  - Enumerated Domain Value Definition: Breed category not used or not appropriate for record(s) in question  
  - Enumerated Domain Value Definition Source: Research Planning, Inc.

**Attribute Label**: BREED3

**Attribute Definition**: Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED3 = molting; if ELEMENT is "FISH" then BREED3 = larvae; if ELEMENT is
"INVERT" then BREED3 = larvae; if ELEMENT is "REPTILE" then BREED3 = internesting; if ELEMENT is "M_MAMMAL" then BREED3 = pupping. This attribute is not used for HABITAT or T_MAMMAL elements.

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

- **Enumerated Domain:**
  - **Enumerated Domain Value:** Y
    - **Enumerated Domain Value Definition:** Life-history stage or activity present
    - **Enumerated Domain Value Definition Source:** Research Planning, Inc.
  - **Enumerated Domain Value:** N
    - **Enumerated Domain Value Definition:** Life-history stage or activity not present
    - **Enumerated Domain Value Definition Source:** Research Planning, Inc.
  - **Enumerated Domain Value:** -
    - **Enumerated Domain Value Definition:** Breed category not used or not appropriate for record(s) in question
    - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Attribute:**

- **Attribute Label:** BREED4
- **Attribute Definition:** Life history stage or activity type, where: if ELEMENT is "FISH" then BREED4 = juveniles; if ELEMENT is "INVERT" then BREED4 = juveniles; if ELEMENT is "REPTILE" then BREED4 = juveniles; if ELEMENT is "M_MAMMAL" then BREED4 = molting. This attribute is not used for BIRD, HABITAT, or T_MAMMAL elements.

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

- **Enumerated Domain:**
  - **Enumerated Domain Value:** Y
    - **Enumerated Domain Value Definition:** Life-history stage or activity present
    - **Enumerated Domain Value Definition Source:** Research Planning, Inc.
  - **Enumerated Domain Value:** N
    - **Enumerated Domain Value Definition:** Life-history stage or activity not present
    - **Enumerated Domain Value Definition Source:** Research Planning, Inc.
  - **Enumerated Domain Value:** -
    - **Enumerated Domain Value Definition:** Breed category not used or not appropriate for record(s) in question
    - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Attribute:**

- **Attribute Label:** BREED5
- **Attribute Definition:** Life history stage or activity type, where: if ELEMENT is "FISH" then BREED5 = adults; if ELEMENT is "INVERT" then BREED5 = adults; if ELEMENT is "REPTILE" then BREED5 = adults. This attribute is not used for BIRD, M_MAMMAL, HABITAT, or T_MAMMAL elements.

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**
Enumerated_Domain:
- Enumerated_Domain_Value: Y
  Enumerated_Domain_Value_Definition: Life-history stage or activity present
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
  - Enumerated_Domain_Value: N
    Enumerated_Domain_Value_Definition: Life-history stage or activity not present
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
  - Enumerated_Domain_Value: -
    Enumerated_Domain_Value_Definition: Breed category not used or not appropriate for record(s) in question
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Detailed_Description:
Entity_Type:
- Entity_Type_Label: SOURCES
  Entity_Type_Definition:
The data table SOURCES contains the primary sources used to create the ESI data set. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
  Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
- Attribute_Label: SOURCE_ID
  Attribute_Definition:
  Source identifier that links records in the SOURCES data table to the items G_SOURCE and A_SOURCE in the SOC_DAT table, and to G_SOURCE and S_SOURCE in the BIORES table.
  Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Range_Domain:
  - Range_Domain_Minimum: 1
  - Range_Domain_Maximum: N

Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
- Attribute_Label: ORIGINATOR
  Attribute_Definition:
  Author or developer of source material or data set
  Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Attribute:
- Attribute_Label: DATE_PUB
  Attribute_Definition:
  Date of source material, publication, or date of personal communication with expert source
  Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
  - Enumerated_Domain_Value: YYYYMM
    Enumerated_Domain_Value_Definition: YYYY for year and optionally MM for month
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
- Attribute_Label: TITLE
  Attribute_Definition:
  Title of source material or data
  Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
Attribute_Label: DATA_FORMAT
Attribute_Definition: The format of the source material
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
Attribute_Label: PUBLICATION
Attribute_Definition: Additional citation information
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
Attribute_Label: SCALE
Attribute_Definition: Scale denominator of the source
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: integer
Enumerated_Domain_Value_Definition: Any integer
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: TIME_PERIOD
Attribute_Definition: Date(s) of data collection that the source material is based upon.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: MM/DD/YY
Enumerated_Domain_Value_Definition: Month/Day/Year
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: MM/YYYY
Enumerated_Domain_Value_Definition: Month/Year
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: UNKNOWN
Enumerated_Domain_Value_Definition: Date information unknown
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Detailed_Description:
Entity_Type:
Entity_Type_Label: STATUS
Entity_Type_Definition:
The data table STATUS identifies the species that are listed as threatened or endangered by a state or federal authority. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: ELEMENT
Attribute_Definition: Major categories of biological data
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: BIRD
Enumerated_Domain_Value_Definition: Birds
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: FISH
  Enumerated_Domain_Value_Definition: Fish
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: HABITAT
  Enumerated_Domain_Value_Definition: Habitats and Plants
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: INVERT
  Enumerated_Domain_Value_Definition: Invertebrates
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: M_MAMMAL
  Enumerated_Domain_Value_Definition: Marine Mammals
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: REPTILE
  Enumerated_Domain_Value_Definition: Reptiles and Amphibians
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: T_MAMMAL
  Enumerated_Domain_Value_Definition: Terrestrial Mammals
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: SPECIES_ID
  Attribute_Definition: Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 1
      Range_Domain_Maximum: N

Attribute:
  Attribute_Label: S
  Attribute_Definition: State threatened or endangered status
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: E
      Enumerated_Domain_Value_Definition: Endangered on state list
      Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service
      Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: T
  Enumerated_Domain_Value_Definition: Threatened on state list
  Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: C
Enumerated_Domain_Value_Definition: Species of Special Concern
Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute:
Attribute_Label: F
Attribute_Definition: Federal threatened or endangered status
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
  Enumerated_Domain_Value: E
  Enumerated_Domain_Value_Definition: Endangered on federal list
  Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute_Domain_Values:
  Enumerated_Domain:
  Enumerated_Domain_Value: T
  Enumerated_Domain_Value_Definition: Threatened on federal list
  Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute_Domain_Values:
  Enumerated_Domain:
  Enumerated_Domain_Value: C
  Enumerated_Domain_Value_Definition: Species of Special Concern
  Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute:
Attribute_Label: STATE
Attribute_Definition: Two-letter state abbreviation
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
Attribute_Label: S_DATE
Attribute_Definition: Publication date of source material used to assign state status values for each species, if used.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
  Enumerated_Domain_Value: YYYYMM
  Enumerated_Domain_Value_Definition: YYYY for year and optionally MM for month
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: F_DATE
Attribute_Definition: Publication date of source material used to assign federal status values for each species, if used.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
  Enumerated_Domain_Value: YYYYMM
  Enumerated_Domain_Value_Definition: YYYY for year and optionally MM for month
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: EL_SPE
Attribute_Definition: Concatenation of ELEMENT and SPECIES_ID. This item links the STATUS data table to the BIORES and SPECIES data tables.
**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

**Enumerated Domain:**

- **Enumerated Domain Value:** E####
- **Enumerated Domain Value Definition:**
  
  Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = '00001').

- **Enumerated Domain Value Definition Source:** Research Planning, Inc.

---

**Distribution Information:**

**Distributor:**

**Contact Information:**

- **Contact Person Primary:** John Kaperick
- **Contact Organization:** NOAA, Office of Response and Restoration

**Contact Address:**

- **Address Type:** Physical Address
- **Address:** 7600 Sand Point Way N.E.
- **City:** Seattle
- **State or Province:** Washington
- **Postal Code:** 98115-6349

- **Contact Voice Telephone:** (206) 526-6400
- **Contact Facsimile Telephone:** (206) 526-6329

**Resource Description:** ESI Atlas for Columbia River

**Distribution Liability:**

Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement copy of the product when the product is determined unreadable by computer-input peripherals, or when the physical medium is delivered in damaged condition.

**Custom Order Process:**

Contact NOAA for distribution options (see Distributor). ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI Viewer product are also included on the distribution CDs for ease of use of the ESI data. The database files are distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats.

---

**Metadata Reference Information:**

- **Metadata Date:** 200411
- **Metadata Review Date:** 200411
- **Metadata Contact:**

  **Contact Information:**
  
  - **Contact Person Primary:** Jill Petersen
  - **Contact Organization:** NOAA, Office of Response and Restoration
  - **Contact Position:** GIS Manager
  
  **Contact Address:**
  
  - **Address Type:** Physical Address
  - **Address:** 7600 Sand Point Way N.E.
  - **City:** Seattle
  - **State or Province:** Washington
  - **Postal Code:** 98115-6349
Columbia River ESI: M_MAMPT (Marine Mammal Points)

Metadata also available as - [Parseable text] - [SGML]

Metadata:

- Identification_Information
- Data_Quality_Information
- Spatial_Data_Organization_Information
- Spatial_Reference_Information
- Entity_and_Attribute_Information
- Distribution_Information
- Metadata_Reference_Information

Identification_Information:

Citation:

Originator:

Publication_Date: 200411
Title: Columbia River ESI: M_MAMPT (Marine Mammal Points)
Edition: First
Geospatial_Data_Presentation_Form: Vector digital data
Series_Information:
Series_Name: None
Issue_Identification: Columbia River
Publication_Information:
Publication_Place: Seattle, Washington
Publisher:

Other_Citation_Details:

Description:

Abstract:
This data set contains sensitive biological resource data for sea lions and harbor seals in Columbia River. Vector points in this data set represent locations of seal and sea lion haul-out sites. Species-specific abundance, seasonality, status, life history, and source information are stored in relational data tables (described below) designed to be used in conjunction with this spatial data layer.

This data set comprises a portion of the Environmental Sensitivity Index (ESI) data for Columbia River. ESI data characterize the marine and coastal environments and wildlife by their sensitivity to spilled oil. The ESI data include information for three main components: shoreline habitats, sensitive biological resources, and human-use resources. See also the
M_MAMMAL (Marine Mammal Polygons) data layer, part of the larger Columbia River ESI database, for additional marine mammal information.

**Purpose:**
The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response. The Clean Water Act with amendments by the Oil Pollution Act of 1990 requires response plans for immediate and effective protection of sensitive resources.

**Time_Period_of_Content:**
**Time_Period_Information:**
**Range_of_Dates/Times:**
  - **Beginning_Date:** 1984
  - **Ending_Date:** 2004

**Currentness_Reference:**
The biological data were compiled during 2003-2004. The currentness dates for these data range from 1984 to 2004 and are documented in the Lineage section.

**Status:**
**Progress:** Complete
**Maintenance_and_Update_Frequency:** None Scheduled

**Spatial_Domain:**
**Bounding_Coordinates:**
  - **West_Bounding_Coordinate:** -124.125
  - **East_Bounding_Coordinate:** -120.67375
  - **North_Bounding_Coordinate:** 46.375
  - **South_Bounding_Coordinate:** 45.3

**Keywords:**
**Theme:**
  - **Theme_Keyword_Thesaurus:** None
  - **Theme_Keyword:** ESI
  - **Theme_Keyword:** Sensitivity maps
  - **Theme_Keyword:** Coastal resources
  - **Theme_Keyword:** Oil spill planning
  - **Theme_Keyword:** Coastal Zone Management
  - **Theme_Keyword:** Wildlife
  - **Theme_Keyword:** Marine Mammal

**Place:**
**Place_Keyword_Thesaurus:** None
**Place_Keyword:** Columbia River

**Access_Constraints:** None
**Use_Constraints:**
DO NOT USE MAPS FOR NAVIGATIONAL PURPOSES. Besides the above warning, there are no use constraints on these data. Note that the ESI database should not be used to the exclusion of other pertinent data or information held by state or federal agencies or other organizations. Likewise, information contained in the database cannot be used in place of consultations with environmental, natural resource, and cultural resource agencies, or in place of field surveys. Recognize that the information contained in the ESI database represents known concentration areas or occurrences of natural, cultural, and human-use resources, but does not necessarily represent the full distribution or range of each species or resource. This is particularly important to recognize when considering potential impacts to protected resources, such as endangered species, wetlands, etc. Acknowledgment of the originators, publishers, contributors, and sources listed would be appreciated in products derived from these data.

**Browse_Graphic:**
**Browse_Graphic_File_Name:** datafig.jpg
**Browse_Graphic_File_Description:**
Depicts the relationships between spatial data layers and attribute data tables for the Columbia River ESI data.
**Browse_Graphic_File_Type:** JPEG

**Data_Set_Credit:**
This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; Coastal Storms Initiative; U.S. Fish and Wildlife Service; NOAA Fisheries; State of Oregon; and State of Washington.
Native_Data_Set_Environment:

The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 8.3) and SQL SERVER(r) (version 7.0). The hardware configuration is PC's with Windows Operating System (NT4.0/2000).

The Spatial_Data_Organization_Information section refers only to the source files in the ARC export format. The following files are included in that data set: birds.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mammal.e00, m_mampt.e00, mgt.e00, nests.e00, nwi.e00, reptiles.e00, socecon.e00, t_mammal.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biore, breed, breed_dt, runs_dat, seasonal, soc_dat, soc_lut, sources, species, and status.

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report:

A multi-stage error checking process is used to verify both attribute accuracy and logical consistency throughout data production. The process includes a standardized data entry methodology, hardcopy data review by in-house and external resource experts, a final Quality Assurance/Quality Control (QA/QC) process, and multiple automated logical consistency checks. Quantitative data (such as densities, counts, abundances, or concentrations) provided by resource experts for inclusion in the data set may vary widely in attribute accuracy, depending upon the methodology used to collect and compile such data. For a more detailed evaluation of source data attribute accuracy, contact the sources listed in the Lineage section.

Logical_Consistency_Report:

A multi-stage error checking process, described in the above Attribute_Accuracy_Report, is used to verify both attribute accuracy and logical consistency throughout data production. This process includes multiple automated logical consistency checks that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and SQL SERVER(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where the data are written to CD-ROM and the metadata are written.

After the data are delivered to NOAA, they are again subjected to a number of quality and consistency checks. In the process of checking for topological and database consistencies, new ID's and RARNUM's or HUNUM's are also generated. The new ID's are a combination of atlas number, element number, and record number. In addition, the value used to represent the element is modified to reflect the type of feature being mapped. In the case of an element that is normally represented by a point or polygon, a value of 20 is added to the standard element value for mapping of linear features. In the case where an element usually mapped as a polygon is represented by a point, a value of 30 is added to the regular element value. The RARNUM's are also modified to include the atlas number, so multiple atlases can be combined and RARNUM's remain unique. RARNUM's are redefined on an element basis, so "resource at risk" groupings will contain only a single element. HUNUM's are also modified to include the atlas number.

Completeness_Report:

These data represent a synthesis of expert knowledge and available hardcopy reports and digital data on seal and sea lion haul-out sites. See also the M_MAMMAL (Marine Mammal Polygons) data layer, part of the larger Columbia River ESI database, for additional marine mammal information. These data do not necessarily represent all marine mammal occurrences in Columbia River. The following species are included in this data set: (Species_ID, Common Name, Scientific Name, if applicable): 2, Harbor seal, Phoca vitulina; 22, California sea lion, Zalophus californianus.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

Most of the spatial components of the biological data sets are developed using regional experts who estimate concentration areas. It is difficult to estimate the positional accuracy of such data, except to state that they are compiled on hardcopy base maps with a scale of 1:24,000. Some of the spatial components of the biological data sets are developed from pre-existing digital sources and reflect the positional accuracy of these original data. See the Lineage and Process_Description
sections for more information on the original data source and how these data were integrated or manipulated to create the final data set. Note that biological resource data by their very nature are considered "fuzzy", and this should be understood when considering the positional accuracy of vector digital objects representing these resources.

**Lineage:**

**Source Information:**

**Source Citation:**

Citation Information:

- **Originator:** North, J., Oregon Department of Fish and Wildlife (ODFW)
- **Publication Date:** 200402
- **Title:** Fish, Bird, and Mammal Distributions along the Columbia River
- **Geospatial Data Presentation Form:** Expert knowledge

Publication Information:

- **Publication Place:** Unpublished material
- **Publisher:** Unpublished material

**Type of Source Media:** Personal communication

**Source Time Period of Content:**

- **Time Period Information:**
  - **Single Date/Time:** 200402

**Source Currentness Reference:** Date of communication

**Source Citation Abbreviation:** None

**Source Contribution:** Distribution information for marine mammals

**Source Information:**

**Source Citation:**

Citation Information:

- **Originator:** Columbia River Estuary Data Development Program
- **Publication Date:** 1984
- **Title:** The Columbia River Estuary Atlas of Physical and Biological Characteristics

Geospatial Data Presentation Form: Hardcopy atlas

Publication Information:

- **Publication Place:** Seattle, Washington
- **Publisher:** Northwest Cartography, Inc.

**Source Scale Denominator:** 250,000

**Type of Source Media:** Paper

**Source Time Period of Content:**

- **Time Period Information:**
  - **Single Date/Time:** 1984

**Source Currentness Reference:** Publication date

**Source Citation Abbreviation:** None

**Source Contribution:** Seasonality information for marine mammals

**Source Information:**

**Source Citation:**

Citation Information:

- **Originator:** Washington Department of Fish and Wildlife (WDFW)
- **Publication Date:** 200403
- **Title:** Marine Mammal Haulout Sites in the Columbia River

Geospatial Data Presentation Form: Vector digital data

Publication Information:

- **Publication Place:** Unpublished material
- **Publisher:** Unpublished material

**Source Scale Denominator:** 24,000

**Type of Source Media:** CD-ROM

**Source Time Period of Content:**

- **Time Period Information:**
  - **Single Date/Time:**
Calendar_Date: 200403
Source_Currentness_Reference: Publication date
Source_Citation_Abbreviation: None
Source_Contribution: Location of marine mammal haulout sites adapted from WDFW data

Process_Step:
Process_Description: Three main sources of data were used to depict haul-out sites for this data layer: (1) personal interviews with resource experts from Oregon Department of Fish and Wildlife (ODFW), Washington Department of Fish and Wildlife (WDFW), and U.S. Fish and Wildlife Service (USFWS); (2) numerous published and unpublished reports; and (3) information adapted from Washington Priority Habitat data. Information gathered during initial interviews and from hardcopy sources was compiled onto U.S. Geological Survey 1:24,000 topographic quadrangles.

The compiled data were digitized off of the base maps into an ArcInfo system to create the M_MAMPT data layer. All ESI, biology, and human-use data were plotted onto hardcopy draft maps. Following the delivery of draft maps to the participating resource experts, a second set of interviews was conducted to review the maps. Edits to the M_MAMPT data layer were made based on the recommendations of the resource experts, and final hardcopy maps were created.

Process_Date: 200408

Process_Contact:
Contact_Information:
Contact_Organization_Primary:
  Contact_Organization: NOAA, Office of Response and Restoration
  Contact_Person: Jill Petersen
Contact_Address:
  Address_Type: Physical address
  Address: 7600 Sand Point Way N.E.
  City: Seattle
  State_or_Province: Washington
  Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: Jill.Petersen@noaa.gov

Spatial_Data_Organization_Information:
  Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
  SDTS_Terms_Description:
    SDTS_Point_and_Vector_Object_Type: Entity Point
    Point_and_Vector_Object_Count: 15

Spatial_Reference_Information:
  HorizontalCoordinate_System_Definition:
    Geographic:
      Latitude_Resolution: 0.0000001
      Longitude_Resolution: 0.0000001
      Geographic_Coordinate_Units: Decimal degrees
    Geodetic_Model:
      Horizontal_Datum_Name: North American Datum of 1927
      Ellipsoid_Name: Clark 1866
      Semi-major_Axis: 6378206.4
      Denominator_of_Flattening_Ratio: 294.978698
Entity and Attribute Information:

Overview Description:

Entity and Attribute Overview:

In addition to the geographic data layers, six relational attribute or data tables, BIORES, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, are used to store the complex biological data in the ESI data structure. The geographic data layer containing biological resource information (in this case, M_MAMPT) is linked to the Biological Resources table (BIORES) using the unique ID and the lookup table BIO_LUT, or it can be linked directly using RARNUM. The ID is a unique combination of the atlas number (for the Columbia River atlas, the number is 41), an element/layer specific number (BIRDS are layer 1, FISH are layer 2, etc.), and a unique record number. The RARNUM represents a unique combination of species, seasonalities, concentrations, and source information. For each of these groupings, a number is generated. That number is concatenated with the atlas number to create a "resource at risk" number that is unique across atlases. BIORES and the other relational data tables are described below in detail. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way these tables relate to the geographic data layers and other attribute tables in the ESI data structure.

Due to the complexity of the relational database model, the data items are also post-processed into a flat file format. This table, called BIOFILE, may be used in place of the relational files described below to ease simple data queries. The items in the flat file are ELEMENT, SUBELEMENT, NAME, GEN_SPEC, S, F, NHP, DATE_PUB, CONC, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC, BREED1, BREED2, BREED3, BREED4, BREED5, RARNUM, G_SOURCE, S_SOURCE, and BREED. All of these items are the same as their counterparts in the individual data tables described below, except the BREED1-BREED5 and BREED items. BREED is a newly generated variable used to link to the BREED_DT data table, a modified, more compact version of the relational BREED data table. BREED1-BREED5 give a text summary of when each life stage occurs within the associated map object. The life stages referred to are the same as those listed in the Detailed_Description of the BREED data table. The link to the BIOFILE may be made through the BIO_LUT, using ID to link to RARNUM, or BIOFILE may be linked directly to the RARNUM in each of the geographic layer's attribute data tables. As mentioned, BREED_DT is an auxiliary support data table to the flat file structure, which allows the user to do searches based on month for seasonal breeding activities. The link from the flat file to BREED_DT is the BREED item.

A second supporting data table is SOURCES. This is the same as the source file described above, and the link from the flat file is both G_SOURCE and S_SOURCE. It should be noted that although the flat file eases data query, it is not a normalized database structure, and actual updates performed by the states and other responsible agencies should be done using the relational data tables. The entity-relationship diagram, describing relationships between attribute tables in the ESI data structure, does NOT include the BIOFILE data table, and this data table is NOT described in detail below.

Detailed Description:

Entity Type:

Entity_Type_Label: M_MAMPT.PAT
Entity_Type_Description: The M_MAMPT.PAT table contains attribute information for the vector points representing seal and sea lion haul-out sites. Note that all attribute information is stored in a series of relational files, described below. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the relationships between attribute tables in the ESI data structure.
Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:

Attribute_Label: ID
Attribute_Description: An identifier that links vector objects in the biology data layers to records in the BIO_LUT data table. ID is a concatenation of atlas number (41), element number...
(34; 30 because it is a point feature, plus 4, the element value for M_MAMMAL), and record number.

**Attribute_Definition_Source:** NOAA

**Attribute_Domain_Values:**

**Range_Domain:**
- **Range_Domain_Minimum:** 413400001
- **Range_Domain_Maximum:** 413400015

**Attribute:**

**Attribute_Label:** RARNUM
**Attribute_Definition:** An identifier that links directly to the BIORES table or the flat format BIOFILE table.

**Attribute_Definition_Source:** NOAA

**Attribute_Domain_Values:**

**Range_Domain:**
- **Range_Domain_Minimum:** 41000064
- **Range_Domain_Maximum:** 41000068

**Detailed_Description:**

**Entity_Type:**

**Entity_Type_Label:** BIO_LUT
**Entity_Type_Definition:** The data table BIO_LUT is a lookup table that contains items necessary for linking vector objects in the biological data layers with the BIORES data table. Note that all attribute information is stored in a series of relational files, described below. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.

**Entity_Type_Definition_Source:** Research Planning, Inc.

**Attribute:**

**Attribute_Label:** RARNUM
**Attribute_Definition:** An identifier that links records in the BIO_LUT data table to records in the BIORES data table or the flat format BIOFILE data table. RARNUM values of 0 are holes in points and do not contain information.

**Attribute_Definition_Source:** NOAA

**Attribute_Domain_Values:**

**Range_Domain:**
- **Range_Domain_Minimum:** 41000001
- **Range_Domain_Maximum:** 41000290

**Attribute:**

**Attribute_Label:** ID
**Attribute_Definition:** An identifier that links vector objects in the biology data layers to records in the BIO_LUT data table. ID is a concatenation of atlas number (41), element number (34; 30 because it is a point feature, plus 4, the element value for M_MAMMAL), and record number. ID values of 9999 are holes in polygons and do not contain information.

**Attribute_Definition_Source:** NOAA

**Attribute_Domain_Values:**

**Range_Domain:**
- **Range_Domain_Minimum:** 410100002
- **Range_Domain_Maximum:** 41000290

**Detailed_Description:**

**Entity_Type:**

**Entity_Type_Label:** BIORES
**Entity_Type_Definition:** The data table BIORES contains both biological attribute data and items necessary for linking vector objects in the biological data layers via the BIO_LUT data table to other associated data tables. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
**Entity_Type_Definition_Source:** Research Planning, Inc.

**Attribute:**

**Attribute_Label:** RARNUM  
**Attribute_Definition:** An identifier that links records in the BIORES data table to records in the BIO_LUT data table or the flat format BIOFILE data table.  
**Attribute_Definition_Source:** NOAA  
**Attribute_Domain_Values:**  
  **Range_Domain:**  
  **Range_Domain_Minimum:** 041000001  
  **Range_Domain_Maximum:** 041000290

**Attribute:**

**Attribute_Label:** SPECIES_ID  
**Attribute_Definition:** Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.  
**Attribute_Definition_Source:** Research Planning, Inc.  
**Attribute_Domain_Values:**  
  **Range_Domain:**  
  **Range_Domain_Minimum:** 1  
  **Range_Domain_Maximum:** N

**Attribute:**

**Attribute_Label:** CONC  
**Attribute_Definition:** The field CONC refers to "concentration," abundance, or density values and contains counts of a range of individuals (XX-XXX). Note that these numbers generally represent the peak concentrations of marine mammals present or potentially present. Counts were derived from a variety of surveys, and may range in date.  
**Attribute_Definition_Source:** Research Planning, Inc.  
**Attribute_Domain_Values:**  
  **Unrepresentable_Domain:** Acceptable values change from atlas to atlas

**Attribute:**

**Attribute_Label:** SEASON_ID  
**Attribute_Definition:** Numeric identifier for the unique monthly presence and life history characteristics of each species at a given location.  
**Attribute_Definition_Source:** Research Planning, Inc.  
**Attribute_Domain_Values:**  
  **Range_Domain:**  
  **Range_Domain_Minimum:** 1  
  **Range_Domain_Maximum:** N

**Attribute:**

**Attribute_Label:** G_SOURCE  
**Attribute_Definition:** Geographic source identifier that links records in the BIORES data table to records in the SOURCES data table.  
**Attribute_Definition_Source:** Research Planning, Inc.  
**Attribute_Domain_Values:**  
  **Range_Domain:**  
  **Range_Domain_Minimum:** 1  
  **Range_Domain_Maximum:** N

**Attribute:**

**Attribute_Label:** S_SOURCE  
**Attribute_Definition:** Seasonality source identifier that links records in the BIORES data table to records in the SOURCES data table.  
**Attribute_Definition_Source:** Research Planning, Inc.  
**Attribute_Domain_Values:**  
  **Range_Domain:**
**Attribute:**

- **Attribute Label:** ELEMENT
- **Attribute Definition:** Major categories of biological data
- **Attribute Definition Source:** Research Planning, Inc.
- **Attribute Domain Values:**
  - **Enumerated Domain:**
    - **Enumerated Domain Value:** BIRD
      - **Enumerated Domain Value Definition:** Birds
      - **Enumerated Domain Value Definition Source:** Research Planning, Inc.
  - **Enumerated Domain:**
    - **Enumerated Domain Value:** FISH
      - **Enumerated Domain Value Definition:** Fish
      - **Enumerated Domain Value Definition Source:** Research Planning, Inc.
  - **Enumerated Domain:**
    - **Enumerated Domain Value:** HABITAT
      - **Enumerated Domain Value Definition:** Habitats and Plants
      - **Enumerated Domain Value Definition Source:** Research Planning, Inc.
  - **Enumerated Domain:**
    - **Enumerated Domain Value:** INVERT
      - **Enumerated Domain Value Definition:** Invertebrates
      - **Enumerated Domain Value Definition Source:** Research Planning, Inc.
  - **Enumerated Domain:**
    - **Enumerated Domain Value:** M_MAMMAL
      - **Enumerated Domain Value Definition:** Marine Mammals
      - **Enumerated Domain Value Definition Source:** Research Planning, Inc.
  - **Enumerated Domain:**
    - **Enumerated Domain Value:** REPTILE
      - **Enumerated Domain Value Definition:** Reptiles and Amphibians
      - **Enumerated Domain Value Definition Source:** Research Planning, Inc.
  - **Enumerated Domain:**
    - **Enumerated Domain Value:** T_MAMMAL
      - **Enumerated Domain Value Definition:** Terrestrial Mammals
      - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Attribute:**

- **Attribute Label:** EL_SPE
- **Attribute Definition:** Concatenation of ELEMENT and SPECIES_ID. This item links records in the BIORES data table to records in the SPECIES and STATUS data tables.
- **Attribute Definition Source:** Research Planning, Inc.
- **Attribute Domain Values:**
  - **Enumerated Domain:**
    - **Enumerated Domain Value:** E####
      - **Enumerated Domain Value Definition:** Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = 'B00001').
      - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Attribute:**

- **Attribute Label:** EL_SPE_SEA
- **Attribute Definition:** Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the BIORES data table to records in the SEASONAL and BREED data
tables.

Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: E############

Enumerated Domain Value Definition:
Where E is the first character of ELEMENT, the next five characters are SPECIES_ID, and the last two characters are SEASON_ID (e.g., ELEMENT = 'BIRD', SPECIES_ID = 1 and SEASON_ID = 1; EL_SPE_SEA = 'B0000101').

Enumerated Domain Value Definition Source: Research Planning, Inc.

Detailed Description:

Entity Type:

Entity Type Label: SPECIES

Entity Type Definition:
The data table SPECIES identifies all species in the ESI data set. See the Browse Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure. Refer to the Completeness Report for a list of layer-specific species.

Entity Type Definition Source: Research Planning, Inc.

Attribute:

Attribute Label: SPECIES_ID

Attribute Definition: Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.

Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:

Range Domain:

Range Domain Minimum: 1
Range Domain Maximum: N

Attribute:

Attribute Label: NAME

Attribute Definition: Species common name for the entire ESI data set

Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:

Unrepresentable Domain: Acceptable values change from atlas to atlas

Attribute:

Attribute Label: GEN_SPEC

Attribute Definition: Species scientific name for the entire ESI data set

Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:

Unrepresentable Domain: Acceptable values change from atlas to atlas

Attribute:

Attribute Label: ELEMENT

Attribute Definition: Major categories of biological data

Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: BIRD

Enumerated Domain Value Definition: Birds

Enumerated Domain Value Definition Source: Research Planning, Inc.
Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: FISH

Enumerated Domain Value Definition: Fish

Enumerated Domain Value Definition Source: Research Planning, Inc.
Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: HABITAT

Enumerated Domain Value Definition: Habitats and Plants
Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: INVERT
Enumerated Domain Value Definition: Invertebrates
Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: M_MAMMAL
Enumerated Domain Value Definition: Marine Mammals
Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: REPTILE
Enumerated Domain Value Definition: Reptiles and Amphibians
Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: T_MAMMAL
Enumerated Domain Value Definition: Terrestrial Mammals
Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:

Attribute Label: SUBELEMENT
Attribute Definition: Element subgroup delineating a logical grouping of species
Attribute Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: bivalve
Enumerated Domain Value Definition: Bivalve
Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: crab
Enumerated Domain Value Definition: Crab
Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: diadromous
Enumerated Domain Value Definition: Diadromous fish
Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: diving
Enumerated Domain Value Definition: Diving bird
Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: e_nursery
Enumerated Domain Value Definition: Estuarine nursery fish
Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: fav
Enumerated Domain Value Definition: Floating aquatic vegetation
Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: freshwater
Enumerated Domain Value Definition: Freshwater fish
Enumerated Domain Value Definition Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: gull_tern
  Enumerated_Domain_Value_Definition: Gull or tern
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: passerine
  Enumerated_Domain_Value_Definition: Passerine bird
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: pinniped
  Enumerated_Domain_Value_Definition: Pinniped
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: raptor
  Enumerated_Domain_Value_Definition: Raptor
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: sav
  Enumerated_Domain_Value_Definition: Submerged aquatic vegetation
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: shorebird
  Enumerated_Domain_Value_Definition: Shorebird
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: sm_mammal
  Enumerated_Domain_Value_Definition: Small mammal
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: turtle
  Enumerated_Domain_Value_Definition: Turtle
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: ungulate
  Enumerated_Domain_Value_Definition: Ungulate
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: wading
  Enumerated_Domain_Value_Definition: Wading bird
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: waterfowl
  Enumerated_Domain_Value_Definition: Waterfowl
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: NHP
  Attribute_Definition:
  Natural Heritage Program global ranking. When no information was provided on
  the global rank for a species, the field is blank.
**Attribute**

**Attribute_Label:** DATE_PUB  
**Attribute_Definition:** Date of NHP listing  
**Attribute_Definition_Source:** Research Planning, Inc.  
**Attribute_Domain_Values:**  
  **Enumerated_Domain:**  
    **Enumerated_Domain_Value:** YYYYMM  
    **Enumerated_Domain_Value_Definition:** YYYY for year and optionally MM for month  
    **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.  
  **Enumerated_Domain_Value:** 0  
  **Enumerated_Domain_Value_Definition:** No information was provided on the global rank for the species  
  **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute**

**Attribute_Label:** EL_SPE  
**Attribute_Definition:** Concatenation of ELEMENT and SPECIES_ID. This item links records in the SPECIES data table to records in the BIORES and STATUS data tables.  
**Attribute_Definition_Source:** Research Planning, Inc.  
**Attribute_Domain_Values:**  
  **Enumerated_Domain:**  
    **Enumerated_Domain_Value:** E#####  
    **Enumerated_Domain_Value_Definition:** Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL SPE = 'B00001').  
    **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Detailed_Description:**

**Entity_Type:**  
**Entity_Type_Label:** SEASONAL  
**Entity_Type_Definition:** The data table SEASONAL contains information on the seasonal presence of each species associated with each spatial vector object. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.  
**Entity_Type_Definition_Source:** Research Planning, Inc.  

**Attribute**

**Attribute_Label:** ELEMENT  
**Attribute_Definition:** Major categories of biological data  
**Attribute_Definition_Source:** Research Planning, Inc.  
**Attribute_Domain_Values:**  
  **Enumerated_Domain:**  
    **Enumerated_Domain_Value:** BIRD  
    **Enumerated_Domain_Value_Definition:** Birds  
    **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.  
  **Enumerated_Domain_Value:** FISH  
  **Enumerated_Domain_Value_Definition:** Fish  
  **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.
Enumerated Domain Value: HABITAT
Enumerated Domain Value Definition: Habitats and Plants
Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:
  Enumerated Domain:
    Enumerated Domain Value: INVERT
    Enumerated Domain Value Definition: Invertebrates
    Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:
  Enumerated Domain:
    Enumerated Domain Value: M_MAMMAL
    Enumerated Domain Value Definition: Marine Mammals
    Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:
  Enumerated Domain:
    Enumerated Domain Value: REPTILE
    Enumerated Domain Value Definition: Reptiles and Amphibians
    Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:
  Enumerated Domain:
    Enumerated Domain Value: T_MAMMAL
    Enumerated Domain Value Definition: Terrestrial Mammals
    Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:
  Attribute Label: SPECIES_ID
  Attribute Definition:
    Numeric identifier for each species that is unique within each element and refers to a nationwide ESI species list maintained at NOAA.
  Attribute Definition Source: Research Planning, Inc.
  Attribute Domain Values:
    Range Domain:
      Range Domain Minimum: 1
      Range Domain Maximum: N

Attribute:
  Attribute Label: SEASON_ID
  Attribute Definition:
    Numeric identifier for the unique monthly presence and life history characteristics of each species at a given location.
  Attribute Definition Source: Research Planning, Inc.
  Attribute Domain Values:
    Range Domain:
      Range Domain Minimum: 1
      Range Domain Maximum: N

Attribute:
  Attribute Label: JAN
  Attribute Definition: January
  Attribute Definition Source: Research Planning, Inc.
  Attribute Domain Values:
    Enumerated Domain:
      Enumerated Domain Value: X
      Enumerated Domain Value Definition: Present in January
      Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:
  Attribute Label: FEB
  Attribute Definition: February
  Attribute Definition Source: Research Planning, Inc.
  Attribute Domain Values:
    Enumerated Domain:
      Enumerated Domain Value: X
      Enumerated Domain Value Definition: Present in February
Attribute:
Attribute_Label: MAR
Attribute_Definition: March
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: X
Enumerated_Domain_Value_Definition: Present in March
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: APR
Attribute_Definition: April
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: X
Enumerated_Domain_Value_Definition: Present in April
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: MAY
Attribute_Definition: May
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: X
Enumerated_Domain_Value_Definition: Present in May
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: JUN
Attribute_Definition: June
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: X
Enumerated_Domain_Value_Definition: Present in June
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: JUL
Attribute_Definition: July
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: X
Enumerated_Domain_Value_Definition: Present in July
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: AUG
Attribute_Definition: August
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: X
Enumerated_Domain_Value_Definition: Present in August
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: SEP
Attribute_Definition: September
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: X
  Enumerated_Domain_Value_Definition: Present in September
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: OCT
  Attribute_Definition: October
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: X
      Enumerated_Domain_Value_Definition: Present in October
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: NOV
  Attribute_Definition: November
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: X
      Enumerated_Domain_Value_Definition: Present in November
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: DEC
  Attribute_Definition: December
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: X
      Enumerated_Domain_Value_Definition: Present in December
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: EL_SPE_SEA
  Attribute_Definition: Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the SEASONAL data table to records in the BIORES and BREED data tables.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: E#######
      Enumerated_Domain_Value_Definition: Where E is the first character of ELEMENT, the next five characters are SPECIES_ID, and the last two characters are SEASON_ID (e.g. ELEMENT = 'BIRD', SPECIES_ID = 1 and SEASON_ID = 1; EL_SPE_SEA = 'B0000101')
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Detailed_Description:
  Entity_Type:
    Entity_Type_Label: BREED
    Entity_Type_Definition: The data table BREED identifies the monthly presence of certain life-history stages or activities for each species at a given location.
    Entity_Type_Definition_Source: Research Planning, Inc.
  Attribute:
    Attribute_Label: EL_SPE_SEA
    Attribute_Definition: Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the BREED data table to records in the BIORES and SEASONAL data tables.
Attribute **Definition Source**: Research Planning, Inc.

**Attribute Domain Values**:  
 **Enumerated Domain**:  
 **Enumerated Domain Value**: E####E  
 **Enumerated Domain Value Definition**: Where E is the first character of ELEMENT, the next five characters are SPECIES_ID, and the last two characters are SEASON_ID (e.g. ELEMENT = 'BIRD', SPECIES_ID = 1 and SEASON_ID = 1; EL_SPE_SEA = 'B0000101').

**Attribute**:  
 **Attribute Label**: MONTH  
 **Attribute Definition**: Two-digit calendar month. Each life history stage or activity type for a particular species can have up to 12 records to account for each month of the year.  
 **Attribute Definition Source**: Research Planning, Inc.

**Attribute Domain Values**:  
 **Range Domain**:  
 **Range Domain Minimum**: 1  
 **Range Domain Maximum**: 12

**Attribute**:  
 **Attribute Label**: BREED1  
 **Attribute Definition**: Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED1 = nesting; if ELEMENT is "FISH" then BREED1 = spawning; if ELEMENT is "INVERT" then BREED1 = spawning; if ELEMENT is "REPTILE" then BREED1 = nesting; if ELEMENT is "M_MAMMAL" then BREED1 = mating. This attribute is not used for HABITAT or T_MAMMAL elements.  
 **Attribute Definition Source**: Research Planning, Inc.

**Attribute Domain Values**:  
 **Enumerated Domain**:  
 **Enumerated Domain Value**: Y  
 **Enumerated Domain Value Definition**: Life-history stage or activity present  
 **Enumerated Domain Value Definition Source**: Research Planning, Inc.

**Attribute Domain Values**:  
 **Enumerated Domain**:  
 **Enumerated Domain Value**: N  
 **Enumerated Domain Value Definition**: Life-history stage or activity not present  
 **Enumerated Domain Value Definition Source**: Research Planning, Inc.

**Attribute Domain Values**:  
 **Enumerated Domain**:  
 **Enumerated Domain Value**: -  
 **Enumerated Domain Value Definition**: Breed category not used or not appropriate for record(s) in question  
 **Enumerated Domain Value Definition Source**: Research Planning, Inc.

**Attribute**:  
 **Attribute Label**: BREED2  
 **Attribute Definition**: Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED2 = migrating; if ELEMENT is "FISH" then BREED2 = eggs; if ELEMENT is "INVERT" then BREED2 = eggs; if ELEMENT is "REPTILE" then BREED2 = hatching; if ELEMENT is "M_MAMMAL" then BREED2 = calving. This attribute is not used for HABITAT or T_MAMMAL elements.  
 **Attribute Definition Source**: Research Planning, Inc.

**Attribute Domain Values**:  
 **Enumerated Domain**:  
 **Enumerated Domain Value**: Y
Enumerate Domain Value Definition: Life-history stage or activity present

Enumerated Domain: N
Enumerated Domain Value Definition: Life-history stage or activity not present

Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: N
Enumerated Domain Value Definition: Life-history stage or activity not present

Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: -
Enumerated Domain Value Definition: Breed category not used or not appropriate for record(s) in question

Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:

Attribute Label: BREED3

Attribute Definition:

Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED3 = molting; if ELEMENT is "FISH" then BREED3 = larvae; if ELEMENT is "INVERT" then BREED3 = larvae; if ELEMENT is "REPTILE" then BREED3 = internesting; if ELEMENT is "M_MAMMAL" then BREED3 = pupping. This attribute is not used for HABITAT or T_MAMMAL elements.

Attribute Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: Y
Enumerated Domain Value Definition: Life-history stage or activity present

Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: N
Enumerated Domain Value Definition: Life-history stage or activity not present

Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: -
Enumerated Domain Value Definition: Breed category not used or not appropriate for record(s) in question

Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:

Attribute Label: BREED4

Attribute Definition:

Life history stage or activity type, where: if ELEMENT is "FISH" then BREED4 = juveniles; if ELEMENT is "INVERT" then BREED4 = juveniles; if ELEMENT is "REPTILE" then BREED4 = juveniles; if ELEMENT is "M_MAMMAL" then BREED4 = molting. This attribute is not used for BIRD, HABITAT, or T_MAMMAL elements.

Attribute Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: Y
Enumerated Domain Value Definition: Life-history stage or activity present

Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:
Enumerated_Domain:
  Enumerated_Domain_Value: N
  Enumerated_Domain_Value_Definition: Life-history stage or activity not present
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: -
    Enumerated_Domain_Value_Definition: Breed category not used or not appropriate for record(s) in question
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: BREED5
  Attribute_Definition:
    Life history stage or activity type, where: if ELEMENT is "FISH" then BREED5 = adults; if ELEMENT is "INVERT" then BREED5 = adults; if ELEMENT is "REPTILE" then BREED5 = adults. This attribute is not used for BIRD, M_MAMMAL, HABITAT, or T_MAMMAL elements.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: Y
      Enumerated_Domain_Value_Definition: Life-history stage or activity present
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Detailed_Description:
Entity_Type:
  Entity_Type_Label: SOURCES
  Entity_Type_Definition:
    The data table SOURCES contains the primary sources used to create the ESI data set. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
  Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: SOURCE_ID
  Attribute_Definition:
    Source identifier that links records in the SOURCES data table to the items G_SOURCE and A_SOURCE in the SOC_DAT table, and to G_SOURCE and S_SOURCE in the BIORES table.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 1
      Range_Domain_Maximum: N
<table>
<thead>
<tr>
<th>Attribute Label</th>
<th>Definition</th>
<th>Source</th>
<th>Domain Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORIGINATOR</td>
<td>Author or developer of source material or data set</td>
<td>Research Planning, Inc.</td>
<td>Unrepresentable Domain: Acceptable values change from atlas to atlas</td>
</tr>
<tr>
<td>DATE_PUB</td>
<td>Date of source material, publication, or date of personal communication with expert source</td>
<td>Research Planning, Inc.</td>
<td>YYYYMM or YYYYMM for year and optionally MM for month</td>
</tr>
<tr>
<td>TITLE</td>
<td>Title of source material or data</td>
<td>Research Planning, Inc.</td>
<td>Unrepresentable Domain: Acceptable values change from atlas to atlas</td>
</tr>
<tr>
<td>DATA_FORMAT</td>
<td>The format of the source material</td>
<td>Research Planning, Inc.</td>
<td>Unrepresentable Domain: Acceptable values change from atlas to atlas</td>
</tr>
<tr>
<td>PUBLICATION</td>
<td>Additional citation information</td>
<td>Research Planning, Inc.</td>
<td>Unrepresentable Domain: Acceptable values change from atlas to atlas</td>
</tr>
<tr>
<td>SCALE</td>
<td>Scale denominator of the source</td>
<td>Research Planning, Inc.</td>
<td>integer</td>
</tr>
<tr>
<td>TIME_PERIOD</td>
<td>Date(s) of data collection that the source material is based upon.</td>
<td>Research Planning, Inc.</td>
<td>MM/DD/YY or MM/YYYY</td>
</tr>
</tbody>
</table>
**Enumerated_Domain:**
- Enumerated_Domain_Value: UNKNOWN
- Enumerated_Domain_Value_Definition: Date information unknown
- Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Detailed_Description:**
- **Entity_Type:**
  - **Entity_Type_Label:** STATUS
  - **Entity_Type_Definition:** The data table STATUS identifies the species that are listed as threatened or endangered by a state or federal authority. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
  - **Entity_Type_Definition_Source:** Research Planning, Inc.

**Attribute:**
- **Attribute_Label:** ELEMENT
- **Attribute_Definition:** Major categories of biological data
- **Attribute_Definition_Source:** Research Planning, Inc.
- **Attribute_Domain_Values:**
  - **Enumerated_Domain:**
    - Enumerated_Domain_Value: BIRD
    - Enumerated_Domain_Value_Definition: Birds
    - Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  - **Enumerated_Domain:**
    - Enumerated_Domain_Value: FISH
    - Enumerated_Domain_Value_Definition: Fish
    - Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  - **Enumerated_Domain:**
    - Enumerated_Domain_Value: HABITAT
    - Enumerated_Domain_Value_Definition: Habitats and Plants
    - Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  - **Enumerated_Domain:**
    - Enumerated_Domain_Value: INVERT
    - Enumerated_Domain_Value_Definition: Invertebrates
    - Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  - **Enumerated_Domain:**
    - Enumerated_Domain_Value: M_MAMMAL
    - Enumerated_Domain_Value_Definition: Marine Mammals
    - Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  - **Enumerated_Domain:**
    - Enumerated_Domain_Value: REPTILE
    - Enumerated_Domain_Value_Definition: Reptiles and Amphibians
    - Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  - **Enumerated_Domain:**
    - Enumerated_Domain_Value: T_MAMMAL
    - Enumerated_Domain_Value_Definition: Terrestrial Mammals
    - Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Attribute:**
- **Attribute_Label:** SPECIES_ID
- **Attribute_Definition:** Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.
- **Attribute_Definition_Source:** Research Planning, Inc.
- **Attribute_Domain_Values:**
  - Range_Domain:
Range_Domain_Minimum: 1
Range_Domain_Maximum: N

Attribute:
Attribute_Label: S
Attribute_Definition: State threatened or endangered status
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: E
    Enumerated_Domain_Value_Definition: Endangered on state list
    Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: T
    Enumerated_Domain_Value_Definition: Threatened on state list
    Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: C
    Enumerated_Domain_Value_Definition: Species of Special Concern
    Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute:
Attribute_Label: F
Attribute_Definition: Federal threatened or endangered status
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: E
    Enumerated_Domain_Value_Definition: Endangered on federal list
    Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: T
    Enumerated_Domain_Value_Definition: Threatened on federal list
    Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: C
    Enumerated_Domain_Value_Definition: Species of Special Concern
    Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute:
Attribute_Label: STATE
Attribute_Definition: Two-letter state abbreviation
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
Attribute_Label: S_DATE
Attribute_Definition: Publication date of source material used to assign state status values for each species, if used.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
Enumerated_Domain_Value: YYYYMM
Enumerated_Domain_Value_Definition: YYYY for year and optionally MM for month
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: F_DATE
Attribute_Definition: Publication date of source material used to assign federal status values for each species, if used.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: YYYYMM
Enumerated_Domain_Value_Definition: YYYY for year and optionally MM for month
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: EL_SPE
Attribute_Definition: Concatenation of ELEMENT and SPECIES_ID. This item links the STATUS data table to the BIORES and SPECIES data tables.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: E####
Enumerated_Domain_Value_Definition: Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = 'B00001').
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Distribution_Information:
Distributor:
Contact_Information:
Contact_Person_Primary:
Contact_Person: John Kaperick
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Address:
Address_Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6400
Contact_Facsimile_Telephone: (206) 526-6329

Resource_Description: ESI Atlas for Columbia River

Distribution_Liability:
Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement copy of the product when the product is determined unreadable by computer-input peripherals, or when the physical medium is delivered in damaged condition.

Custom_Order_Process:
Contact NOAA for distribution options (see Distributor). ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI Viewer product are also included on the distribution CDs for ease of use of the ESI data.
The database files are distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats.

---

**Metadata Reference Information:**

Metadata Date: 200411
Metadata Review Date: 200411
Metadata Contact:
  Contact Information:
    Contact Person Primary:
      Contact Person: Jill Petersen
      Contact Organization: NOAA, Office of Response and Restoration
    Contact Position: GIS Manager
    Contact Address:
      Address Type: Physical Address
      Address: 7600 Sand Point Way N.E.
      City: Seattle
      State or Province: Washington
      Postal Code: 98115-6349
    Contact Voice Telephone: (206) 526-6944
    Contact Facsimile Telephone: (206) 526-6329
    Contact Electronic Mail Address: Jill.Petersen@noaa.gov

Metadata Standard Name: Content Standards for Digital Geospatial Metadata

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Generated by `mp` version 2.8.2 on Fri Dec 10 11:51:31 2004
Columbia River ESI: T_MAMMAL (Terrestrial Mammal Polygons)

Metadata also available as - [Parseable text] - [SGML]

Metadata:

- Identification Information
- Data Quality Information
- Spatial Data Organization Information
- Spatial Reference Information
- Entity and Attribute Information
- Distribution Information
- Metadata Reference Information

Identification Information:

Citation:

Originator:

Publication Date: 200411
Title: Columbia River ESI: T_MAMMAL (Terrestrial Mammal Polygons)
Edition: First
Geospatial Data Presentation Form: Vector digital data

Series Information:

Series Name: None
Issue Identification: Columbia River

Publication Information:

Publication Place: Seattle, Washington
Publisher:

Other Citation Details:

Description:

Abstract:

This data set contains sensitive biological resource data for beavers, otters, nutria, mink, muskrats, and Columbian white-tailed deer in the Columbia River area. Vector polygons in this data set represent locations of terrestrial mammal distributions. Species-specific abundance, seasonality, status, life history, and source information are stored in relational data tables (described below) designed to be used in conjunction with this spatial data layer.

This data set comprises a portion of the Environmental Sensitivity Index (ESI) data for Columbia River. ESI data characterize the marine and coastal environments and wildlife by their sensitivity to spilled oil. The ESI data include information for three main components: shoreline habitats, sensitive biological resources, and human-use resources.
Purpose:
The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response. The Clean Water Act with amendments by the Oil Pollution Act of 1990 requires response plans for immediate and effective protection of sensitive resources.

Time_Period_of_Content:

Time_Period_Information:
Range_of_Dates/Times:
  Beginning_Date: 1979
  Ending_Date: 2004

Currentness_Reference:
The biological data were compiled during 2003-2004. The currentness dates for the data range from 1979 to 2004 and are documented in the Lineage section.

Status:
Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:
Bounding_Coordinates:
  West_Bounding_Coordinate: -124.125
  East_Bounding_Coordinate: -120.67375
  North_Bounding_Coordinate: 46.375
  South_Bounding_Coordinate: 45.3

Keywords:
Theme:
  Theme_Keyword_Thesaurus: None
  Theme_Keyword: ESI
  Theme_Keyword: Sensitivity maps
  Theme_Keyword: Coastal resources
  Theme_Keyword: Oil spill planning
  Theme_Keyword: Coastal Zone Management
  Theme_Keyword: Wildlife
  Theme_Keyword: Terrestrial Mammal

Place:
  Place_Keyword_Thesaurus: None
  Place_Keyword: Columbia River

Access_Constraints: None
Use_Constraints:
DO NOT USE MAPS FOR NAVIGATIONAL PURPOSES. Besides the above warning, there are no use constraints on these data. Note that the ESI database should not be used to the exclusion of other pertinent data or information held by state or federal agencies or other organizations. Likewise, information contained in the database cannot be used in place of consultations with environmental, natural resource, and cultural resource agencies, or in place of field surveys. Recognize that the information contained in the ESI database represents known concentration areas or occurrences of natural, cultural, and human-use resources, but does not necessarily represent the full distribution or range of each species or resource. This is particularly important to recognize when considering potential impacts to protected resources, such as endangered species, wetlands, etc. Acknowledgment of the originators, publishers, contributors, and sources listed would be appreciated in products derived from these data.

Browse_Graphic:
Browse_Graphic_File_Name: datafig.jpg
Browse_Graphic_File_Description: Depicts the relationships between spatial data layers and attribute data tables for the Columbia River ESI data.
Browse_Graphic_File_Type: JPEG

Data_Set_Credit:
This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; Coastal Storms Initiative; U.S. Fish and Wildlife Service; NOAA Fisheries; State of Oregon; and State of Washington.

Native_Data_Set_Environment:
The software packages used to develop the atlas are Environmental Systems Research Institute's
Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report:
A multi-stage error checking process is used to verify both attribute accuracy and logical consistency throughout data production. The process includes a standardized data entry methodology, hardcopy data review by in-house and external resource experts, a final Quality Assurance/Quality Control (QA/QC) process, and multiple automated logical consistency checks. Quantitative data (such as densities, counts, abundances, or concentrations) provided by resource experts for inclusion in the data set may vary widely in attribute accuracy, depending upon the methodology used to collect and compile such data. For a more detailed evaluation of source data attribute accuracy, contact the sources listed in the Lineage section.

Logical_Consistency_Report:
A multi-stage error checking process, described in the above Attribute_Accuracy_Report, is used to verify both attribute accuracy and logical consistency throughout data production. This process includes multiple automated logical consistency checks that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and SQL SERVER(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where the data are written to CD-ROM and the metadata are written.

Completeness_Report:
These data represent a synthesis of expert knowledge and available hardcopy reports and digital data on terrestrial mammal concentration areas. These data do not necessarily represent all terrestrial mammal occurrences in the Columbia River area. The following species are included in this data set: (Species_ID, Common Name, Scientific Name, if applicable): 8, Northern river otter, Lutra Canadensis; 30, Columbian white-tailed deer, Odocoileus virginianus leucurus; 36, Beaver, Castor Canadensis; 37, Muskrat, Ondatra zibethicus; 38, Mink, Mustela vison; 43, Nutria, Myocastor coypus.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:
Most of the spatial components of the biological data sets are developed using regional experts who estimate concentration areas. It is difficult to estimate the positional accuracy of such data, except to state that they are compiled on hardcopy base maps with a scale of 1:24,000. Some of the spatial components of the biological data sets are developed from pre-existing digital sources and reflect the positional accuracy of these original data. See the Lineage and Process_Description sections for more information on the original data source and how these data were compiled.
integrated or manipulated to create the final data set. Note that biological resource data by their very nature are considered "fuzzy", and this should be understood when considering the positional accuracy of vector digital objects representing these resources.

Lineage:

Source Information:
Source Citation:
Citation Information:
  Originator: North, J., Oregon Department of Fish and Wildlife (ODFW)
  Publication Date: 200402
  Title: Fish, Bird, and Mammal Distributions along the Columbia River
  Geospatial Data Presentation Form: Expert knowledge
  Publication Information:
    Publication Place: Unpublished material
    Publisher: Unpublished material
  Type of Source Media: Personal communication
Source Time Period of Content:
  Time Period Information:
    Single Date/Time: 00402
  Source Currentness Reference: Date of communication
Source Contribution: Distribution information for terrestrial mammals

Source Information:
Source Citation:
Citation Information:
  Originator: Kohl, K., Oregon Department of Fish and Wildlife (ODFW)
  Publication Date: 200401
  Title: Bird and Mammal Distribution along the Columbia River
  Geospatial Data Presentation Form: Expert knowledge
  Publication Information:
    Publication Place: Unpublished material
    Publisher: Unpublished material
  Type of Source Media: Personal communication
Source Time Period of Content:
  Time Period Information:
    Single Date/Time: 200401
  Source Currentness Reference: Date of communication
Source Contribution: Distribution information for terrestrial mammals

Source Information:
Source Citation:
Citation Information:
  Originator: Sutherland, B., Oregon Department of Environmental Quality (ODEQ)
  Publication Date: 1979
  Title: Oil Spill Protection Plan for the Natural Resources of the Lower Columbia River
  Geospatial Data Presentation Form: Hardcopy Map
  Publication Information:
    Publication Place: Unknown
    Publisher: Unknown
  Source Scale Denominator: Unknown
  Type of Source Media: Paper
  Source Time Period of Content:
    Time Period Information:
      Single Date/Time:
Source Information:
Source Citation:
Citation Information:
Originator: Clark, A., U.S. Fish and Wildlife Service (USFWS)
Publication Date: 200402
Title: Distribution of Fish, Birds, Plants, and Mammals in the Columbia River
Geospatial Data Presentation Form: Expert Knowledge
Publication Information:
Publication Place: Unpublished material
Publisher: Unpublished material
Type of Source Media: Personal communication
Source Time Period of Content:
Time Period Information:
Single Date/Time:
Calendar Date: 200402
Source Currentness Reference: Publication date
Source Citation Abbreviation: None
Source Contribution: Distribution information for terrestrial mammals
Source Information:
Source Citation:
Citation Information:
Originator: Columbia River Estuary Data Development Program
Publication Date: 1984
Title: The Columbia River Estuary Atlas of Physical and Biological Characteristics
Geospatial Data Presentation Form: Hardcopy atlas
Publication Information:
Publication Place: Seattle, Washington
Publisher: Northwest Cartography, Inc.
Source Scale Denominator: 250,000
Type of Source Media: Paper
Source Time Period of Content:
Time Period Information:
Single Date/Time:
Calendar Date: 1984
Source Currentness Reference: Publication date
Source Citation Abbreviation: None
Source Contribution: Distribution and seasonality information for terrestrial mammals
Source Information:
Source Citation:
Citation Information:
Originator: Washington Department of Fish and Wildlife (WDFW)
Publication Date: 2004
Title: Priority Habitat Data for the Lower Columbia River
Geospatial Data Presentation Form: Vector digital data
Publication Information:
Publication Place: Unknown
Publisher: Washington Department of Fish and Wildlife
Source Scale Denominator: 24,000
Type of Source Media: CD-ROM
Source Time Period of Content:
Time_Period_Information:
  Single_Date/Time:
  Calendar_Date: 2004
Source_Currentness_Reference: Publication Date
Source_Citation_Abbreviation: None
Source_Contribution: Distribution information for terrestrial mammals

Process_Description:
Three main sources of data were used to depict terrestrial mammal distribution for this data layer: (1) personal interviews with resource experts from Oregon Department of Fish and Wildlife (ODFW) and U.S. Fish and Wildlife Service (USFWS); (2) numerous published and unpublished reports; and (3) information and locations adapted from the Washington Priority Habitat database. (Contact the Washington Department of Fish and Wildlife for more information regarding the Washington Priority Habitat data.) Information gathered during initial interviews and from hardcopy sources was compiled onto U.S. Geological Survey 1:24,000 topographic quadrangles.

The compiled data were digitized off of the base maps into an ArcInfo system to create the T_MAMMAL data layer. All ESI, biology, and human-use data were plotted onto hardcopy draft maps. Following the delivery of draft maps to the participating resource experts, a second set of interviews was conducted to review the maps. Edits to the T_MAMMAL data layer were made based on the recommendations of the resource experts, and final hardcopy maps were created.

Process_Date: 200408
Process_Contact:
  Contact_Organization_Primary:
    Contact_Organization: NOAA, Office of Response and Restoration
    Contact_Person: Jill Petersen
  Contact_Address:
    Address_Type: Physical address
    Address: 7600 Sand Point Way N.E.
    City: Seattle
    State_or_Province: Washington
    Postal_Code: 98115-6349
  Contact_Voice_Telephone: (206) 526-6944
  Contact_Facsimile_Telephone: (206) 526-6329
  Contact_Electronic_Mail_Address: Jill.Petersen@noaa.gov

Spatial_Data_Organization_Information:
  Direct_Spatial_Reference_Method: Vector
  Point_and_Vector_Object_Information:
    SDTS_Terms_Description:
      SDTS_Point_and_Vector_Object_Type: GT-polygon composed of rings
      Point_and_Vector_Object_Count: 200
    SDTS_Terms_Description:
      SDTS_Point_and_Vector_Object_Type: Area point
      Point_and_Vector_Object_Count: 200
    SDTS_Terms_Description:
      SDTS_Point_and_Vector_Object_Type: Complete chain
      Point_and_Vector_Object_Count: 265
    SDTS_Terms_Description:
      SDTS_Point_and_Vector_Object_Type: Link
      Point_and_Vector_Object_Count: 43528
    SDTS_Terms_Description:
      SDTS_Point_and_Vector_Object_Type: Node, planar graph
**Spatial_Reference_Information:**

**Horizontal_Coordinate_System_Definition:**

**Geographic:**
- *Latitude_Resolution:* 0.0000001
- *Longitude_Resolution:* 0.0000001
- *Geographic_Coordinate_Units:* Decimal degrees

**Geodetic_Model:**
- *Horizontal_Datum_Name:* North American Datum of 1927
- *Ellipsoid_Name:* Clark 1866
- *Semi-major_Axis:* 6378206.4
- *Denominator_of_Flatting_Ratio:* 294.978698

**Entity_and_Attribute_Information:**

**Overview_Description:**

In addition to the geographic data layers, six relational attribute or data tables, BIORES, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, are used to store the complex biological data in the ESI data structure. The geographic data layer containing biological resource information (in this case, T_MAMMAL) is linked to the Biological Resources table (BIORES) using the unique ID and the lookup table BIO_LUT, or it can be linked directly using RARNUM. The ID is a unique combination of the atlas number (for the Columbia River atlas, the number is 41), an element/layer specific number (BIRDS are layer 1, FISH are layer 2, etc.), and a unique record number. The RARNUM represents a unique combination of species, seasonalities, concentrations, and source information. For each of these groupings, a number is generated. That number is concatenated with the atlas number to create a "resource at risk" number that is unique across atlases. BIORES and the other relational data tables are described below in detail. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way these tables relate to the geographic data layers and other attribute tables in the ESI data structure.

Due to the complexity of the relational database model, the data items are also post-processed into a flat file format. This table, called BIOFILE, may be used in place of the relational files described below to ease simple data queries. The items in the flat file are ELEMENT, SubELEMENT, NAME, GEN_SPEC, S, F, NHP, DATE_PUB, CONC, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC, BREED1, BREED2, BREED3, BREED4, BREED5, RARNUM, G_SOURCE, S_SOURCE, and BREED. All of these items are the same as their counterparts in the individual data tables described below, except the BREED1-BREED5 and BREED items. BREED is a newly generated variable used to link to the BREED_DT data table, a modified, more compact version of the relational BREED data table. BREED1-BREED5 give a text summary of when each life stage occurs within the associated map object. The life stages referred to are the same as those listed in the Detailed_Description of the BREED data table. The link to the BIOFILE may be made through the BIO_LUT, using ID to link to RARNUM, or BIOFILE may be linked directly to the RARNUM in each of the geographic layer's attribute data tables. As mentioned, BREED_DT is an auxiliary support data table to the flat file structure, which allows the user to do searches based on month for seasonal breeding activities. The link from the flat file to BREED_DT is the BREED item.

A second supporting data table is SOURCES. This is the same as the source file described above, and the link from the flat file is both G_SOURCE and S_SOURCE. It should be noted that although the flat file eases data query, it is not a normalized database structure, and actual updates performed by the states and other responsible agencies should be done using the relational data tables. The entity-relationship diagram describing relationships between attribute tables in the ESI data structure does NOT include the BIOFILE data table, and this
data table is NOT described in detail below.

**Detailed_Description:**

**Entity_Type:**

- **Entity_Type_Label:** T_MAMMAL.PAT
- **Entity_Type_Definition:**
  The T_MAMMAL.PAT table contains attribute information for the vector polygons representing terrestrial mammal distributions. Note that all attribute information is stored in a series of relational files, described below. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the relationships between attribute tables in the ESI data structure.
- **Entity_Type_Definition_Source:** Research Planning, Inc.

**Attribute:**

- **Attribute_Label:** ID
- **Attribute_Definition:**
  An identifier that links vector objects in the biology data layers to records in the BIO_LUT data table. ID is a concatenation of atlas number (41), element number (9), and record number. ID values of 9999 are holes in polygons and do not contain information.
- **Attribute_Definition_Source:** NOAA
- **Attribute_Domain_Values:**
  - **Range_Domain:**
    - **Range_Domain_Minimum:** 410900002
    - **Range_Domain_Maximum:** 410900201

**Attribute:**

- **Attribute_Label:** RARNUM
- **Attribute_Definition:**
  An identifier that links directly to the BIORES table or the flat format BIOFILE table. RARNUM values of 0 are holes in the polygons and do not contain information.
- **Attribute_Definition_Source:** NOAA
- **Attribute_Domain_Values:**
  - **Range_Domain:**
    - **Range_Domain_Minimum:** 41000001
    - **Range_Domain_Maximum:** 4100290

**Detailed_Description:**

**Entity_Type:**

- **Entity_Type_Label:** BIO_LUT
- **Entity_Type_Definition:**
  The data table BIO_LUT is a lookup table that contains items necessary for linking vector objects in the biological data layers with the BIORES data table. Note that all attribute information is stored in a series of relational files, described below. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
- **Entity_Type_Definition_Source:** Research Planning, Inc.

**Attribute:**

- **Attribute_Label:** RARNUM
- **Attribute_Definition:**
  An identifier that links records in the BIO_LUT data table to records in the BIORES data table or the flat format BIOFILE data table. RARNUM values of 0 are holes in polygons and do not contain information.
- **Attribute_Definition_Source:** NOAA
- **Attribute_Domain_Values:**
  - **Range_Domain:**
    - **Range_Domain_Minimum:** 41000001
    - **Range_Domain_Maximum:** 4100290

**Attribute:**

- **Attribute_Label:** ID
- **Attribute_Definition:**
  An identifier that links vector objects in the biology data layers to records in the BIO_LUT data table. ID is a concatenation of atlas number (41), element number
(9), and record number. ID values of 9999 are holes in polygons and do not contain information.

**Attribute Definition Source:** NOAA

**Attribute Domain Values:**

- **Range Domain:**
  
  - **Range Domain Minimum:** 410100002
  - **Range Domain Maximum:** 413400015

**Detailed Description:**

**Entity Type:**

- **Entity Type Label:** BIORES
- **Entity Type Definition:**
  The data table BIORES contains both biological attribute data and items necessary for linking vector objects in the biological data layers via the BIO_LUT data table to other associated data tables. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.

**Attribute:**

- **Attribute Label:** RARNUM
- **Attribute Definition:**
  An identifier that links records in the BIORES data table to records in the BIO_LUT data table or the flat format BIOFILE data table.

**Attribute Domain Values:**

- **Range Domain:**
  
  - **Range Domain Minimum:** 041000001
  - **Range Domain Maximum:** 041000290

**Attribute:**

- **Attribute Label:** SPECIES_ID
- **Attribute Definition:**
  Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.

**Attribute Domain Values:**

- **Range Domain:**
  
  - **Range Domain Minimum:** 1
  - **Range Domain Maximum:** N

**Attribute:**

- **Attribute Label:** CONC
- **Attribute Definition:**
  The field CONC refers to "concentration," abundance, or density values. The field may contain counts of individuals (XX) or in cases where no quantitative count data was available, the field may contain a descriptive term such as "HIGH" or "PRESENT". If no concentration information was available from any source, the field is populated with ".-". Counts were derived from a variety of surveys, and may range in date.

**Attribute Domain Values:**

- **Unrepresentable Domain:** Acceptable values change from atlas to atlas

**Attribute:**

- **Attribute Label:** SEASON_ID
- **Attribute Definition:**
  Numeric identifier for the unique monthly presence and life history characteristics of each species at a given location.

**Attribute Domain Values:**

- **Range Domain:**
  
  - **Range Domain Minimum:** 1
  - **Range Domain Maximum:** N
Attribute: **G_SOURCE**
**Attribute_Definition:** Geographic source identifier that links records in the BIORES data table to records in the SOURCES data table.
**Attribute_Definition_Source:** Research Planning, Inc.
**Attribute_Domain_Values:**
- Range_Domain:
  - Range_Domain_Minimum: 1
  - Range_Domain_Maximum: N

Attribute: **S_SOURCE**
**Attribute_Definition:** Seasonality source identifier that links records in the BIORES data table to records in the SOURCES data table.
**Attribute_Definition_Source:** Research Planning, Inc.
**Attribute_Domain_Values:**
- Range_Domain:
  - Range_Domain_Minimum: 1
  - Range_Domain_Maximum: N

Attribute: **ELEMENT**
**Attribute_Definition:** Major categories of biological data
**Attribute_Definition_Source:** Research Planning, Inc.
**Attribute_Domain_Values:**
- Enumerated_Domain:
  - Enumerated_Domain_Value: BIRD
    - Enumerated_Domain_Value_Definition: Birds
    - Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  - Enumerated_Domain_Value: FISH
    - Enumerated_Domain_Value_Definition: Fish
    - Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  - Enumerated_Domain_Value: HABITAT
    - Enumerated_Domain_Value_Definition: Habitats and Plants
    - Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  - Enumerated_Domain_Value: INVERT
    - Enumerated_Domain_Value_Definition: Invertebrates
    - Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  - Enumerated_Domain_Value: M_MAMMAL
    - Enumerated_Domain_Value_Definition: Marine Mammals
    - Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  - Enumerated_Domain_Value: REPTILE
    - Enumerated_Domain_Value_Definition: Reptiles and Amphibians
    - Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  - Enumerated_Domain_Value: T_MAMMAL
    - Enumerated_Domain_Value_Definition: Terrestrial Mammals
    - Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute: **EL_SPE**
AttributeDefinition:
Concatenation of ELEMENT and SPECIES_ID. This item links records in the BIORES data table to records in the SPECIES and STATUS data tables.

AttributeDefinitionSource: Research Planning, Inc.
AttributeDomainValues:
EnumeratedDomain:
EnumeratedDomainValue: E####
EnumeratedDomainValueDefinition:
Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = 'B00001').

AttributeDefinitionSource: Research Planning, Inc.

Attribute:
AttributeLabel: EL_SPE_SEA
AttributeDefinition:
Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the BIORES data table to records in the SEASONAL and BREED data tables.

AttributeDefinitionSource: Research Planning, Inc.
AttributeDomainValues:
EnumeratedDomain:
EnumeratedDomainValue: E#####
EnumeratedDomainValueDefinition:
Where E is the first character of ELEMENT, the next five characters are SPECIES_ID, and the last two characters are SEASON_ID (e.g. ELEMENT = 'BIRD', SPECIES_ID = 1 and SEASON_ID = 1; EL_SPE_SEA = 'B000101').

AttributeDefinitionSource: Research Planning, Inc.

DetailedDescription:
EntityType:
EntityTypeLabel: SPECIES
EntityTypeDefinition:
The data table SPECIES identifies all species in the ESI data set. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure. Refer to the Completeness_Report for a list of layer-specific species.

AttributeDefinitionSource: Research Planning, Inc.

Attribute:
AttributeLabel: SPECIES_ID
AttributeDefinition:
Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.

AttributeDefinitionSource: Research Planning, Inc.
AttributeDomainValues:
RangeDomain:
RangeDomainMinimum: 1
RangeDomainMaximum: N

Attribute:
AttributeLabel: NAME
AttributeDefinition: Species common name for the entire ESI data set
AttributeDefinitionSource: Research Planning, Inc.
AttributeDomainValues:
UnrepresentableDomain: Acceptable values change from atlas to atlas

Attribute:
AttributeLabel: GEN_SPEC
AttributeDefinition: Species scientific name for the entire ESI data set
AttributeDefinitionSource: Research Planning, Inc.
AttributeDomainValues:
UnrepresentableDomain: Acceptable values change from atlas to atlas

Attribute:
Attribute Label: ELEMENT
Attribute Definition: Major categories of biological data
Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Enumerated Domain:
  Enumerated Domain Value: BIRD
  Enumerated Domain Value Definition: Birds
  Enumerated Domain Value Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Enumerated Domain:
  Enumerated Domain Value: FISH
  Enumerated Domain Value Definition: Fish
  Enumerated Domain Value Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Enumerated Domain:
  Enumerated Domain Value: HABITAT
  Enumerated Domain Value Definition: Habitats and Plants
  Enumerated Domain Value Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Enumerated Domain:
  Enumerated Domain Value: INVERT
  Enumerated Domain Value Definition: Invertebrates
  Enumerated Domain Value Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Enumerated Domain:
  Enumerated Domain Value: M_MAMMAL
  Enumerated Domain Value Definition: Marine Mammals
  Enumerated Domain Value Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Enumerated Domain:
  Enumerated Domain Value: REPTILE
  Enumerated Domain Value Definition: Reptiles and Amphibians
  Enumerated Domain Value Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Enumerated Domain:
  Enumerated Domain Value: T_MAMMAL
  Enumerated Domain Value Definition: Terrestrial Mammals
  Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:
Attribute Label: SUBELEMENT
Attribute Definition: Element subgroup delineating a logical grouping of species
Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Enumerated Domain:
  Enumerated Domain Value: bivalve
  Enumerated Domain Value Definition: Bivalve
  Enumerated Domain Value Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Enumerated Domain:
  Enumerated Domain Value: crab
  Enumerated Domain Value Definition: Crab
  Enumerated Domain Value Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Enumerated Domain:
  Enumerated Domain Value: diadromous
  Enumerated Domain Value Definition: Diadromous fish
  Enumerated Domain Value Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Enumerated Domain:
  Enumerated Domain Value: diving
Enumerated_Domain_Value_Definition: Diving bird
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Attribute_Domain_Values:**

**Enumerated_Domain:**
- Enumerated_Domain_Value: e_nursery
  Enumerated_Domain_Value_Definition: Estuarine nursery fish
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Enumerated_Domain:**
- Enumerated_Domain_Value: fav
  Enumerated_Domain_Value_Definition: Floating aquatic vegetation
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Enumerated_Domain:**
- Enumerated_Domain_Value: freshwater
  Enumerated_Domain_Value_Definition: Freshwater fish
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Enumerated_Domain:**
- Enumerated_Domain_Value: gull_tern
  Enumerated_Domain_Value_Definition: Gull or tern
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Enumerated_Domain:**
- Enumerated_Domain_Value: passerine
  Enumerated_Domain_Value_Definition: Passerine bird
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Enumerated_Domain:**
- Enumerated_Domain_Value: pinniped
  Enumerated_Domain_Value_Definition: Pinniped
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Enumerated_Domain:**
- Enumerated_Domain_Value: raptor
  Enumerated_Domain_Value_Definition: Raptor
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Enumerated_Domain:**
- Enumerated_Domain_Value: sav
  Enumerated_Domain_Value_Definition: Submerged aquatic vegetation
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Enumerated_Domain:**
- Enumerated_Domain_Value: shorebird
  Enumerated_Domain_Value_Definition: Shorebird
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Enumerated_Domain:**
- Enumerated_Domain_Value: sm_mammal
  Enumerated_Domain_Value_Definition: Small mammal
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Enumerated_Domain:**
- Enumerated_Domain_Value: turtle
  Enumerated_Domain_Value_Definition: Turtle
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Enumerated_Domain:**
- Enumerated_Domain_Value: ungulate
Enumerated_Domain_Value_Definition: Ungulate
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: wading
Enumerated_Domain_Value_Definition: Wading bird
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: waterfowl
Enumerated_Domain_Value_Definition: Waterfowl
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: NHP
Attribute_Definition: Natural Heritage Program global ranking. When no information was provided on the global rank for a species, the field is blank.
Attribute_Definition_Source: Network of Natural Heritage Program

Attribute_Domain_Values:
Codeset_Domain:
Codeset_Name: NHP Global Conservation Status Rank
Codeset_Source: Natural Heritage Program

Attribute:
Attribute_Label: DATE_PUB
Attribute_Definition: Date of NHP listing
Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: YYYYMM
Enumerated_Domain_Value_Definition: YYYY for year and optionally MM for month
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: EL_SPE
Attribute_Definition: Concatenation of ELEMENT and SPECIES_ID. This item links records in the SPECIES data table to records in the BIORES and STATUS data tables.
Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: E#####
Enumerated_Domain_Value_Definition: Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = 'B00001').
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Detailed_Description:
Entity_Type:
Entity_Type_Label: SEASONAL
Entity_Type_Definition:
The data table SEASONAL contains information on the seasonal presence of each species associated with each spatial vector object. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: ELEMENT
Attribute_Definition: Major categories of biological data
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: BIRD
    Enumerated_Domain_Value_Definition: Birds
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: FISH
    Enumerated_Domain_Value_Definition: Fish
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: HABITAT
    Enumerated_Domain_Value_Definition: Habitats and Plants
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: INVERT
    Enumerated_Domain_Value_Definition: Invertebrates
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: M_MAMMAL
    Enumerated_Domain_Value_Definition: Marine Mammals
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: REPTILE
    Enumerated_Domain_Value_Definition: Reptiles and Amphibians
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: T_MAMMAL
    Enumerated_Domain_Value_Definition: Terrestrial Mammals
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: SPECIES_ID
Attribute_Definition: Numeric identifier for each species that is unique within each element and refers to a nationwide ESI species list maintained at NOAA.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Range_Domain:
    Range_Domain_Minimum: 1
    Range_Domain_Maximum: N

Attribute:
Attribute_Label: SEASON_ID
Attribute_Definition: Numeric identifier for the unique monthly presence and life history characteristics of each species at a given location.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Range_Domain:
    Range_Domain_Minimum: 1
    Range_Domain_Maximum: N
<table>
<thead>
<tr>
<th>Attribute</th>
<th>Attribute Label</th>
<th>Attribute Definition</th>
<th>Attribute Definition Source</th>
<th>Attribute Domain Values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>JAN</td>
<td>January</td>
<td>Research Planning, Inc.</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>FEB</td>
<td>February</td>
<td>Research Planning, Inc.</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>MAR</td>
<td>March</td>
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<td>Research Planning, Inc.</td>
<td>X</td>
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<tr>
<td></td>
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<td>May</td>
<td>Research Planning, Inc.</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>JUN</td>
<td>June</td>
<td>Research Planning, Inc.</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>JUL</td>
<td>July</td>
<td>Research Planning, Inc.</td>
<td>X</td>
</tr>
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</table>
Enumerated_Domain_Value: X
Enumerated_Domain_Value_Definition: Present in July
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: AUG
  Attribute_Definition: August
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: X
      Enumerated_Domain_Value_Definition: Present in August
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: SEP
  Attribute_Definition: September
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: X
      Enumerated_Domain_Value_Definition: Present in September
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: OCT
  Attribute_Definition: October
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: X
      Enumerated_Domain_Value_Definition: Present in October
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: NOV
  Attribute_Definition: November
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: X
      Enumerated_Domain_Value_Definition: Present in November
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: DEC
  Attribute_Definition: December
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: X
      Enumerated_Domain_Value_Definition: Present in December
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: EL_SPE_SEA
  Attribute_Definition: Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links
  records in the SEASONAL data table to records in the BIORES and BREED data
  tables.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: E############
      Enumerated_Domain_Value_Definition: Where E is the first character of ELEMENT, the next five
characters are SPECIES_ID, and the last two characters are
SEASON_ID (e.g. ELEMENT = 'BIRD', SPECIES_ID = 1 and
SEASON_ID = 1; EL_SPE_SEA = 'B0000101').

*Enumerated_Domain_Value_Definition_Source:* Research Planning, Inc.

**Detailed_Description:**

**Entity_Type:**

*Entity_Type_Label:* BREED

*Entity_Type_Definition:*
The data table BREED identifies the monthly presence of certain life-history stages
or activities for each species at a given location.

*Entity_Type_Definition_Source:* Research Planning, Inc.

**Attribute:**

*Attribute_Label:* EL_SPE_SEA

*Attribute_Definition:*
Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links
records in the BREED data table to records in the BIORES and SEASONAL data
tables.

*Attribute_Definition_Source:* Research Planning, Inc.

*Attribute_Domain_Values:*

*Enumerated_Domain:*

*Enumerated_Domain_Value: E####

*Enumerated_Domain_Value_Definition:*
Where E is the first character of ELEMENT, the next five
characters are SPECIES_ID, and the last two characters are
SEASON_ID (e.g. ELEMENT = 'BIRD', SPECIES_ID = 1 and
SEASON_ID = 1; EL_SPE_SEA = 'B0000101').

*Enumerated_Domain_Value_Definition_Source:* Research Planning, Inc.

**Attribute:**

*Attribute_Label:* MONTH

*Attribute_Definition:*
Two-digit calendar month. Each life history stage or activity type for a particular
species can have up to 12 records to account for each month of the year.

*Attribute_Definition_Source:* Research Planning, Inc.

*Attribute_Domain_Values:*

*Range_Domain:*

*Range_Domain_Minimum:* 1
*Range_Domain_Maximum:* 12

**Attribute:**

*Attribute_Label:* BREED1

*Attribute_Definition:*
Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED1 =
nesting; if ELEMENT is "FISH" then BREED1 = spawning; if ELEMENT is
"INVERT" then BREED1 = spawning; if ELEMENT is "REPTILE" then BREED1
= nesting; if ELEMENT is "M_MAMMAL" then BREED1 = mating. This attribute
is not used for HABITAT or T_MAMMAL elements.

*Attribute_Definition_Source:* Research Planning, Inc.

*Attribute_Domain_Values:*

*Enumerated_Domain:*

*Enumerated_Domain_Value: Y

*Enumerated_Domain_Value_Definition:*
Life-history stage or activity present

*Enumerated_Domain_Value_Definition_Source:* Research Planning, Inc.

*Attribute_Domain_Values:*

*Enumerated_Domain:*

*Enumerated_Domain_Value: N

*Enumerated_Domain_Value_Definition:*
Life-history stage or activity not present

*Enumerated_Domain_Value_Definition_Source:* Research Planning, Inc.
Enumerated_Domain_Value: -
Enumerated_Domain_Value_Definition: Breed category not used or not appropriate for record(s) in question

Attribute:
Attribute_Label: BREED2
Attribute_Definition: Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED2 = migrating; if ELEMENT is "FISH" then BREED2 = eggs; if ELEMENT is "INVERT" then BREED2 = eggs; if ELEMENT is "REPTILE" then BREED2 = hatching; if ELEMENT is "M_MAMMAL" then BREED2 = calving. This attribute is not used for HABITAT or T_MAMMAL elements.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Y
Enumerated_Domain_Value_Definition: Life-history stage or activity present
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Enumerated_Domain_Value: N
Enumerated_Domain_Value_Definition: Life-history stage or activity not present
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Enumerated_Domain_Value: -
Enumerated_Domain_Value_Definition: Breed category not used or not appropriate for record(s) in question
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: BREED3
Attribute_Definition: Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED3 = molting; if ELEMENT is "FISH" then BREED3 = larvae; if ELEMENT is "INVERT" then BREED3 = larvae; if ELEMENT is "REPTILE" then BREED3 = internesting; if ELEMENT is "M_MAMMAL" then BREED3 = pupping. This attribute is not used for HABITAT or T_MAMMAL elements.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Y
Enumerated_Domain_Value_Definition: Life-history stage or activity present
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Enumerated_Domain_Value: N
Enumerated_Domain_Value_Definition: Life-history stage or activity not present
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Enumerated_Domain_Value: -
Enumerated_Domain_Value_Definition: Breed category not used or not appropriate for record(s) in question
Attribute:

Attribute_Label: BREED4

Attribute_Domain:

Life history stage or activity type, where: if ELEMENT is "FISH" then BREED4 = juveniles; if ELEMENT is "INVERT" then BREED4 = juveniles; if ELEMENT is "REPTILE" then BREED4 = juveniles; if ELEMENT is "M_MAMMAL" then BREED4 = molting. This attribute is not used for BIRD, HABITAT, or T_MAMMAL elements.

Attribute_Domain_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Y
Enumerated_Domain_Value_Definition: Life-history stage or activity present
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain_Source: Research Planning, Inc.

Enumerated_Domain:

Enumerated_Domain_Value: N
Enumerated_Domain_Value_Definition: Life-history stage or activity not present
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain_Returned: Research Planning, Inc.

Enumerated_Domain:

Enumerated_Domain_Value: -
Enumerated_Domain_Value_Definition: Breed category not used or not appropriate for record(s) in question
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:

Attribute_Label: BREED5

Attribute_Domain:

Life history stage or activity type, where: if ELEMENT is "FISH" then BREED5 = adults; if ELEMENT is "INVERT" then BREED5 = adults; if ELEMENT is "REPTILE" then BREED5 = adults. This attribute is not used for BIRD, M_MAMMAL, HABITAT, or T_MAMMAL elements.

Attribute_Domain_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Y
Enumerated_Domain_Value_Definition: Life-history stage or activity present
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain_Source: Research Planning, Inc.

Enumerated_Domain:

Enumerated_Domain_Value: N
Enumerated_Domain_Value_Definition: Life-history stage or activity not present
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain_Returned: Research Planning, Inc.

Enumerated_Domain:

Enumerated_Domain_Value: -
Enumerated_Domain_Value_Definition: Breed category not used or not appropriate for record(s) in question
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Detailed_Description:

Entity_Type:

Entity_Type_Label: SOURCES
Entity_Type_Definition:
The data table SOURCES contains the primary sources used to create the ESI data set. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.

**Entity_Type_Definition_Source:** Research Planning, Inc.

**Attribute:**

**Attribute_Label:** SOURCE_ID
**Attribute_Definition:** Source identifier that links records in the SOURCES data table to the items G_SOURCE and A_SOURCE in the SOC_DAT table, and to G_SOURCE and S_SOURCE in the BIORES table.

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

- **Range_Domain:**
  - **Range_Domain_Minimum:** 1
  - **Range_Domain_Maximum:** N

**Attribute:**

**Attribute_Label:** ORIGINATOR
**Attribute_Definition:** Author or developer of source material or data set

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

- **Unrepresentable_Domain:** Acceptable values change from atlas to atlas

**Attribute:**

**Attribute_Label:** DATE_PUB
**Attribute_Definition:** Date of source material, publication, or date of personal communication with expert source

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

- **Enumerated_Domain:**
  - **Enumerated_Domain_Value:** YYYYMM
  - **Enumerated_Domain_Value_Definition:** YYYY for year and optionally MM for month

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute:**

**Attribute_Label:** TITLE
**Attribute_Definition:** Title of source material or data

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

- **Unrepresentable_Domain:** Acceptable values change from atlas to atlas

**Attribute:**

**Attribute_Label:** DATA_FORMAT
**Attribute_Definition:** The format of the source material

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

- **Unrepresentable_Domain:** Acceptable values change from atlas to atlas

**Attribute:**

**Attribute_Label:** PUBLICATION
**Attribute_Definition:** Additional citation information

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

- **Unrepresentable_Domain:** Acceptable values change from atlas to atlas

**Attribute:**

**Attribute_Label:** SCALE
**Attribute_Definition:** Scale denominator of the source

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

- **Enumerated_Domain:**
  - **Enumerated_Domain_Value:** integer
  - **Enumerated_Domain_Value_Definition:** Any integer
**Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute:**
**Attribute_Label:** TIME_PERIOD
**Attribute_Definition:**
Date(s) of data collection that the source material is based upon.
**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**
**Enumerated_Domain:**
- **Enumerated_Domain_Value:** MM/DD/YY
- **Enumerated_Domain_Value_Definition:** Month/Day/Year
- **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**
**Enumerated_Domain:**
- **Enumerated_Domain_Value:** MM/YYYY
- **Enumerated_Domain_Value_Definition:** Month/Year
- **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**
**Enumerated_Domain:**
- **Enumerated_Domain_Value:** UNKNOWN
- **Enumerated_Domain_Value_Definition:** Date information unknown
- **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Detailed_Description:**

**Entity_Type:**
**Entity_Type_Label:** STATUS

**Entity_Type_Definition:**
The data table STATUS identifies the species that are listed as threatened or endangered by a state or federal authority. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.

**Entity_Type_Definition_Source:** Research Planning, Inc.

**Attribute:**
**Attribute_Label:** ELEMENT
**Attribute_Definition:** Major categories of biological data
**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**
**Enumerated_Domain:**
- **Enumerated_Domain_Value:** BIRD
- **Enumerated_Domain_Value_Definition:** Birds
- **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**
**Enumerated_Domain:**
- **Enumerated_Domain_Value:** FISH
- **Enumerated_Domain_Value_Definition:** Fish
- **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**
**Enumerated_Domain:**
- **Enumerated_Domain_Value:** HABITAT
- **Enumerated_Domain_Value_Definition:** Habitats and Plants
- **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**
**Enumerated_Domain:**
- **Enumerated_Domain_Value:** INVERT
- **Enumerated_Domain_Value_Definition:** Invertebrates
- **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**
**Enumerated_Domain:**
- **Enumerated_Domain_Value:** M_MAMMAL
- **Enumerated_Domain_Value_Definition:** Marine Mammals
- **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.
Enumerated_Domain:
Enumerated_Domain_Value: REPTILE
Enumerated_Domain_Value_Definition: Reptiles and Amphibians
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: T_MAMMAL
Enumerated_Domain_Value_Definition: Terrestrial Mammals
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: SPECIES_ID
Attribute_Definition: Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.
Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 1
Range_Domain_Maximum: N

Attribute:
Attribute_Label: S
Attribute_Definition: State threatened or endangered status
Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: E
Enumerated_Domain_Value_Definition: Endangered on state list
Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: T
Enumerated_Domain_Value_Definition: Threatened on state list
Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: C
Enumerated_Domain_Value_Definition: Species of Special Concern
Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute:
Attribute_Label: F
Attribute_Definition: Federal threatened or endangered status
Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: E
Enumerated_Domain_Value_Definition: Endangered on federal list
Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: T
Enumerated_Domain_Value_Definition: Threatened on federal list
Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: C
Enumerated_Domain_Value_Definition: Species of Special Concern
Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute:
Attribute_Label: STATE
Attribute_Definition: Two-letter state abbreviation
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
Attribute_Label: S_DATE
Attribute_Definition: Publication date of source material used to assign state status values for each species, if used.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: YYYYMM
    Enumerated_Domain_Value_Definition: YYYY for year and optionally MM for month
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: F_DATE
Attribute_Definition: Publication date of source material used to assign federal status values for each species, if used.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: YYYYMM
    Enumerated_Domain_Value_Definition: YYYY for year and optionally MM for month
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: EL_SPE
Attribute_Definition: Concatenation of ELEMENT and SPECIES_ID. This item links the STATUS data table to the BIORES and SPECIES data tables.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: E#####
    Enumerated_Domain_Value_Definition: Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = 'B00001').
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Distribution Information:
Distribution:
Contact Information:
  Contact Person Primary:
    Contact Person: John Kaperick
    Contact Organization: NOAA, Office of Response and Restoration
Contact Address:
  Address Type: Physical Address
  Address: 7600 Sand Point Way N.E.
  City: Seattle
State or Province: Washington
Postal Code: 98115-6349
Contact Voice Telephone: (206) 526-6400
Contact Facsimile Telephone: (206) 526-6329

Resource Description: ESI Atlas for Columbia River

Distribution Liability:
Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement copy of the product when the product is determined unreadable by computer-input peripherals, or when the physical medium is delivered in damaged condition.

Custom Order Process:
Contact NOAA for distribution options (see Distributor). ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the distribution CDs for ease of use of the ESI data. The database files are distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats.

Metadata Reference Information:
Metadata Date: 200411
Metadata Review Date: 200411
Metadata Contact:

Contact Information:
Contact Person Primary:
Contact Person: Jill Petersen
Contact Organization: NOAA, Office of Response and Restoration
Contact Position: GIS Manager
Contact Address:
Address Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State or Province: Washington
Postal Code: 98115-6349
Contact Voice Telephone: (206) 526-6944
Contact Facsimile Telephone: (206) 526-6329
Contact Electronic Mail Address: Jill.Petersen@noaa.gov

Metadata Standard Name: Content Standards for Digital Geospatial Metadata

Generated by mmp version 2.8.2 on Fri Dec 10 11:21:11 2004
Columbia River ESI: HABITATS (Habitat Polygons)

Metadata:

- Identification_Information
- Data_Quality_Information
- Spatial_Data_Organization_Information
- Spatial_Reference_Information
- Entity_and_Attribute_Information
- Distribution_Information
- Metadata_Reference_Information

Identification_Information:

Citation:

Originator:

Publication_Date: 200411
Title: Columbia River ESI: HABITATS (Habitat Polygons)
Edition: First
Geospatial_Data_Presentation_Form: Vector digital data
Series_Information:
Series_Name: None
Issue_Identification: Columbia River
Publication_Information:
PublicationPlace: Seattle, Washington
Publisher:

Other_Citation_Details:

Description:

Abstract:
This data set contains sensitive biological resource data for submerged aquatic vegetation (SAV), rare plant species [Water howellia (Howelia aquatilis) and Columbia yellowcress (Rorippa columbiae)], and other plant species in Columbia River. Vector polygons in this data set represent locations of habitat and rare plant distribution. Species-specific abundance, seasonality, status, life history, and source information are stored in relational data tables (described below) designed to be used in conjunction with this spatial data layer.

This data set comprises a portion of the Environmental Sensitivity Index (ESI) data for Columbia River. ESI data characterize the marine and coastal environments and wildlife by their sensitivity to spilled oil. The ESI data include information for three main components: shoreline habitats, sensitive biological resources, and human-use resources.

Purpose:
The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response. The Clean Water Act with amendments by the Oil Pollution Act of 1990 requires response plans for immediate and effective protection of sensitive resources.

**Time_Period_of_Content:**

**Time_Period_Information:**

**Range_of_Dates/Times:**

- **Beginning_Date:** 1981
- **Ending_Date:** 2004

**Currentness_Reference:**

The biological data were compiled during 2003-2004. The currentness dates for the data range from 1981 to 2004 and are documented in the Lineage section.

**Status:**

- **Progress:** Complete
- **Maintenance_and_Update_Frequency:** None Scheduled

**Spatial_Domain:**

**Bounding_Coordinates:**

- **West_Bounding_Coordinate:** -124.125
- **East_Bounding_Coordinate:** -120.67375
- **North_Bounding_Coordinate:** 46.375
- **South_Bounding_Coordinate:** 45.3

**Keywords:**

**Theme:**

- **Theme_Keyword_Thesaurus:** None
- **Theme_Keyword:** ESI
- **Theme_Keyword:** Sensitivity maps
- **Theme_Keyword:** Coastal resources
- **Theme_Keyword:** Oil spill planning
- **Theme_Keyword:** Coastal Zone Management
- **Theme_Keyword:** Wildlife
- **Theme_Keyword:** Habitat
- **Theme_Keyword:** Plant

**Place:**

- **Place_Keyword_Thesaurus:** None
- **Place_Keyword:** Columbia River

**Access_Constraints:** None

**Use_Constraints:**

DO NOT USE MAPS FOR NAVIGATIONAL PURPOSES. Besides the above warning, there are no use constraints on these data. Note that the ESI database should not be used to the exclusion of other pertinent data or information held by state or federal agencies or other organizations. Likewise, information contained in the database cannot be used in place of consultations with environmental, natural resource, and cultural resource agencies, or in place of field surveys. Recognize that the information contained in the ESI database represents known concentration areas or occurrences of natural, cultural, and human-use resources, but does not necessarily represent the full distribution or range of each species or resource. This is particularly important to recognize when considering potential impacts to protected resources, such as endangered species, wetlands, etc. Acknowledgment of the originators, publishers, contributors, and sources listed would be appreciated in products derived from these data.

**Browse_Graphic:**

- **Browse_Graphic_File_Name:** datafig.jpg
- **Browse_Graphic_File_Description:** Depicts the relationships between spatial data layers and attribute data tables for the Columbia River ESI data.
- **Browse_Graphic_File_Type:** JPEG

**Data_Set_Credit:**

This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; Coastal Storms Initiative; U.S. Fish and Wildlife Service; NOAA Fisheries; State of Oregon; and State of Washington.

**Native_Data_Set_Environment:**

The software packages used to develop the atlas are Environmental Systems Research Institute's
ARC/INFO(r) (version 8.3) and SQL SERVER(r) (version 7.0). The hardware configuration is PC's with Windows Operating System (NT4.0/2000).

The Spatial_Data_Organization_Information section refers only to the source files in the ARC export format. The following files are included in that data set: birds.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mammal.e00, m_mampt.e00, mgt.e00, nests.e00, nwi.e00, reptiles.e00, socecon.e00, t_mammal.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biore, breed, breed_dt, runs_dat, seasonal, soc_dat, soc_lut, sources, species, and status.

**Data_Quality_Information:**

**Attribute_Accuracy:**

**Attribute_Accuracy_Report:**
A multi-stage error checking process is used to verify both attribute accuracy and logical consistency throughout data production. The process includes a standardized data entry methodology, hardcopy data review by in-house and external resource experts, a final Quality Assurance/Quality Control (QA/QC) process, and multiple automated logical consistency checks. Quantitative data (such as densities, counts, abundances, or concentrations) provided by resource experts for inclusion in the data set may vary widely in attribute accuracy, depending upon the methodology used to collect and compile such data. For a more detailed evaluation of source data attribute accuracy, contact the sources listed in the Lineage section.

**Logical_Consistency_Report:**
A multi-stage error checking process, described in the above Attribute_Accuracy_Report, is used to verify both attribute accuracy and logical consistency throughout data production. This process includes multiple automated logical consistency checks that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and SQL SERVER(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where the data are written to CD-ROM and the metadata are written.

After the data are delivered to NOAA, they are again subjected to a number of quality and consistency checks. In the process of checking for topological and database consistencies, new ID's and RARNUM's or HUNUM's are also generated. The new ID's are a combination of atlas number, element number, and record number. In addition, the value used to represent the element is modified to reflect the type of feature being mapped. In the case of an element that is normally represented by a point or polygon, a value of 20 is added to the standard element value for mapping of linear features. In the case where an element usually mapped as a polygon is represented by a point, a value of 30 is added to the regular element value. The RARNUM's are also modified to include the atlas number, so multiple atlases can be combined and RARNUM's remain unique. RARNUM's are redefined on an element basis, so "resources at risk" groupings will contain only a single element. HUNUM's are also modified to include the atlas number.

**Completeness_Report:**
These data represent a synthesis of expert knowledge and available hardcopy reports and digital data on submerged aquatic vegetation and rare plant distributions. These data do not necessarily represent all habitat and plant occurrences in Columbia River. The following species are included in this data set: (Species_ID, Common Name, Scientific Name, if applicable): 1, Eelgrass, Zostera marina; 607, Columbia yellowcress, Rorippa columbiae; 608, Water howellia, Howellia aquatilis.

**Positional_Accuracy:**

**Horizontal_Positional_Accuracy:**

**Horizontal_Positional_Accuracy_Report:**
Most of the spatial components of the biological data sets are developed using regional experts who estimate concentration areas. It is difficult to estimate the positional accuracy of such data, except to state that they are compiled on hardcopy base maps with a scale of 1:24,000. Some of the spatial components of the biological data sets are developed from pre-existing digital sources and reflect the positional accuracy of these original data. See the Lineage and Process_Description sections for more information on the original data source and how these data were integrated or manipulated to create the final data set. Note that biological resource data by their very nature are considered "fuzzy", and this should be understood...
when considering the positional accuracy of vector digital objects representing these resources.

**Lineage:**

**Source Information:**

**Citation Information:**

**Originator:** Meyer, B., National Oceanic and Atmospheric Administration (NOAA)

**Publication Date:** 200402

**Title:** Fish, Bird, Mammal, and Plant Distributions in the Lower Columbia River

**Geospatial Data Presentation Form:** Expert Knowledge

**Publication Information:**

**Publication Place:** Unpublished material

**Publisher:** Unpublished material

**Type of Source Media:** Personal communication

**Source Time Period of Content:**

**Single Date/Time:**

**Calendar Date:** 200402

**Source Currentness Reference:** Date of communication

**Source Citation Abbreviation:** None

**Source Contribution:** Distribution information for aquatic vegetation

**Source Information:**

**Source Citation:**

**Citation Information:**

**Originator:** U.S. Fish and Wildlife Service (USFWS)

**Publication Date:** 1981

**Title:** Hoquiam Washington-Oregon, Pacific Coast Ecological Inventory

**Geospatial Data Presentation Form:** Hardcopy Map

**Publication Information:**

**Publication Place:** Washington, D.C.

**Publisher:** U.S. Government Printing Office

**Source Scale Denominator:** 250,000

**Type of Source Media:** Paper

**Source Time Period of Content:**

**Single Date/Time:**

**Calendar Date:** 1981

**Source Currentness Reference:** Publication date

**Source Citation Abbreviation:** None

**Source Contribution:** Distribution information for aquatic vegetation

**Source Information:**

**Source Citation:**

**Citation Information:**

**Originator:** Anderson, E., U.S. Fish and Wildlife Service (USFWS)

**Publication Date:** 200401

**Title:** Distribution of Wildlife on the Lower Columbia River

**Geospatial Data Presentation Form:** Expert Knowledge

**Publication Information:**

**Publication Place:** Unpublished material

**Publisher:** Unpublished material

**Type of Source Media:** Personal communication

**Source Time Period of Content:**

**Single Date/Time:**

**Calendar Date:** 200401

**Source Currentness Reference:** Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Distribution information for aquatic vegetation

Process_Description:
Two main sources of data were used to depict habitat and rare plant distributions and seasonality for this data layer: (1) personal interviews with resource experts from Oregon Department of Fish and Wildlife (ODFW), U.S. Fish and Wildlife Service (USFWS), and National Oceanic Atmospheric Administration (NOAA) and (2) numerous published and unpublished reports. Information gathered during initial interviews and from hardcopy sources was compiled onto U.S. Geological Survey 1:24,000 topographic quadrangles.

The compiled data were digitized off of the base maps into an ArcInfo system to create the HABITATS data layer. All ESI, biology, and human-use data were plotted onto hardcopy draft maps. Following the delivery of draft maps to the participating resource experts, a second set of interviews was conducted to review the maps. Edits to the HABITATS data layer were made based on the recommendations of the resource experts, and final hardcopy maps were created.

Process_Date: 200408

Process_Contact:
Contact_Organization_Primary:
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Person: Jill Petersen
Contact_Address:
Address_Type: Physical address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: Jill.Petersen@noaa.gov

Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: GT-polygon composed of rings
Point_and_Vector_Object_Count: 21
SDTS_Point_and_Vector_Object_Type: Area point
Point_and_Vector_Object_Count: 21
SDTS_Point_and_Vector_Object_Type: Complete chain
Point_and_Vector_Object_Count: 61
SDTS_Point_and_Vector_Object_Type: Link
Point_and_Vector_Object_Count: 20237
SDTS_Point_and_Vector_Object_Type: Node, planar graph
Point_and_Vector_Object_Count: 61

Spatial_Reference_Information:
HorizontalCoordinate_System_Dimension:
**Geographic:**
- **Latitude Resolution:** 0.0000001
- **Longitude Resolution:** 0.0000001
- **Geographic Coordinate Units:** Decimal degrees

**Geodetic Model:**
- **Horizontal Datum Name:** North American Datum of 1927
- **Ellipsoid Name:** Clark 1866
- **Semi-major Axis:** 6378206.4
- **Denominator of Flattening Ratio:** 294.978698

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**Entity and Attribute Information:**

**Overview Description:**
In addition to the geographic data layers, six relational attribute or data tables, BIORES, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, are used to store the complex biological data in the ESI data structure. The geographic data layer containing biological resource information (in this case, HABITATS) is linked to the Biological Resources table (BIORES) using the unique ID and the lookup table BIO_LUT, or it can be linked directly using RARNUM. The ID is a unique combination of the atlas number (for the Columbia River atlas, the number is 41), an element/layer specific number (BIRDS are layer 1, FISH are layer 2, etc.), and a unique record number. The RARNUM represents a unique combination of species, seasonalities, concentrations, and source information. For each of these groupings, a number is generated. That number is concatenated with the atlas number to create a "resource at risk" number that is unique across atlases. BIORES and the other relational data tables are described below in detail. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way these tables relate to the geographic data layers and other attribute tables in the ESI data structure.

Due to the complexity of the relational database model, the data items are also post-processed into a flat file format. This table, called BIOFILE, may be used in place of the relational files described below to ease simple data queries. The items in the flat file are ELEMENT, SUBELEMENT, NAME, GEN_SPEC, S, F, NHP, DATE_PUB, CONC, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC, BREED1, BREED2, BREED3, BREED4, BREED5, RARNUM, G_SOURCE, S_SOURCE, and BREED. All of these items are the same as their counterparts in the individual data tables described below, except the BREED1-BREED5 and BREED items. BREED is a newly generated variable used to link to the BREED_DT data table, a modified, more compact version of the relational BREED data table. BREED1-BREED5 give a text summary of when each life stage occurs within the associated map object. The life stages referred to are the same as those listed in the Detailed_Description of the BREED data table. The link to the BIOFILE may be made through the BIO_LUT, using ID to link to RARNUM, or BIOFILE may be linked directly to the RARNUM in each of the geographic layer's attribute data tables. As mentioned, BREED_DT is an auxiliary support data table to the flat file structure, which allows the user to do searches based on month for seasonal breeding activities. The link from the flat file to BREED_DT is the BREED item.

A second supporting data table is SOURCES. This is the same as the source file described above, and the link from the flat file is both G_SOURCE and S_SOURCE. It should be noted that although the flat file eases data query, it is not a normalized database structure, and actual updates performed by the states and other responsible agencies should be done using the relational data tables. The entity-relationship diagram, describing relationships between attribute tables in the ESI data structure, does NOT include the BIOFILE data table, and this data table is NOT described in detail below.

**Detailed_Description:**

**Entity_Type:**
- **Entity_Type_Label:** HABITATS.PAT
- **Entity_Type_Definition:**
  - The HABITATS.PAT table contains attribute information for the vector polygons
representing submerged aquatic vegetation concentration areas and locations of rare plants and other plant species. Note that all attribute information is stored in a series of relational files, described below. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the relationships between attribute tables in the ESI data structure.

**Entity_Type_Definition_Source:** Research Planning, Inc.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Attribute_Label</th>
<th>Attribute_Definition</th>
<th>Attribute_Definition_Source</th>
<th>Attribute_Domain_Values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ID</td>
<td>An identifier that links vector objects in the biology data layers to records in the BIO_LUT data table. ID is a concatenation of atlas number (41), element number (3), and record number. ID values of 9999 are holes in polygons and do not contain information.</td>
<td>NOAA</td>
<td>Range_Domain: 410100002</td>
</tr>
</tbody>
</table>

**Detailed_Description:**

Entity_Type:

**Entity_Type_Label:** BIO_LUT

**Entity_Type_Definition:**
The data table BIO_LUT is a lookup table that contains items necessary for linking vector objects in the biological data layers with the BIORES data table. Note that all attribute information is stored in a series of relational files, described below. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.

**Entity_Type_Definition_Source:** Research Planning, Inc.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Attribute_Label</th>
<th>Attribute_Definition</th>
<th>Attribute_Definition_Source</th>
<th>Attribute_Domain_Values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RARNUM</td>
<td>An identifier that links records in the BIO_LUT data table to records in the BIORES data table or the flat format BIOFILE data table. RARNUM values of 0 are holes in polygons and do not contain information.</td>
<td>NOAA</td>
<td>Range_Domain: 41000001</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Attribute_Label</th>
<th>Attribute_Definition</th>
<th>Attribute_Definition_Source</th>
<th>Attribute_Domain_Values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ID</td>
<td>An identifier that links vector objects in the biology data layers to records in the BIO_LUT data table. ID is a concatenation of atlas number (41), element number (3), and record number. ID values of 9999 are holes in polygons and do not contain information.</td>
<td>NOAA</td>
<td>Range_Domain: 410100002</td>
</tr>
</tbody>
</table>
Range_Domain_Maximum: 413400015

Detailed_Description:

Entity_Type:
-
  Entity_Type_Label: BIORES
  Entity_Type_Definition: The data table BIORES contains both biological attribute data and items necessary for linking vector objects in the biological data layers via the BIO_LUT data table to other associated data tables. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
  Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
-
  Attribute_Label: RARNUM
  Attribute_Definition: An identifier that links records in the BIORES data table to records in the BIO_LUT data table or the flat format BIOFILE data table.
  Attribute_Definition_Source: NOAA
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 041000001
      Range_Domain_Maximum: 041000290

Attribute:
-
  Attribute_Label: SPECIES_ID
  Attribute_Definition: Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 1
      Range_Domain_Maximum: N

Attribute:
-
  Attribute_Label: CONC
  Attribute_Definition: The field CONC refers to "concentration," abundance, or density value of a habitat or plant at a particular location. No quantitative information on concentrations of SAV or rare plants was available, so the field is populated either with a descriptive term such as "PRESENT", or "-", to indicate that no concentration information was available.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values: Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
-
  Attribute_Label: SEASON_ID
  Attribute_Definition: Numeric identifier for the unique monthly presence and life history characteristics of each species at a given location.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 1
      Range_Domain_Maximum: N

Attribute:
-
  Attribute_Label: G_SOURCE
  Attribute_Definition: Geographic source identifier that links records in the BIORES data table to records in the SOURCES data table.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Range_Domain:
Range_Domain_Minimum: 1
Range_Domain_Maximum: N

Attribute:
Attribute_Label: S_SOURCE
Attribute_Definition: Seasonality source identifier that links records in the BIORES data table to records in the SOURCES data table.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Range_Domain:
    Range_Domain_Minimum: 1
    Range_Domain_Maximum: N

Attribute:
Attribute_Label: ELEMENT
Attribute_Definition: Major categories of biological data
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: BIRD
    Enumerated_Domain_Value_Definition: Birds
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Enumerated_Domain:
    Enumerated_Domain_Value: FISH
    Enumerated_Domain_Value_Definition: Fish
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Enumerated_Domain:
    Enumerated_Domain_Value: HABITAT
    Enumerated_Domain_Value_Definition: Habitats and Plants
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Enumerated_Domain:
    Enumerated_Domain_Value: INVERT
    Enumerated_Domain_Value_Definition: Invertebrates
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Enumerated_Domain:
    Enumerated_Domain_Value: M_MAMMAL
    Enumerated_Domain_Value_Definition: Marine Mammals
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Enumerated_Domain:
    Enumerated_Domain_Value: REPTILE
    Enumerated_Domain_Value_Definition: Reptiles and Amphibians
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Enumerated_Domain:
    Enumerated_Domain_Value: T_MAMMAL
    Enumerated_Domain_Value_Definition: Terrestrial Mammals
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: EL_SPE
Attribute_Definition: Concatenation of ELEMENT and SPECIES_ID. This item links records in the BIORES data table to records in the SPECIES and STATUS data tables.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: E#####
**Enumerated_Domain_Value_Definition:**
Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = 'B00001').

**Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute:**
- **Attribute_Label:** EL_SPE_SEA
- **Attribute_Definition:** Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the BIORES data table to records in the SEASONAL and BREED data tables.
- **Attribute_Definition_Source:** Research Planning, Inc.
- **Attribute_Domain_Values:**
  - **Enumerated_Domain:**
    - **Enumerated_Domain_Value:** E########
    - **Enumerated_Domain_Value_Definition:** Where E is the first character of ELEMENT, the next five characters are SPECIES_ID, and the last two characters are SEASON_ID (e.g. ELEMENT = 'BIRD', SPECIES_ID = 1 and SEASON_ID = 1; EL_SPE_SEA = 'B0000101').
    - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Detailed_Description:**
**Entity_Type:**
- **Entity_Type_Label:** SPECIES
- **Entity_Type_Definition:** The data table SPECIES identifies all species in the ESI data set. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure. Refer to the Completeness_Report for a list of layer-specific species.
- **Entity_Type_Definition_Source:** Research Planning, Inc.

**Attribute:**
- **Attribute_Label:** SPECIES_ID
- **Attribute_Definition:** Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.
- **Attribute_Definition_Source:** Research Planning, Inc.
- **Attribute_Domain_Values:**
  - **Range_Domain:**
    - **Range_Domain_Minimum:** 1
    - **Range_Domain_Maximum:** N

**Attribute:**
- **Attribute_Label:** NAME
- **Attribute_Definition:** Species common name for the entire ESI data set
- **Attribute_Definition_Source:** Research Planning, Inc.
- **Attribute_Domain_Values:**
  - **Unrepresentable_Domain:** Acceptable values change from atlas to atlas

**Attribute:**
- **Attribute_Label:** GEN_SPEC
- **Attribute_Definition:** Species scientific name for the entire ESI data set
- **Attribute_Definition_Source:** Research Planning, Inc.
- **Attribute_Domain_Values:**
  - **Unrepresentable_Domain:** Acceptable values change from atlas to atlas

**Attribute:**
- **Attribute_Label:** ELEMENT
- **Attribute_Definition:** Major categories of biological data
- **Attribute_Definition_Source:** Research Planning, Inc.
- **Attribute_Domain_Values:**
  - **Enumerated_Domain:**
    - **Enumerated_Domain_Value:** BIRD
    - **Enumerated_Domain_Value_Definition:** Birds
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Attribute Domain Values:**

**Enumerated Domain:**

Enumerated_Domain_Value: FISH
Enumerated_Domain_Value_Definition: Fish
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Enumerated Domain:**

Enumerated_Domain_Value: HABITAT
Enumerated_Domain_Value_Definition: Habitats and Plants
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Enumerated Domain:**

Enumerated_Domain_Value: INVERT
Enumerated_Domain_Value_Definition: Invertebrates
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Enumerated Domain:**

Enumerated_Domain_Value: M_MAMMAL
Enumerated_Domain_Value_Definition: Marine Mammals
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Enumerated Domain:**

Enumerated_Domain_Value: REPTILE
Enumerated_Domain_Value_Definition: Reptiles and Amphibians
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Enumerated Domain:**

Enumerated_Domain_Value: T_MAMMAL
Enumerated_Domain_Value_Definition: Terrestrial Mammals
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Attribute:**

Attribute_Label: SUBELEMENT
Attribute_Definition: Element subgroup delineating a logical grouping of species
Attribute_Definition_Source: Research Planning, Inc.

**Enumerated Domain:**

Enumerated_Domain_Value: bivalve
Enumerated_Domain_Value_Definition: Bivalve
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Enumerated Domain:**

Enumerated_Domain_Value: crab
Enumerated_Domain_Value_Definition: Crab
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Enumerated Domain:**

Enumerated_Domain_Value: diadromous
Enumerated_Domain_Value_Definition: Diadromous fish
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Enumerated Domain:**

Enumerated_Domain_Value: diving
Enumerated_Domain_Value_Definition: Diving bird
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Enumerated Domain:**

Enumerated_Domain_Value: e_nursery
Enumerated_Domain_Value_Definition: Estuarine nursery fish
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  
Enumerated_Domain:
  
Enumerated_Domain_Value: fav
  Enumerated_Domain_Value_Definition: Floating aquatic vegetation
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  
Enumerated_Domain:
  
Enumerated_Domain_Value: freshwater
  Enumerated_Domain_Value_Definition: Freshwater fish
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  
Enumerated_Domain:
  
Enumerated_Domain_Value: gull_tern
  Enumerated_Domain_Value_Definition: Gull or tern
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  
Enumerated_Domain:
  
Enumerated_Domain_Value: passerine
  Enumerated_Domain_Value_Definition: Passerine bird
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  
Enumerated_Domain:
  
Enumerated_Domain_Value: pinniped
  Enumerated_Domain_Value_Definition: Pinniped
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  
Enumerated_Domain:
  
Enumerated_Domain_Value: raptor
  Enumerated_Domain_Value_Definition: Raptor
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  
Enumerated_Domain:
  
Enumerated_Domain_Value: sav
  Enumerated_Domain_Value_Definition: Submerged aquatic vegetation
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  
Enumerated_Domain:
  
Enumerated_Domain_Value: shorebird
  Enumerated_Domain_Value_Definition: Shorebird
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  
Enumerated_Domain:
  
Enumerated_Domain_Value: sm_mammal
  Enumerated_Domain_Value_Definition: Small mammal
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  
Enumerated_Domain:
  
Enumerated_Domain_Value: turtle
  Enumerated_Domain_Value_Definition: Turtle
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  
Enumerated_Domain:
  
Enumerated_Domain_Value: unngulate
  Enumerated_Domain_Value_Definition: Ungulate
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  
Enumerated_Domain:
  
Enumerated_Domain_Value: wading
  Enumerated_Domain_Value_Definition: Wading bird
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: waterfowl
    Enumerated_Domain_Value_Definition: Waterfowl
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: NHP
  Attribute_Definition: Natural Heritage Program global ranking. When no information was provided on the global rank for a species, the field is blank.
  Attribute_Definition_Source: Network of Natural Heritage Program
  Attribute_Domain_Values:
    Codeset_Domain:
      Codeset_Name: NHP Global Conservation Status Rank
      Codeset_Source: Natural Heritage Program

Attribute:
  Attribute_Label: DATE_PUB
  Attribute_Definition: Date of NHP listing
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: YYYYMM
      Enumerated_Domain_Value_Definition: YYYY for year and optionally MM for month
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain:
      Enumerated_Domain_Value: 0
      Enumerated_Domain_Value_Definition: No information was provided on the global rank for the species
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: EL_SPE
  Attribute_Definition: Concatenation of ELEMENT and SPECIES_ID. This item links records in the SPECIES data table to records in the BIORES and STATUS data tables.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: E####
      Enumerated_Domain_Value_Definition:
        Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = 'B00001').
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Detailed_Description:
Entity_Type:
  Entity_Type_Label: SEASONAL
  Entity_Type_Definition:
    The data table SEASONAL contains information on the seasonal presence of each species associated with each spatial vector object. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
  Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: ELEMENT
  Attribute_Definition: Major categories of biological data
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
Enumerated_Domain_Value: BIRD
Enumerated_Domain_Value_Definition: Birds
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: FISH
    Enumerated_Domain_Value_Definition: Fish
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: HABITAT
    Enumerated_Domain_Value_Definition: Habitats and Plants
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: INVERT
    Enumerated_Domain_Value_Definition: Invertebrates
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: M_MAMMAL
    Enumerated_Domain_Value_Definition: Marine Mammals
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: REPTILE
    Enumerated_Domain_Value_Definition: Reptiles and Amphibians
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: T_MAMMAL
    Enumerated_Domain_Value_Definition: Terrestrial Mammals
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: SPECIES_ID
  Attribute_Definition:
    Numeric identifier for each species that is unique within each element and refers to a nationwide ESI species list maintained at NOAA.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 1
      Range_Domain_Maximum: N

Attribute:
  Attribute_Label: SEASON_ID
  Attribute_Definition:
    Numeric identifier for the unique monthly presence and life history characteristics of each species at a given location.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 1
      Range_Domain_Maximum: N

Attribute:
  Attribute_Label: JAN
  Attribute_Definition: January
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: X
Enumerated_Domain_Value_Definition: Present in January
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: FEB
Attribute_Definition: February
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
  Enumerated_Domain_Value: X
  Enumerated_Domain_Value_Definition: Present in February
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: MAR
Attribute_Definition: March
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
  Enumerated_Domain_Value: X
  Enumerated_Domain_Value_Definition: Present in March
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: APR
Attribute_Definition: April
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
  Enumerated_Domain_Value: X
  Enumerated_Domain_Value_Definition: Present in April
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: MAY
Attribute_Definition: May
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
  Enumerated_Domain_Value: X
  Enumerated_Domain_Value_Definition: Present in May
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: JUN
Attribute_Definition: June
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
  Enumerated_Domain_Value: X
  Enumerated_Domain_Value_Definition: Present in June
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: JUL
Attribute_Definition: July
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
  Enumerated_Domain_Value: X
  Enumerated_Domain_Value_Definition: Present in July
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: AUG
Attribute_Definition: August
Attribute_Definition_Source: Research Planning, Inc.
Attribute: Attribute_Label: SEP
Attribute_Definition: September
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: X
    Enumerated_Domain_Value_Definition: Present in September
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute: Attribute_Label: OCT
Attribute_Definition: October
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: X
    Enumerated_Domain_Value_Definition: Present in October
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute: Attribute_Label: NOV
Attribute_Definition: November
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: X
    Enumerated_Domain_Value_Definition: Present in November
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute: Attribute_Label: DEC
Attribute_Definition: December
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: X
    Enumerated_Domain_Value_Definition: Present in December
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute: Attribute_Label: EL_SPE_SEA
Attribute_Definition: Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the SEASONAL data table to records in the BIORES and BREED data tables.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: E############
    Enumerated_Domain_Value_Definition:
      Where E is the first character of ELEMENT, the next five characters are SPECIES_ID, and the last two characters are SEASON_ID (e.g. ELEMENT = 'BIRD', SPECIES_ID = 1 and SEASON_ID = 1; EL_SPE_SEA = 'B0000101').
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
**Entity_Type_Definition:**
The data table BREED identifies the monthly presence of certain life-history stages or activities for each species at a given location.

**Entity_Type_Definition_Source:** Research Planning, Inc.

**Attribute:**
- **Attribute_Label:** EL_SPE_SEA
  - **Attribute_Definition:** Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the BREED data table to records in the BIORES and SEASONAL data tables.
  - **Attribute_Definition_Source:** Research Planning, Inc.
  - **Attribute_Domain_Values:**
    - **Enumerated_Domain:**
      - **Enumerated_Domain_Value:** E#######
      - **Enumerated_Domain_Value_Definition:** Where E is the first character of ELEMENT, the next five characters are SPECIES_ID, and the last two characters are SEASON_ID (e.g. ELEMENT = 'BIRD', SPECIES_ID = 1 and SEASON_ID = 1; EL_SPE_SEA = 'B0000101').
  - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute:**
- **Attribute_Label:** MONTH
  - **Attribute_Definition:** Two-digit calendar month. Each life history stage or activity type for a particular species can have up to 12 records to account for each month of the year.
  - **Attribute_Definition_Source:** Research Planning, Inc.
  - **Attribute_Domain_Values:**
    - **Range_Domain:**
      - **Range_Domain_Minimum:** 1
      - **Range_Domain_Maximum:** 12

**Attribute:**
- **Attribute_Label:** BREED1
  - **Attribute_Definition:** Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED1 = nesting; if ELEMENT is "FISH" then BREED1 = spawning; if ELEMENT is "INVERT" then BREED1 = spawning; if ELEMENT is "REPTILE" then BREED1 = nesting; if ELEMENT is "M_MAMMAL" then BREED1 = mating. This attribute is not used for HABITAT or T_MAMMAL elements.
  - **Attribute_Definition_Source:** Research Planning, Inc.
  - **Attribute_Domain_Values:**
    - **Enumerated_Domain:**
      - **Enumerated_Domain_Value:** Y
      - **Enumerated_Domain_Value_Definition:** Life-history stage or activity present
      - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.
      - **Enumerated_Domain_Value:** N
      - **Enumerated_Domain_Value_Definition:** Life-history stage or activity not present
      - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.
      - **Enumerated_Domain_Value:** -
      - **Enumerated_Domain_Value_Definition:** Breed category not used or not appropriate for record(s) in question
      - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute:**
- **Attribute_Label:** BREED2
**Attribute Definition:**
Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED2 = migrating; if ELEMENT is "FISH" then BREED2 = eggs; if ELEMENT is "INVERT" then BREED2 = eggs; if ELEMENT is "REPTILE" then BREED2 = hatching; if ELEMENT is "M_MAMMAL" then BREED2 = calving. This attribute is not used for HABITAT or T_MAMMAL elements.

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**
- **Enumerated Domain:**
  - **Enumerated Domain Value:** Y
    - **Enumerated Domain Value Definition:** Life-history stage or activity present
    - **Enumerated Domain Value Definition Source:** Research Planning, Inc.
  - **Enumerated Domain Value:** N
    - **Enumerated Domain Value Definition:** Life-history stage or activity not present
    - **Enumerated Domain Value Definition Source:** Research Planning, Inc.
  - **Enumerated Domain Value:** -
    - **Enumerated Domain Value Definition:** Breed category not used or not appropriate for record(s) in question
    - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Attribute:**
**Attribute Label:** BREED3

**Attribute Definition:**
Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED3 = molting; if ELEMENT is "FISH" then BREED3 = larvae; if ELEMENT is "INVERT" then BREED3 = larvae; if ELEMENT is "REPTILE" then BREED3 = internesting; if ELEMENT is "M_MAMMAL" then BREED3 = pupping. This attribute is not used for HABITAT or T_MAMMAL elements.

**Attribute Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**
- **Enumerated Domain:**
  - **Enumerated Domain Value:** Y
    - **Enumerated Domain Value Definition:** Life-history stage or activity present
    - **Enumerated Domain Value Definition Source:** Research Planning, Inc.
  - **Enumerated Domain Value:** N
    - **Enumerated Domain Value Definition:** Life-history stage or activity not present
    - **Enumerated Domain Value Definition Source:** Research Planning, Inc.
  - **Enumerated Domain Value:** -
    - **Enumerated Domain Value Definition:** Breed category not used or not appropriate for record(s) in question
    - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Attribute:**
**Attribute Label:** BREED4

**Attribute Definition:**
Life history stage or activity type, where: if ELEMENT is "FISH" then BREED4 = juveniles; if ELEMENT is "INVERT" then BREED4 = juveniles; if ELEMENT is "REPTILE" then BREED4 = juveniles; if ELEMENT is "M_MAMMAL" then
BREED4 = molting. This attribute is not used for BIRD, HABITAT, or T_MAMMAL elements.

Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Enumerated Domain:
    Enumerated Domain Value: Y
    Enumerated Domain Value Definition: Life-history stage or activity present
    Enumerated Domain Value Definition Source: Research Planning, Inc.
  Enumerated Domain Values:
    Enumerated Domain Value: N
    Enumerated Domain Value Definition: Life-history stage or activity not present
    Enumerated Domain Value Definition Source: Research Planning, Inc.
  Enumerated Domain Values:
    Enumerated Domain Value: -
    Enumerated Domain Value Definition: Breed category not used or not appropriate for record(s) in question
    Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute:
  Attribute Label: BREED5
  Attribute Definition:
  Life history stage or activity type, where: if ELEMENT is "FISH" then BREED5 = adults; if ELEMENT is "INVERT" then BREED5 = adults; if ELEMENT is "REPTILE" then BREED5 = adults. This attribute is not used for BIRD, M_MAMMAL, HABITAT, or T_MAMMAL elements.
  Attribute Definition Source: Research Planning, Inc.
  Attribute Domain Values:
    Enumerated Domain:
      Enumerated Domain Value: Y
      Enumerated Domain Value Definition: Life-history stage or activity present
      Enumerated Domain Value Definition Source: Research Planning, Inc.
    Enumerated Domain Values:
      Enumerated Domain Value: N
      Enumerated Domain Value Definition: Life-history stage or activity not present
      Enumerated Domain Value Definition Source: Research Planning, Inc.
    Enumerated Domain Values:
      Enumerated Domain Value: -
      Enumerated Domain Value Definition: Breed category not used or not appropriate for record(s) in question
      Enumerated Domain Value Definition Source: Research Planning, Inc.

Detailed Description:
  Entity Type:
    Entity Type Label: SOURCES
    Entity Type Definition:
    The data table SOURCES contains the primary sources used to create the ESI data set. See the Browse Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
    Entity Type Definition Source: Research Planning, Inc.

Attribute:
  Attribute Label: SOURCE_ID
Attribute_Definition:
Source identifier that links records in the SOURCES data table to the items G_SOURCE and A_SOURCE in the SOC_DAT table, and to G_SOURCE and S_SOURCE in the BIORES table.

Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Range_Domain:
  Range_Domain_Minimum: 1
  Range_Domain_Maximum: N

Attribute:
Attribute_Label: ORIGINATOR
Attribute_Definition: Author or developer of source material or data set
Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
Attribute_Label: DATE_PUB
Attribute_Definition: Date of source material, publication, or date of personal communication with expert source
Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: YYYYMM
  Enumerated_Domain_Value_Definition: YYYY for year and optionally MM for month
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: TITLE
Attribute_Definition: Title of source material or data
Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
Attribute_Label: DATA_FORMAT
Attribute_Definition: The format of the source material
Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
Attribute_Label: PUBLICATION
Attribute_Definition: Additional citation information
Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
Attribute_Label: SCALE
Attribute_Definition: Scale denominator of the source
Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: integer
  Enumerated_Domain_Value_Definition: Any integer
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: TIME_PERIOD
Attribute_Definition: Date(s) of data collection that the source material is based upon.
Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: MM/DD/YY
Enumerated_Domain_Value_Definition: Month/Day/Year
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: MM/YYYY
Enumerated_Domain_Value_Definition: Month/Year
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: UNKNOWN
Enumerated_Domain_Value_Definition: Date information unknown
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Detailed_Description:
Entity_Type:
Entity_Type_Label: STATUS
Entity_Type_Definition:
The data table STATUS identifies the species that are listed as threatened or endangered by a state or federal authority. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.

Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: ELEMENT
Attribute_Definition: Major categories of biological data
Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: BIRD
Enumerated_Domain_Value_Definition: Birds
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: FISH
Enumerated_Domain_Value_Definition: Fish
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: HABITAT
Enumerated_Domain_Value_Definition: Habitats and Plants
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: INVERT
Enumerated_Domain_Value_Definition: Invertebrates
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: M_MAMMAL
Enumerated_Domain_Value_Definition: Marine Mammals
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: REPTILE
Enumerated_Domain_Value_Definition: Reptiles and Amphibians
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: T_MAMMAL
Enumerated_Domain_Value_Definition: Terrestrial Mammals
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: SPECIES_ID
Attribute_Definition: Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Range_Domain:
  Range_Domain_Minimum: 1
  Range_Domain_Maximum: N

Attribute:
Attribute_Label: S
Attribute_Definition: State threatened or endangered status.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: E
  Enumerated_Domain_Value_Definition: Endangered on state list
  Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: T
  Enumerated_Domain_Value_Definition: Threatened on state list
  Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: C
  Enumerated_Domain_Value_Definition: Species of Special Concern
  Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute:
Attribute_Label: F
Attribute_Definition: Federal threatened or endangered status.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: E
  Enumerated_Domain_Value_Definition: Endangered on federal list
  Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: T
  Enumerated_Domain_Value_Definition: Threatened on federal list
  Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: C
  Enumerated_Domain_Value_Definition: Species of Special Concern
  Enumerated_Domain_Value_Definition_Source: U.S. Fish and Wildlife Service

Attribute:
Attribute_Label: STATE
Attribute_Definition: Two-letter state abbreviation
Attribute_Definition_Source: Research Planning, Inc.
Attribute: S_DATE
Attribute_Definition: Publication date of source material used to assign state status values for each species, if used.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: YYYYMM
Enumerated_Domain_Value_Definition: YYYY for year and optionally MM for month
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute: F_DATE
Attribute_Definition: Publication date of source material used to assign federal status values for each species, if used.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: YYYYMM
Enumerated_Domain_Value_Definition: YYYY for year and optionally MM for month
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute: EL_SPE
Attribute_Definition: Concatenation of ELEMENT and SPECIES_ID. This item links the STATUS data table to the BIORES and SPECIES data tables.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: E####
Enumerated_Domain_Value_Definition: Where E is the first character of ELEMENT and the next five characters are SPECIES_ID (e.g. ELEMENT = 'BIRD' and SPECIES_ID = 1; EL_SPE = 'B00001').
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Distribution_Information:
Distributor:
Contact_Information:
Contact_Person_Primary:
  Contact_Person: John Kaperick
  Contact_Organization: NOAA, Office of Response and Restoration
Contact_Address:
  Address_Type: Physical Address
  Address: 7600 Sand Point Way N.E.
  City: Seattle
  State_or_Province: Washington
  Postal_Code: 98115-6349
  Contact_Voice_Telephone: (206) 526-6400
  Contact_Facsimile_Telephone: (206) 526-6329
Resource_Description: ESI Atlas for Columbia River
Distribution_Liability:
  Although these data have been processed successfully on a computer system at the National Oceanic
and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement copy of the product when the product is determined unreadable by computer-input peripherals, or when the physical medium is delivered in damaged condition.

Custom_Order_Process:
Contact NOAA for distribution options (see Distributor). ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the distribution CDs for ease of use of the ESI data. The database files are distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats.

Metadata_Reference_Information:
Metadata_Date: 200411
Metadata_Review_Date: 200411
Metadata_Contact:
Contact_Person_Primary:
Contact_Person: Jill Petersen
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Position: GIS Manager
Contact_Address:
Address_Type: Physical Address
Address: 7600 Sand Point Way, N.E.
City: Seattle
State_orProvince: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: Jill.Petersen@noaa.gov

Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata

Generated by mp version 2.8.2 on Fri Dec 10 11:58:12 2004
Columbia River ESI: MGT (Management Area Polygons)

Metadata also available as - [Parseable text] - [SGML]

Metadata:

- Identification_Information
- Data_Quality_Information
- Spatial_Data_Organization_Information
- Spatial_Reference_Information
- Entity_and_Attribute_Information
- Distribution_Information
- Metadata_Reference_Information

Identification_Information:
Citation:

Originator:
Publication_Date: 200411
Title: Columbia River ESI: MGT (Management Area Polygons)
Edition: First
Geospatial_Data_Presentation_Form: Vector digital data
Series_Information:
Series_Name: None
Issue_Identification: Columbia River
Publication_Information:
Publication_Place: Seattle, Washington
Publisher:
Other_Citation_Details:

Description:
Abstract:
This data set contains sensitive human-use data for Wildlife Refuges, National Forests, and State Parks for the Columbia River area. Vector polygons in this data set represent the management areas. Location-specific type and source information is stored in relational data tables (described below) designed to be used in conjunction with this spatial data layer.

This data set comprises a portion of the Environmental Sensitivity Index (ESI) data for Columbia River. ESI data characterize the marine and coastal environments and wildlife by their sensitivity to spilled oil. The ESI data include information for three main components: shoreline habitats, sensitive biological resources, and human-use resources. See also the SOCECON (Socioeconomic Resource Points and Lines) data layer, part of the larger
Columbia River ESI database, for additional human-use information.

**Purpose:**
The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response. The Clean Water Act with amendments by the Oil Pollution Act of 1990 requires response plans for immediate and effective protection of sensitive resources.

**Time_Period_of_Content:**
**Time_Period_Information:**
**Range_of_Dates/Times:**
- **Beginning_Date:** 1981
- **Ending_Date:** 2004

**Currentness_Reference:**
The MGT data were compiled during 2003-2004. The currentness dates for the data range from 1981 to 2004 and are documented in the Lineage section.

**Status:**
**Progress:** Complete
**Maintenance_and_Update_Frequency:** None Scheduled

**Spatial_Domain:**
**Bounding_Coordinates:**
- **West_Bounding_Coordinate:** -124.125
- **East_Bounding_Coordinate:** -120.67375
- **North_Bounding_Coordinate:** 46.375
- **South_Bounding_Coordinate:** 45.3

**Keywords:**
**Theme:**
- **Theme_Keyword_Thesaurus:** None
- **Theme_Keyword:** ESI
- **Theme_Keyword:** Sensitivity maps
- **Theme_Keyword:** Coastal resources
- **Theme_Keyword:** Oil spill planning
- **Theme_Keyword:** Coastal Zone Management
- **Theme_Keyword:** Wildlife
- **Theme_Keyword:** Management Area

**Place:**
- **Place_Keyword_Thesaurus:** None
- **Place_Keyword:** Columbia River

**Access_Constraints:** None
**Use_Constraints:**
DO NOT USE MAPS FOR NAVIGATIONAL PURPOSES. Besides the above warning, there are no use constraints on these data. Note that the ESI database should not be used to the exclusion of other pertinent data or information held by state or federal agencies or other organizations. Likewise, information contained in the database cannot be used in place of consultations with environmental, natural resource, and cultural resource agencies, or in place of field surveys. Recognize that the information contained in the ESI database represents known concentration areas or occurrences of natural, cultural, and human-use resources, but does not necessarily represent the full distribution or range of each species or resource. This is particularly important to recognize when considering potential impacts to protected resources, such as endangered species, wetlands, etc. Acknowledgment of the originators, publishers, contributors, and sources listed would be appreciated in products derived from these data.

**Browse_Graphic:**
- **Browse_Graphic_File_Name:** datafig.jpg
- **Browse_Graphic_File_Description:** Depicts the relationships between spatial data layers and attribute data tables for the Columbia River ESI data.
- **Browse_Graphic_File_Type:** JPEG

**Data_Set_Credit:**
This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; Coastal Storms Initiative; U.S. Fish and Wildlife Service; NOAA Fisheries; State of Oregon; and State of Washington.

**Native_Data_Set_Environment:**
The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 8.3) and SQL SERVER(r) (version 7.0). The hardware configuration is PC's with Windows Operating System (NT4.0/2000).

The Spatial_Data_Organization_Information section refers only to the source files in the ARC export format. The following files are included in that data set: birds.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mammal.e00, m_mampt.e00, mgt.e00, nests.e00, nwi.e00, reptiles.e00, socecon.e00, t_mammal.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biores, breed, breed_dt, runs_dat, seasonal, soc_dat, soc_lut, sources, species, and status.

Data_Quality_Information:

Attribute_Accuracy:
Attribute_Accuracy_Report:
A multi-stage error checking process is used to verify both attribute accuracy and logical consistency throughout data production. The process includes a standardized data entry methodology, hardcopy data review by in-house and external resource experts, a final Quality Assurance/Quality Control (QA/QC) process, and multiple automated logical consistency checks. Quantitative data (such as densities, counts, abundances, or concentrations) provided by resource experts for inclusion in the data set may vary widely in attribute accuracy, depending upon the methodology used to collect and compile such data. For a more detailed evaluation of source data attribute accuracy, contact the sources listed in the Lineage section.

Logical_Consistency_Report:
A multi-stage error checking process, described in the above Attribute_Accuracy_Report, is used to verify both attribute accuracy and logical consistency throughout data production. This process includes multiple automated logical consistency checks that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and SQL SERVER(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where the data are written to CD-ROM and the metadata are written.

After the data are delivered to NOAA, they are again subjected to a number of quality and consistency checks. In the process of checking for topological and database consistencies, new ID's and RARNUM's or HUNUM's are also generated. The new ID's are a combination of atlas number, element number, and record number. In addition, the value used to represent the element is modified to reflect the type of feature being mapped. In the case of an element that is normally represented by a point or polygon, a value of 20 is added to the standard element value for mapping of linear features. In the case where an element usually mapped as a polygon is represented by a point, a value of 30 is added to the regular element value. The RARNUM's are also modified to include the atlas number, so multiple atlases can be combined and RARNUM's remain unique. RARNUM's are redefined on an element basis, so "resource at risk" groupings will contain only a single element. HUNUM's are also modified to include the atlas number.

Completeness_Report:
These data represent a synthesis of digital boundaries for management areas. These data do not necessarily represent all management area sites in the Columbia River region. See also the SOCECON (Socioeconomic Resource Points and Lines) data layer, part of the larger Columbia River ESI database, for additional human-use information.

Positional_Accuracy:
Horizontal_Positional_Accuracy:
Horizontal_Positional_Accuracy_Report:
The MGT data set was developed from pre-existing digital sources and reflects the positional accuracy of these original data. See the Lineage and Process_Description sections for more information on the original data source and how these data were integrated or manipulated to create the final data set.

Lineage:
Source_Information:
Source_Citation:
Citation_Information:
Originator: U.S. Fish and Wildlife Service (USFWS)
Publication_Date: 1981
Title: Hoquiam Washington-Oregon, Pacific Coast Ecological Inventory
Geospatial_Data_Presentation_Form: Hardcopy Map
Publication_Information:
    Publication_Date: 1981
    Publication_Place: Washington, D.C.
    Publisher: U.S. Government Printing Office
Source_Scale_Denominator: 250,000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:
    Time_Period_Information:
        Calendar_Date: 1981
Source_Currentness_Reference: Publication date
Source_Citation_Abbreviation: None
Source_Contribution: Regional park boundaries
Source_Information:
Source_Citation:
    Citation_Information:
        Originator: Clark, A., U.S. Fish and Wildlife Service (USFWS)
        Publication_Date: 200402
        Title: Distribution of Fish, Birds, Plants, and Mammals in the Columbia River
        Geospatial_Data_Presentation_Form: Expert Knowledge
        Publication_Information:
            Publication_Date: 200402
            Publication_Place: Unpublished material
            Publisher: Unpublished material
        Type_of_Source_Media: Personal communication
        Source_Time_Period_of_Content:
            Time_Period_Information:
                Calendar_Date: 200402
Source_Currentness_Reference: Publication date
Source_Citation_Abbreviation: None
Source_Contribution: Wildlife Refuge boundaries
Source_Information:
Source_Citation:
    Citation_Information:
        Originator: Nebeker, M., Oregon Department of Fish and Wildlife (ODFW)
        Publication_Date: 200402
        Title: Distribution of Wildlife on Sauvie Island and Surrounding Areas
        Geospatial_Data_Presentation_Form: Expert Knowledge
        Publication_Information:
            Publication_Date: 200402
            Publication_Place: Unpublished material
            Publisher: Unpublished material
        Type_of_Source_Media: Personal communication
        Source_Time_Period_of_Content:
            Time_Period_Information:
                Calendar_Date: 200402
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Sauvie Island Wildlife Area boundary
Source_Information:
Source_Citation:
    Citation_Information:
        Originator: DeLorme
        Publication_Date: 2001
        Title: Oregon Atlas and Gazetteer
Source_Scale_Denominator: 150,000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:
  Time_Period_Information:
    Single_Date/Time:
      Calendar_Date: 2001
Source_Currentness_Reference: Publication date
Source_Citation_Abbreviation: None
Source_Contribution: Oregon state park boundaries
Source_Information:
  Source_Citation:
    Citation_Information:
      Originator: University of Washington
      Publication_Date: Varies
      Title: USGS Digital Raster Graphics
      Geospatial_Data_Presentation_Form: Raster digital data
      Publication_Information:
        Publication_Place: Seattle, Washington
        Publisher: University of Washington Libraries
      Source_Scale_Denominator: 24,000
      Type_of_Source_Media: Online
      Source_Time_Period_of_Content:
        Time_Period_Information:
          Single_Date/Time:
            Calendar_Date: Varies
      Source_Currentness_Reference: Publication date
      Source_Citation_Abbreviation: None
      Source_Contribution: Oregon state park boundaries
Source_Information:
  Source_Citation:
    Citation_Information:
      Originator: Washington State Parks and Recreation Commission
      Publication_Date: 2004
      Title: Washington State Park Boundaries
      Geospatial_Data_Presentation_Form: Vector digital data
      Publication_Information:
        Publication_Place: Unpublished material
        Publisher: Unpublished material
      Source_Scale_Denominator: 24,000
      Type_of_Source_Media: Electronic mail system
      Source_Time_Period_of_Content:
        Time_Period_Information:
          Single_Date/Time:
            Calendar_Date: 2004
      Source_Currentness_Reference: Date of communication
      Source_Citation_Abbreviation: None
      Source_Contribution: Washington state park boundaries
Source_Information:
  Source_Citation:
    Citation_Information:
      Originator: Anderson, E., U.S. Fish and Wildlife Service (USFWS)
      Publication_Date: 2004
      Title: Ridgefield National Wildlife Complex Boundaries
      Geospatial_Data_Presentation_Form: Vector digital data
      Publication_Information:
        Publication_Place: Unpublished material
Digital vector lines used to depict management areas (State Parks) for Washington in this data layer were provided by Washington Department of Parks and Recreation. Boundaries for the Ridgefield National Wildlife Refuge complex (Washington) were provided by U.S. Fish and Wildlife Service (USFWS). Management boundaries for the state of Oregon were digitized from U.S. Geological Survey (USGS) Digital Raster Graphics (DRGs). The MGT data layer was incorporated into an ArcInfo system along with the SOCECON and biology data layers, and hardcopy draft maps were created using U.S. Geological Survey 1:24,000 topographic quadrangles as base maps. Following the creation of draft maps, a second set of interviews were conducted with the resource experts. Participants who were unable to attend the meetings were sent a set of maps to review. Edits to the MGT data layer were based on the recommendations of the resource experts, and final hardcopy maps were created.

Process_Date: 200408
Process_Contact:
  Contact_Organization_Primary:
    Contact_Organization: NOAA, Office of Response and Restoration
    Contact_Person: Jill Petersen
  Contact_Address:
    Address_Type: Physical address
    Address: 7600 Sand Point Way N.E.
    City: Seattle
    State_or_Province: Washington
    Postal_Code: 98115-6349
  Contact_Voice_Telephone: (206) 526-6944
  Contact_Facsimile_Telephone: (206) 526-6329
  Contact_Electronic_Mail_Address: Jill.Petersen@noaa.gov

Spatial_Data_Organization_Information:
  Direct_Spatial_Reference_Method: Vector
  Point_and_Vector_Object_Information:
    SDTS_Terms_Description:
      SDTS_Point_and_Vector_Object_Type: GT-polygon composed of rings
      Point_and_Vector_Object_Count: 78
    SDTS_Terms_Description:
      SDTS_Point_and_Vector_Object_Type: Area point
      Point_and_Vector_Object_Count: 78
    SDTS_Terms_Description:
      SDTS_Point_and_Vector_Object_Type: Complete chain
      Point_and_Vector_Object_Count: 110
    SDTS_Terms_Description:
      SDTS_Point_and_Vector_Object_Type: Link
      Point_and_Vector_Object_Count: 18385
**SDTS_Point_and_Vector_Object_Type:** Node, planar graph  
**Point_and_Vector_Object_Count:** 104

**Spatial_Reference_Information:**

**Horizontal_Coordinate_System_Definition:**
- **Geographic:**
  - **Latitude_Resolution:** 0.0000001  
  - **Longitude_Resolution:** 0.0000001  
  - **Geographic_Coordinate_Units:** Decimal degrees

**Geodetic_Model:**
- **Horizontal_Datum_Name:** North American Datum of 1927  
- **Ellipsoid_Name:** Clark 1866  
- **Semi-major_Axis:** 6378206.4  
- **Denominator_of_Flattening_Ratio:** 294.978698

**Entity_and_Attribute_Information:**

**Overview_Description:**
In addition to the geographic data layers, two relational attribute or data tables, SOC_DAT and SOURCES, are used to store the complex socioeconomic data in the ESI data structure. The geographic data layer containing socioeconomic data resource information (in this case, MGT) is linked to the Socioeconomic Resources table (SOC_DAT) using the unique ID and the lookup table SOC_LUT, or it can be linked directly using HUNUM. HUNUM is a unique reference number concatenated with the atlas number (the Columbia River atlas number is 41). ID is a unique combination of the atlas number (41), an element specific number (MGT=11), and a unique record number. SOC_DAT and the other relational data tables are described below in detail. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way these tables relate to the geographic data layers and other attribute tables in the ESI data structure.

**Detailed_Description:**

**Entity_Type:**
- **Entity_Type_Label:** MGT.PAT  
- **Entity_Type_Definition:** The MGT.PAT table contains attribute information for the vector polygons representing boundaries of management areas. Note that all attribute information is stored in a series of relational files, described below. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the relationships between attribute tables in the ESI data structure.
- **Entity_Type_Definition_Source:** Research Planning, Inc.

**Attribute:**
- **Attribute_Label:** TYPE  
- **Attribute_Definition:** The human-use features depicted on the maps are those that could be impacted by an oil spill or could provide access for response operations.
- **Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**
- **Enumerated_Domain:**
  - **Enumerated_Domain_Value:** FO  
  - **Enumerated_Domain_Value_Definition:** National Forest  
  - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**
- **Enumerated_Domain:**
  - **Enumerated_Domain_Value:** P  
  - **Enumerated_Domain_Value_Definition:** Regional or State Park  
  - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.
Enumerated_Domain:
  Enumerated_Domain_Value: WR
  Enumerated_Domain_Value_Definition: Wildlife Refuge
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: ID
  Attribute_Definition: An identifier that links vector objects in the human-use data layers to records in the SOC_LUT data table. ID is a concatenation of atlas number (41), element number (11), and record number. ID values of 9999 are holes in polygons and do not contain information.
  Attribute_Definition_Source: NOAA
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 411000001
      Range_Domain_Maximum: 411100079

Attribute:
  Attribute_Label: HUNUM
  Attribute_Definition: An identifier that links directly to the SOC_DAT table. HUNUM values of 0 are holes in polygons and do not contain information.
  Attribute_Definition_Source: NOAA
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 41000001
      Range_Domain_Maximum: 41000112

Detailed_Description:

Entity_Type:
  Entity_Type_Label: SOC_LUT
  Entity_Type_Definition: The data table SOC_LUT is a lookup table that contains items necessary for linking vector objects in the human-use data layers with the SOC_DAT data table. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
  Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: HUNUM
  Attribute_Definition: An identifier that links records in the SOC_LUT data table to records in the SOC_DAT data table. HUNUM values of 0 are holes in polygons and do not contain information.
  Attribute_Definition_Source: NOAA
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 41000001
      Range_Domain_Maximum: 41000112

Attribute:
  Attribute_Label: ID
  Attribute_Definition: An identifier that links vector objects in the human-use data layers to records in the SOC_LUT data table. ID is a concatenation of atlas number (41), element number (SOCECON=10; MGT=11), and record number. ID values of 9999 are holes in polygons and do not contain information.
  Attribute_Definition_Source: NOAA
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 411000001
      Range_Domain_Maximum: 411100079
**Entity_Type_Label:** SOC_DAT  
**Entity_Type_Definition:** The data table SOC_DAT contains both human-use attribute data and items necessary for linking the human-use spatial data layers to the SOURCES data table. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.

**Entity_Type_Definition_Source:** Research Planning, Inc.

**Attribute:**  
**Attribute_Label:** HUNUM  
**Attribute_Definition:** An identifier that links records in the SOC_DAT data table to records in the SOC_LUT data table.  
**Attribute_Definition_Source:** NOAA  
**AttributeDomainValues:**  
**RangeDomain:**  
**RangeDomainMinimum:** 41000001  
**RangeDomainMaximum:** 41000112

**Attribute:**  
**Attribute_Label:** TYPE  
**Attribute_Definition:** Identifies the feature type  
**Attribute_Definition_Source:** Research Planning, Inc.  
**AttributeDomainValues:**  
**EnumeratedDomain:**  
**EnumeratedDomainValue:** AQUACULTURE  
**EnumeratedDomainValueDefinition:** Aquaculture  
**EnumeratedDomainValueDefinitionSource:** Research Planning, Inc.

**AttributeDomainValues:**  
**EnumeratedDomain:**  
**EnumeratedDomainValue:** BOAT RAMP  
**EnumeratedDomainValueDefinition:** Boat Ramp  
**EnumeratedDomainValueDefinitionSource:** Research Planning, Inc.

**AttributeDomainValues:**  
**EnumeratedDomain:**  
**EnumeratedDomainValue:** COAST GUARD  
**EnumeratedDomainValueDefinition:** Coast Guard  
**EnumeratedDomainValueDefinitionSource:** Research Planning, Inc.

**AttributeDomainValues:**  
**EnumeratedDomain:**  
**EnumeratedDomainValue:** FERRY  
**EnumeratedDomainValueDefinition:** Ferry  
**EnumeratedDomainValueDefinitionSource:** Research Planning, Inc.

**AttributeDomainValues:**  
**EnumeratedDomain:**  
**EnumeratedDomainValue:** HATCHERY  
**EnumeratedDomainValueDefinition:** Hatchery  
**EnumeratedDomainValueDefinitionSource:** Research Planning, Inc.

**AttributeDomainValues:**  
**EnumeratedDomain:**  
**EnumeratedDomainValue:** LOCK AND DAM  
**EnumeratedDomainValueDefinition:** Lock and Dam  
**EnumeratedDomainValueDefinitionSource:** Research Planning, Inc.

**AttributeDomainValues:**  
**EnumeratedDomain:**  
**EnumeratedDomainValue:** MARINA  
**EnumeratedDomainValueDefinition:** Marina  
**EnumeratedDomainValueDefinitionSource:** Research Planning, Inc.

**AttributeDomainValues:**  
**EnumeratedDomain:**  
**EnumeratedDomainValue:** NATIONAL FOREST  
**EnumeratedDomainValueDefinition:** National Forest
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: PARK
Enumerated_Domain_Value_Definition: Regional or State Park
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:

Enumerated_Domain_Value: RECREATIONAL FISHING
Enumerated_Domain_Value_Definition: Recreational Fishing
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:

Enumerated_Domain_Value: SUBSISTENCE
Enumerated_Domain_Value_Definition: Subsistence use
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:

Enumerated_Domain_Value: WATER INTAKE
Enumerated_Domain_Value_Definition: Water Intake
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:

Enumerated_Domain_Value: WILDLIFE REFUGE
Enumerated_Domain_Value_Definition: Wildlife Refuge
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:

Attribute_Label: NAME
Attribute_Definition: The feature name
Attribute_Definition_Source: Research Planning, Inc.

Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:

Attribute_Label: CONTACT
Attribute_Definition: Contact person or entity
Attribute_Definition_Source: Research Planning, Inc.

Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:

Attribute_Label: PHONE
Attribute_Definition: Contact telephone number
Attribute_Definition_Source: Research Planning, Inc.

Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:

Attribute_Label: G_SOURCE
Attribute_Definition: Geographic source identifier that links records in the SOC_DAT data table to records in the SOURCES data table.
Attribute_Definition_Source: Research Planning, Inc.

Range_Domain:
  Range_Domain_Minimum: 1
  Range_Domain_Maximum: N

Attribute:

Attribute_Label: A_SOURCE
Attribute_Definition: Attribute source identifier that links records in the SOC_DAT data table to records in the SOURCES data table.
Attribute_Definition_Source: Research Planning, Inc.
**Attribute Domain Values:**

- **Range Domain:**
  - Range Domain Minimum: 1
  - Range Domain Maximum: N

**Detailed Description:**

**Entity Type:**

- **Entity Type Label:** SOURCES
- **Entity Type Definition:**
The data table SOURCES contains the primary sources used to create the ESI data set. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
- **Entity Type Definition Source:** Research Planning, Inc.

**Attribute:**

- **Attribute Label:** SOURCE_ID
- **Attribute Definition:** Source identifier that links records in the SOURCES data table to the items G_SOURCE and A_SOURCE in the SOC_DAT table, and to G_SOURCE and S_SOURCE in the BIORES table.
- **Attribute Definition Source:** Research Planning, Inc.
- **Attribute Domain Values:**
  - Unrepresentable Domain: Acceptable values change from atlas to atlas

**Attribute:**

- **Attribute Label:** ORIGINATOR
- **Attribute Definition:** Author or developer of source material or data set
- **Attribute Definition Source:** Research Planning, Inc.
- **Attribute Domain Values:**
  - Unrepresentable Domain: Acceptable values change from atlas to atlas

**Attribute:**

- **Attribute Label:** DATE_PUB
- **Attribute Definition:** Date of source material, publication, or date of personal communication with expert source
- **Attribute Definition Source:** Research Planning, Inc.
- **Attribute Domain Values:**
  - Enumerated Domain: YYYYMM
  - Enumerated Domain Value: YYYY for year and optionally MM for month
  - Enumerated Domain Value Definition: YYYY for year and optionally MM for month
  - Enumerated Domain Value Definition Source: Research Planning, Inc.

**Attribute:**

- **Attribute Label:** TITLE
- **Attribute Definition:** Title of source material or data
- **Attribute Definition Source:** Research Planning, Inc.
- **Attribute Domain Values:**
  - Unrepresentable Domain: Acceptable values change from atlas to atlas

**Attribute:**

- **Attribute Label:** DATA_FORMAT
- **Attribute Definition:** The format of the source material
- **Attribute Definition Source:** Research Planning, Inc.
- **Attribute Domain Values:**
  - Unrepresentable Domain: Acceptable values change from atlas to atlas

**Attribute:**

- **Attribute Label:** PUBLICATION
- **Attribute Definition:** Additional citation information
- **Attribute Definition Source:** Research Planning, Inc.
- **Attribute Domain Values:**
  - Unrepresentable Domain: Acceptable values change from atlas to atlas
Attribute:
  Attribute_Label: SCALE
  Attribute_Definition: Scale denominator of the source
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: integer
      Enumerated_Domain_Value_Definition: Any integer
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: TIME_PERIOD
  Attribute_Definition: Date(s) of data collection that the source material is based upon.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: MM/DD/YY
      Enumerated_Domain_Value_Definition: Month/Day/Year
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain:
      Enumerated_Domain_Value: MM/YYYY
      Enumerated_Domain_Value_Definition: Month/Year
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain:
      Enumerated_Domain_Value: UNKNOWN
      Enumerated_Domain_Value_Definition: Date information unknown
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Distribution_Information:
  Distributor:
  Contact_Information:
    Contact_Person_Primary:
      Contact_Person: John Kaperick
      Contact_Organization: NOAA, Office of Response and Restoration
  Contact_Address:
    Address_Type: Physical Address
    Address: 7600 Sand Point Way N.E.
    City: Seattle
    State_or_Province: Washington
    Postal_Code: 98115-6349
    Contact_Voice_Telephone: (206) 526-6400
    Contact_Facsimile_Telephone: (206) 526-6329
  Resource_Description: ESI Atlas for Columbia River

Distribution_Liability:
  Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement copy of the product when the product is determined unreadable by computer-input peripherals, or when the physical medium is delivered in damaged condition.

Custom_Order_Process:
  Contact NOAA for distribution options (see Distributor). ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the distribution CDs for ease of use of the ESI data. The database files are distributed both in the NOAA standard relational database format (see NOAA
Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats.

**Metadata Reference Information:**
- **Metadata Date:** 200411
- **Metadata Review Date:** 200411
- **Contact Information:**
  - **Contact Person Primary:** Jill Petersen
  - **Contact Organization:** NOAA, Office of Response and Restoration
  - **Contact Position:** GIS Manager
  - **Contact Address:**
    - **Address Type:** Physical Address
    - **Address:** 7600 Sand Point Way N.E.
    - **City:** Seattle
    - **State or Province:** Washington
    - **Postal Code:** 98115-6349
  - **Contact Voice Telephone:** (206) 526-6944
  - **Contact Facsimile Telephone:** (206) 526-6329
  - **Contact Electronic Mail Address:** Jill.Petersen@noaa.gov
- **Metadata Standard Name:** Content Standards for Digital Geospatial Metadata
- **Metadata Standard Version:** FGDC-STD-001-1998

Generated by mp version 2.8.2 on Fri Dec 10 12:55:49 2004
Columbia River ESI: SOCECON (Socioeconomic Resource Points and Lines)

Metadata also available as - [Parseable text] - [SGML]

Metadata:

- Identification Information
- Data Quality Information
- Spatial Data Organization Information
- Spatial Reference Information
- Entity and Attribute Information
- Distribution Information
- Metadata Reference Information

Identification Information:

Citation:

Originator:

Publication Date: 200411

Title: Columbia River ESI: SOCECON (Socioeconomic Resource Points and Lines)

Edition: First

Geospatial Data Presentation Form: Vector digital data

Series Information:

Series Name: None

Issue Identification: Columbia River

Publication Information:

Publication Place: Seattle, Washington

Publisher:

Other Citation Details:


Description:

Abstract:

This data set contains vector points and lines representing human-use resource data for Columbia River. In the data set, vector points represent aquaculture sites, boat ramps, coast guard stations, ferry sites, hatchery sites, locks and dams, marinas, recreational fishing sites, subsistence sites, and water intakes. Vector lines represent roads, bridges, and state borders. Location-specific type and source information are stored in relational data tables (described below) designed to be used in conjunction with this spatial data layer.

This data set comprises a portion of the Environmental Sensitivity Index (ESI) data for Columbia River. ESI data characterize the marine and coastal environments and wildlife by...
their sensitivity to spilled oil. The ESI data include information for three main components: shoreline habitats, sensitive biological resources, and human-use resources. See also the MGT (Management Area Polygons) data layer, part of the larger Columbia River ESI database, for additional human-use information.

**Purpose:**

The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response. The Clean Water Act with amendments by the Oil Pollution Act of 1990 requires response plans for immediate and effective protection of sensitive resources.

**Time_Period_of_Content:**

**Time_Period_Information:**

- **Range_of_Dates/Times:**
  - **Beginning_Date:** 2000
  - **Ending_Date:** 2004

**Currentness_Reference:**

The SOCECON data were compiled during 2003-2004. The currentness dates for the data range from 2000 to 2004 and are documented in the Lineage section.

**Status:**

**Progress:** Complete

**Maintenance_and_Update_Frequency:** None Scheduled

**Spatial_Domain:**

**Bounding_Coordinates:**

- **West_BoundingCoordinate:** -124.125
- **East_BoundingCoordinate:** -120.67375
- **North_BoundingCoordinate:** 46.375
- **South_BoundingCoordinate:** 45.3

**Keywords:**

**Theme:**

- **Theme_Keyword_Thesaurus:** None
- **Theme_Keyword:** ESI
- **Theme_Keyword:** Sensitivity maps
- **Theme_Keyword:** Coastal resources
- **Theme_Keyword:** Oil spill planning
- **Theme_Keyword:** Coastal Zone Management
- **Theme_Keyword:** Wildlife
- **Theme_Keyword:** Socioeconomic Resources
- **Theme_Keyword:** Human Use Resources

**Place:**

- **Place_Keyword_Thesaurus:** None
- **Place_Keyword:** Columbia River

**Access_Constraints:** None

**Use_Constraints:**

DO NOT USE MAPS FOR NAVIGATIONAL PURPOSES. Besides the above warning, there are no use constraints on these data. Note that the ESI database should not be used to the exclusion of other pertinent data or information held by state or federal agencies or other organizations. Likewise, information contained in the database cannot be used in place of consultations with environmental, natural resource, and cultural resource agencies, or in place of field surveys. Recognize that the information contained in the ESI database represents known concentration areas or occurrences of natural, cultural, and human-use resources, but does not necessarily represent the full distribution or range of each species or resource. This is particularly important to recognize when considering potential impacts to protected resources, such as endangered species, wetlands, etc. Acknowledgment of the originators, publishers, contributors, and sources listed would be appreciated in products derived from these data.

**Browse_Graphic:**

**Browse_Graphic_File_Name:** datafig.jpg
**Browse_Graphic_File_Description:** Depicts the relationships between spatial data layers and attribute data tables for the Columbia River ESI data.
**Browse_Graphic_File_Type:** JPEG

**Data_Set_Credit:**

This project was supported by the National Oceanic and Atmospheric Administration (NOAA),

Native_Data_Set_Environment:
The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 8.3) and SQL SERVER(r) (version 7.0). The hardware configuration is PC's with Windows Operating System (NT4.0/2000).

The Spatial_Data_Organization_Information section refers only to the source files in the ARC export format. The following files are included in that data set: birds.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mammal.e00, m_mampt.e00, mgt.e00, nests.e00, nwi.e00, reptiles.e00, socecon.e00, t_mammal.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biore, breed, breed_dt, runs_dat, seasonal, soc_dat, soc_lut, sources, species, and status.

Data_Quality_Information:

Attribute_Accuracy:
Attribute_Accuracy_Report:
A multi-stage error checking process is used to verify both attribute accuracy and logical consistency throughout data production. The process includes a standardized data entry methodology, hardcopy data review by in-house and external resource experts, a final Quality Assurance/Quality Control (QA/QC) process, and multiple automated logical consistency checks. Quantitative data (such as densities, counts, abundances, or concentrations) provided by resource experts for inclusion in the data set may vary widely in attribute accuracy, depending upon the methodology used to collect and compile such data. For a more detailed evaluation of source data attribute accuracy, contact the sources listed in the Lineage section.

Logical_Consistency_Report:
A multi-stage error checking process, described in the above Attribute_Accuracy_Report, is used to verify both attribute accuracy and logical consistency throughout data production. This process includes multiple automated logical consistency checks that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and SQL SERVER(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where the data are written to CD-ROM and the metadata are written.

After the data are delivered to NOAA, they are again subjected to a number of quality and consistency checks. In the process of checking for topological and database consistencies, new ID's and RARNUM's or HUNUM's are also generated. The new ID's are a combination of atlas number, element number, and record number. In addition, the value used to represent the element is modified to reflect the type of feature being mapped. In the case of an element that is normally represented by a point or polygon, a value of 20 is added to the standard element value for mapping of linear features. In the case where an element usually mapped as a polygon is represented by a point, a value of 30 is added to the regular element value. The RARNUM's are also modified to include the atlas number, so “resource at risk” groupings will contain only a single element. HUNUM's are also modified to include the atlas number.

Completeness_Report:
These data represent a synthesis of expert knowledge and available hardcopy reports and digital data on socioeconomic resources. These data do not necessarily represent all human-use sites in the Columbia River area. See also the MGT (Management Area Polygons) data layer, part of the larger Columbia River ESI database, for additional human-use information.

Positional_Accuracy:
Horizontal_Positional_Accuracy:
Horizontal_Positional_Accuracy_Report:
The spatial components of the SOCECON data set were developed from pre-existing digital and hardcopy sources and regional expert knowledge. It is difficult to estimate the positional accuracy of such data, except to state that hardcopy data were compiled on base maps with a scale of 1:24,000. See the Lineage and Process_Description sections for more information on the original data.
Lineage:

Source Information:
Citation Information:
Originator: North, J., Oregon Department of Fish and Wildlife (ODFW)
Publication Date: 200402
Title: Fish, Bird, and Mammal Distributions along the Columbia River
Geospatial Data Presentation Form: Expert knowledge
Publication Information:
Publication Place: Unpublished material
Publisher: Unpublished material
Type of Source Media: Personal communication
Source Time Period of Content:
Time Period Information:
Single Date/Time:
Calendar Date: 200402
Source Currentness Reference: Date of communication
Source Citation Abbreviation: None
Source Contribution: Location of aquaculture sites and fish hatcheries

Source Information:
Citation Information:
Originator: Pribyl, S., Oregon Department of Fish and Wildlife (ODFW)
Publication Date: 200401
Title: Fish Distribution in the Columbia River
Geospatial Data Presentation Form: Expert knowledge
Publication Information:
Publication Place: Unpublished material
Publisher: Unpublished material
Type of Source Media: Personal communication
Source Time Period of Content:
Time Period Information:
Single Date/Time:
Calendar Date: 200401
Source Currentness Reference: Date of communication
Source Citation Abbreviation: None
Source Contribution: Location of aquaculture and recreational fishing sites, boat ramps, and marinas

Source Information:
Citation Information:
Originator: Meyer, B., National Oceanic and Atmospheric Administration (NOAA)
Publication Date: 200402
Title: Fish, Bird, Mammal, and Plant Distributions in the Lower Columbia River
Geospatial Data Presentation Form: Expert Knowledge
Publication Information:
Publication Place: Unpublished material
Publisher: Unpublished material
Type of Source Media: Personal communication
Source Time Period of Content:
Time Period Information:
Single Date/Time:
Calendar Date: 200402
Source Currentness Reference: Date of communication
Source Citation Abbreviation: None
Source_Contribution:
Location of aquaculture and recreational fishing sites, fish hatcheries, boat ramps, marinas, and Coast Guard stations

Source_Information:
Source_Citation:
Citation_Information:
Originator: Anderson, E., U.S. Fish and Wildlife Service (USFWS)
Publication_Date: 200401
Title: Distribution of Wildlife on the Lower Columbia River
Geospatial_Data_Presentation_Form: Expert Knowledge
Publication_Information:
Publication_Date: Unpublished material
Publisher: Unpublished material

Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 200401
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Location of boat ramps, marinas, and water intakes

Source_Information:
Source_Citation:
Citation_Information:
Originator: Clark, A., U.S. Fish and Wildlife Service (USFWS)
Publication_Date: 200402
Title: Distribution of Fish, Birds, Plants, and Mammals in the Columbia River
Geospatial_Data_Presentation_Form: Expert Knowledge
Publication_Information:
Publication_Date: Unpublished material
Publisher: Unpublished material

Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 200402
Source_Currentness_Reference: Publication date
Source_Citation_Abbreviation: None
Source_Contribution: Location of aquaculture sites, boat ramps, marinas, ferries, locks and dams, and subsistence sites

Source_Information:
Source_Citation:
Citation_Information:
Originator: Peterson, D., Washington Parks and Recreation Commission
Publication_Date: 2004
Title: Washington State Parks
Geospatial_Data_Presentation_Form: Vector digital data
Publication_Information:
Publication_Date: Unpublished material
Publisher: Unpublished material

Source_Scale_Denominator: Unknown
Type_of_Source_Media: CD-ROM
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 2004
Source_Currentness_Reference: Publication date
Source_Citation_Abbreviation: None
Source_Contribution: Location of boat ramps

Source_Information:
  Citation_Information:
    Originator: Nebeker, M., Oregon Department of Fish and Wildlife (ODFW)
    Publication_Date: 200402
    Title: Distribution of Wildlife on Sauvie Island and Surrounding Areas
    Geospatial_Data_Presentation_Form: Expert Knowledge
    Publication_Information:
      Publication_Place: Unpublished material
      Publisher: Unpublished material

Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:
  Time_Period_Information:
    Single_Date/Time:
      Calendar_Date: 200402
Source_Currentness_Reference: Date of communication

Source_Citation_Abbreviation: None
Source_Contribution: Sauvie Island boat ramps and water intakes

Source_Information:
  Citation_Information:
    Originator: Washington Department of Fish and Wildlife
    Publication_Date: 200012
    Title: Hatcheries and Facilities on the Columbia River
    Geospatial_Data_Presentation_Form: Vector digital data
    Publication_Information:
      Publication_Place: Seattle, Washington
      Publisher: Washington Department of Fish and Wildlife

Source_Scale_Denominator: 100,000
Type_of_Source_Media: CD-ROM
Source_Time_Period_of_Content:
  Time_Period_Information:
    Single_Date/Time:
      Calendar_Date: 200012
Source_Currentness_Reference: Publication date

Source_Citation_Abbreviation: None
Source_Contribution: Location of fish hatcheries

Source_Information:
  Citation_Information:
    Originator: Colin Plank, Research Planning, Inc.
    Publication_Date: Unpublished material
    Title: ESI Overflight
    Geospatial_Data_Presentation_Form: Map
    Publication_Information:
      Publication_Place: Unpublished material
      Publisher: Unpublished material

Source_Scale_Denominator: 24000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:
  Time_Period_Information:
    Single_Date/Time:
      Calendar_Date: 200310
Source_Currentness_Reference: Date of overflight

Source_Citation_Abbreviation: None
Source_Contribution: Location of boat ramps and locks and dams

Source_Information:
Four main sources of data were used to depict human-use resources for this data layer: (1) personal interviews with resource experts from the Oregon Department of Fish and Wildlife (ODFW), U.S. Fish and Wildlife Service (USFWS), and National Oceanographic and Atmospheric Administration (NOAA); (2) Washington Department of Fish and Wildlife (WDFW) StreamNet data; (3) Washington State Parks and Recreation digital data; and (4) numerous published and unpublished reports. Hardcopy data and local knowledge data were digitized off of 1:24,000 scale basemaps. Resource agencies confirmed the accuracy of the boundaries during review.

Process_Date: 200408

Contact_Organization_Primary:
  Contact_Organization: NOAA, Office of Response and Restoration
  Contact_Person: Jill Petersen

Contact_Address:
  Address_Type: Physical address
  Address: 7600 Sand Point Way N.E.
  City: Seattle
  State_or_Province: Washington
  Postal_Code: 98115-6349

Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: Jill.Petersen@noaa.gov

SDTS_Point_and_Vector_Object_Type:
  Entity Point
  Point_and_Vector_Object_Count: 119

SDTS_Point_and_Vector_Object_Type:
  Complete chain
  Point_and_Vector_Object_Count: 114

SDTS_Point_and_Vector_Object_Type:
  Link
  Point_and_Vector_Object_Count: 1300
**SDTS_Terms_Description:**

**SDTS_Point_and_Vector_Object_Type:** Node, planar graph

**Point_and_Vector_Object_Count:** 193

**Spatial_Reference_Information:**

**Horizontal_Coordinate_System_Definition:**

*Geographic:*
- **Latitude_Resolution:** 0.0000001
- **Longitude_Resolution:** 0.0000001
- **Geographic_Coordinate_Units:** Decimal degrees

*Geodetic_Model:*
- **Horizontal_Datum_Name:** North American Datum of 1927
- **Ellipsoid_Name:** Clark 1866
- **Semi-major_Axis:** 6378206.4
- **Denominator_of_Flattening_Ratio:** 294.978698

**Entity_and_Attribute_Information:**

**Overview_Description:**

In addition to the geographic data layers, two relational attribute or data tables, SOC_DAT, and SOURCES, are used to store the complex socioeconomic data in the ESI data structure. The geographic data layer containing socioeconomic data resource information (in this case, SOCECON) is linked to the Socioeconomic Resources table (SOC_DAT) using the unique ID and the lookup table SOC_LUT, or it can be linked directly using HUNUM. HUNUM is a unique reference number concatenated with the atlas number (the Columbia River atlas number is 41). ID is a unique combination of the atlas number (41), an element specific number (SOCECON = 10), and a unique record number. SOC_DAT and the other relational data tables are described below in detail. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way these tables relate to the geographic data layers and other attribute tables in the ESI data structure.

**Detailed_Description:**

**Entity_Type:**

*Entity_Type_Label:* SOCECON.AAT

*Entity_Type_Definition:*

The SOCECON.AAT table contains attribute information for the vector lines representing roads, state boundaries, and bridges. Note that all attribute information is stored in a series of relational files, described below. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the relationships between attribute tables in the ESI data structure.

*Entity_Type_Definition_Source:* Research Planning, Inc.

**Attribute:**

*Attribute_Label:* TYPE

*Attribute_Definition:*

The human-use features depicted on the maps are those that could be impacted by an oil spill or could provide access for response operations.

*Attribute_Definition_Source:* Research Planning, Inc.

**Attribute_Domain_Values:**

*Enumerated_Domain:

- **Enumerated_Domain_Value:** R
- **Enumerated_Domain_Value_Definition:** Road, Transportation, or Bridge
- **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

*Enumerated_Domain:

- **Enumerated_Domain_Value:** SB
- **Enumerated_Domain_Value_Definition:** State Border
- **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.
**Detailed_Description:**

**Entity_Type:**

**Entity_Type_Label:** SOCECON.PAT

**Entity_Type_Definition:**
The SOCECON.PAT table contains attribute information for the vector points representing aquaculture sites, boat ramps, coast guard stations, ferry sites, hatchery sites, locks and dams, marinas, recreational fishing sites, subsistence locations, and water intakes. Note that all attribute information is stored in a series of relational files, described below. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the relationships between attribute tables in the ESI data structure.

**Entity_Type_Definition_Source:** Research Planning, Inc.

**Attribute:**

**Attribute_Label:** TYPE

**Attribute_Definition:**
The human-use features depicted on the maps are those that could be impacted by an oil spill or could provide access for response operations.

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

- **Enumerated_Domain:**
  - **Enumerated_Domain_Value:** AQ
    - **Enumerated_Domain_Value_Definition:** Aquaculture
    - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.
  - **Enumerated_Domain_Value:** BR
    - **Enumerated_Domain_Value_Definition:** Boat Ramp
    - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.
  - **Enumerated_Domain_Value:** CG
    - **Enumerated_Domain_Value_Definition:** Coast Guard
    - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.
  - **Enumerated_Domain_Value:** F
    - **Enumerated_Domain_Value_Definition:** Ferry
    - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.
  - **Enumerated_Domain_Value:** HA
    - **Enumerated_Domain_Value_Definition:** Hatchery
    - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.
  - **Enumerated_Domain_Value:** LD
    - **Enumerated_Domain_Value_Definition:** Lock and Dam
    - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.
  - **Enumerated_Domain_Value:** M
    - **Enumerated_Domain_Value_Definition:** Marina
    - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.
  - **Enumerated_Domain_Value:** RF
    - **Enumerated_Domain_Value_Definition:** Recreational Fishing
    - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

- **Enumerated_Domain:**

**Attribute_Domain_Values:**

- **Enumerated_Domain:**

Page: 9
Enumerate_Domain_Value: S
Enumerated_Domain_Value_Definition: Subsistence use
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: WI
Enumerated_Domain_Value_Definition: Water Intake
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: ID
Attribute_Definition: An identifier that links vector objects in the human-use data layers to records in the SOC_LUT data table. ID is a concatenation of atlas number (41), element number (10), and record number.
Attribute_Definition_Source: NOAA
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 411000001
Range_Domain_Maximum: 411000119

Attribute:
Attribute_Label: HUNUM
Attribute_Definition: An identifier that links directly to the SOC_DAT table.
Attribute_Definition_Source: NOAA
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 41000001
Range_Domain_Maximum: 41000104

Detailed_Description:
Entity_Type:
Entity_Type_Label: SOC_LUT
Entity_Type_Definition: The data table SOC_LUT is a lookup table that contains items necessary for linking vector objects in the human-use data layers with the SOC_DAT data table. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
Attribute_Label: HUNUM
Attribute_Definition: An identifier that links records in the SOC_LUT data table to records in the SOC_DAT data table. HUNUM values of 0 are holes in polygons and do not contain information.
Attribute_Definition_Source: NOAA
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 41000001
Range_Domain_Maximum: 41000112

Attribute:
Attribute_Label: ID
Attribute_Definition: An identifier that links vector objects in the human-use data layers to records in the SOC_LUT data table. ID is a concatenation of atlas number (41), element number (SOCECON=10; MGT=11), and record number. ID values of 9999 are holes in polygons and do not contain information.
Attribute_Definition_Source: NOAA
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 411000001
Range_Domain_Maximum: 411000079

Detailed_Description:
Entity_Type:
  Entity_Type_Label: SOC_DAT
  Entity_Type_Definition:
  The data table SOC_DAT contains both human-use attribute data and items
  necessary for linking the human-use spatial data layers to the SOURCES data table.
  See the Browse_Graphic section for a link to the entity-relationship diagram, which
  describes the way this table relates to other attribute tables in the ESI data structure.
  Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: HUNUM
  Attribute_Definition:
  An identifier that links records in the SOC_DAT data table to records in the
  SOC_LUT data table.
  Attribute_Definition_Source: NOAA
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 41000001
      Range_Domain_Maximum: 41000112

Attribute:
  Attribute_Label: TYPE
  Attribute_Definition:
  Identifies the feature type
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: AQUACULTURE
        Enumerated_Domain_Value_Definition: Aquaculture
        Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain:
      Enumerated_Domain_Value: BOAT RAMP
        Enumerated_Domain_Value_Definition: Boat Ramp
        Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain:
      Enumerated_Domain_Value: COAST GUARD
        Enumerated_Domain_Value_Definition: Coast Guard
        Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain:
      Enumerated_Domain_Value: FERRY
        Enumerated_Domain_Value_Definition: Ferry
        Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain:
      Enumerated_Domain_Value: HATCHERY
        Enumerated_Domain_Value_Definition: Hatchery
        Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain:
      Enumerated_Domain_Value: LOCK AND DAM
        Enumerated_Domain_Value_Definition: Lock and Dam
        Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain:
      Enumerated_Domain_Value: MARINA
        Enumerated_Domain_Value_Definition: Marina
        Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain:
      Enumerated_Domain_Value: NATIONAL FOREST
Enumerated_Domain_Value_Definition: National Forest  
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute Domain Values:
 enumerated_Domain:  
 Enumerated_Domain_Value: PARK  
 Enumerated_Domain_Value_Definition: Regional or State Park  
 Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute Domain Values:
 enumerated_Domain:  
 Enumerated_Domain_Value: RECREATIONAL FISHING  
 Enumerated_Domain_Value_Definition: Recreational Fishing  
 Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute Domain Values:
 enumerated_Domain:  
 Enumerated_Domain_Value: SUBSISTENCE  
 Enumerated_Domain_Value_Definition: Subsistence use  
 Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute Domain Values:
 enumerated_Domain:  
 Enumerated_Domain_Value: WATER INTAKE  
 Enumerated_Domain_Value_Definition: Water Intake  
 Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute Domain Values:
 enumerated_Domain:  
 Enumerated_Domain_Value: WILDLIFE REFUGE  
 Enumerated_Domain_Value_Definition: Wildlife Refuge  
 Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
 Attribute_Label: NAME  
 Attribute_Definition: The feature name  
 Attribute_Definition_Source: Research Planning, Inc.

Attribute Domain Values:
 Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
 Attribute_Label: CONTACT  
 Attribute_Definition: Contact person or entity  
 Attribute_Definition_Source: Research Planning, Inc.

Attribute Domain Values:
 Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
 Attribute_Label: PHONE  
 Attribute_Definition: Contact telephone number  
 Attribute_Definition_Source: Research Planning, Inc.

Attribute Domain Values:
 Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
 Attribute_Label: G_SOURCE  
 Attribute_Definition: Geographic source identifier that links records in the SOC_DAT data table to records in the SOURCES data table.

Attribute_Definition_Source: Research Planning, Inc.

Attribute Domain Values:
 Range_Domain:  
 Range_Domain_Minimum: 1  
 Range_Domain_Maximum: N

Attribute:
 Attribute_Label: A_SOURCE  
 Attribute_Definition: Attribute source identifier that links records in the SOC_DAT data table to records in the SOURCES data table.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Range_Domain:
    Range_Domain_Minimum: 1
    Range_Domain_Maximum: N

Detailed_Description:
Entity_Type:
  Entity_Type_Label: SOURCES
  Entity_Type_Definition:
The data table SOURCES contains the primary sources used to create the ESI data set. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way this table relates to other attribute tables in the ESI data structure.
  Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: SOURCE_ID
  Attribute_Definition:
    Source identifier that links records in the SOURCES data table to the items G_SOURCE and A_SOURCE in the SOC_DAT table, and to G_SOURCE and S_SOURCE in the BIORES table.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 1
      Range_Domain_Maximum: N

Attribute:
  Attribute_Label: ORIGINATOR
  Attribute_Definition:
    Author or developer of source material or data set
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
  Attribute_Label: DATE_PUB
  Attribute_Definition:
    Date of source material, publication, or date of personal communication with expert source
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: YYYYMM
      Enumerated_Domain_Value_Definition: YYYY for year and optionally MM for month
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: TITLE
  Attribute_Definition:
    Title of source material or data
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
  Attribute_Label: DATA_FORMAT
  Attribute_Definition:
    The format of the source material
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
  Attribute_Label: PUBLICATION
  Attribute_Definition:
    Additional citation information
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
Unrepresentable_Domain: Acceptable values change from atlas to atlas

Attribute:
  Attribute_Label: SCALE
  Attribute_Definition: Scale denominator of the source
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: integer
      Enumerated_Domain_Value_Definition: Any integer
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute:
  Attribute_Label: TIME_PERIOD
  Attribute_Definition: Date(s) of data collection that the source material is based upon.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: MM/DD/YY
      Enumerated_Domain_Value_Definition: Month/Day/Year
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain:
      Enumerated_Domain_Value: MM/YYYY
      Enumerated_Domain_Value_Definition: Month/Year
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Enumerated_Domain:
      Enumerated_Domain_Value: UNKNOWN
      Enumerated_Domain_Value_Definition: Date information unknown
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Distribution_Information:
  Distributor:
    Contact_Information:
      Contact_Person_Primary:
        Contact_Person: John Kaperick
        Contact_Organization: NOAA, Office of Response and Restoration
    Contact_Address:
      Address_Type: Physical Address
      Address: 7600 Sand Point Way N.E.
      City: Seattle
      State_or_Province: Washington
      Postal_Code: 98115-6349
      Contact_Voice_Telephone: (206) 526-6400
      Contact_Facsimile_Telephone: (206) 526-6329

Resource_Description: ESI Atlas for Columbia River

Distribution_Liability:
  Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement copy of the product when the product is determined unreadable by computer-input peripherals, or when the physical medium is delivered in damaged condition.

Custom_Order_Process:
  Contact NOAA for distribution options (see Distributor). ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the distribution CDs for ease of use of the ESI data.
The database files are distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats.

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**Metadata Reference Information:**
- **Metadata Date:** 200411
- **Metadata Review Date:** 200411
- **Metadata Contact:**
  - **Contact Information:**
    - **Contact Person Primary:** Jill Petersen
    - **Contact Organization:** NOAA, Office of Response and Restoration
    - **Contact Position:** GIS Manager
  - **Contact Address:**
    - **Address Type:** Physical Address
    - **Address:** 7600 Sand Point Way, N.E.
    - **City:** Seattle
    - **State or Province:** Washington
    - **Postal Code:** 98115-6349
    - **Contact Voice Telephone:** (206) 526-6944
    - **Contact Facsimile Telephone:** (206) 526-6329
    - **Contact Electronic Mail Address:** Jill.Petersen@noaa.gov
- **Metadata Standard Name:** Content Standards for Digital Geospatial Metadata
- **Metadata Standard Version:** FGDC-STD-001-1998
Columbia River ESI Entity Relationship Diagram

Relationships between spatial data layers and attribute data tables

**Geographic Themes**

**ESI (LINES)**
- ESI (10, 10, C)
- LINE (1, 1, C)
- SOURCE_ID (6, 6, I)
- ENVIR (1, 1, C)

**ESI (POLYS)**
- ESI (10, 10, C)
- WATER_CODE (1, 1, C)
- ENVIR (1, 1, C)

**HYDRO (LINES)**
- LINE (1, 1, C)
- SOURCE_ID (6, 6, I)

**HYDRO (POLYS)**
- WATER_CODE (1, 1, C)
- INDEX (POLYS)
- TILE-NAME (32, 32, C)
- TOPO-NAME (255, 255, C)
- SCALE (7, 7, I)
- MAPANGLE (4, 8, F, 3)
- PAGESIZE (11, 11, C)
- NWI (POLYS)
- ESI (10, 10, C)

**MGT (POLYS)**
- TYPE (2, 2, C)
- ID (10, 10, I)
- HUNUM (9, 9, I)

**BIRDS (POLYS)**
- ID (10, 10, I)
- RARNUM (9, 9, I)

**FISH (POLYS)**
- ID (10, 10, I)
- RARNUM (9, 9, I)

**FISHL (LINES)**
- ID (10, 10, I)
- RARNUM (9, 9, I)

**HABITATS (POLYS)**
- ID (10, 10, I)
- RARNUM (9, 9, I)

**INVERT (POLYS)**
- ID (10, 10, I)
- RARNUM (9, 9, I)

**M_MAMMAL (POLYS)**
- ID (10, 10, I)
- RARNUM (9, 9, I)

**M_MAMPT (POINTS)**
- ID (10, 10, I)
- RARNUM (9, 9, I)

**NESTS (POINTS)**
- ID (10, 10, I)
- RARNUM (9, 9, I)

**REPTILES (POLYS)**
- ID (10, 10, I)
- RARNUM (9, 9, I)

**M_MAMMAL (POLYS)**
- ID (10, 10, I)
- RARNUM (9, 9, I)

**BIO_LUT**
- RARNUM (9, 9, I)
- ID (10, 10, I)

**SOC_LUT**
- HUNUM (9, 9, I)
- ID (10, 10, I)

(The SOC_LUT table can be bypassed by linking the human-use tables to SOC_DAT using HUNUM.)

**SOC_DAT**
- HUNUM (9, 9, I)
- TYPE (20, 20, C)
- NAME (40, 40, C)
- CONTACT (80, 80, C)
- PHONE (20, 20, C)
- G_SOURCE (6, 6, I)
- A_SOURCE (6, 6, I)

**BIORES**
- RARNUM (9, 9, I)
- SPECIES_ID (5, 5, I)
- CONC (20, 20, C)
- SEASON_ID (2, 2, I)
- G_SOURCE (6, 6, I)
- S_SOURCE (6, 6, I)
- ELEMENT (10, 10, C)
- EL_SPE (6, 6, C)
- EL_SPE_SEA (8, 8, C)

**RUNS_DAT**
- EL_SPE (6, 6, C)
- SPECIES (40, 40, C)
- RUN (40, 40, C)
- OR (5, 5, C)
- WA (5, 5, C)
- FEDERAL (5, 5, C)
- ESA_YEAR (4, 4, N)

**SOC_LUT**
- HUNUM (9, 9, I)
- ID (10, 10, I)

(The SOC_LUT table can be bypassed by linking the human-use tables to SOC_DAT using HUNUM.)

**SOC_LUT**
- HUNUM (9, 9, I)
- ID (10, 10, I)

**SOURCES**
- SOURCE_ID (6, 6, I)
- ORIGINATOR (35, 35, C)
- DATE_PUB (10, 10, I)
- TITLE (80, 80, C)
- DATA_FORMAT (80, 80, C)
- PUBLICATION (120, 120, C)
- SCALE (20, 20, C)
- TIME_PERIOD (22, 22, C)

**SPECIES**
- SPECIES_ID (5, 5, I)
- NAME (35, 35, C)
- GEN_SPEC (45, 45, C)
- ELEMENT (10, 10, C)
- SUBELEMENT (10, 10, C)
- NHP (10, 10, C)
- DATE_PUB (10, 10, I)
- EL_SPE (6, 6, C)

**SEASONAL**
- ELEMENT (10, 10, C)
- SPECIES_ID (5, 5, I)
- SEASON_ID (2, 2, I)
- JAN (1, 1, C)
- FEB (1, 1, C)
- MAR (1, 1, C)
- APR (1, 1, C)
- MAY (1, 1, C)
- JUN (1, 1, C)
- JUL (1, 1, C)
- AUG (1, 1, C)
- SEP (1, 1, C)
- OCT (1, 1, C)
- NOV (1, 1, C)
- DEC (1, 1, C)

**BREED**
- EL_SPE_SEA (8, 8, C)

**STATUS**
- ELEMENT (10, 10, C)
- SPECIES_ID (5, 5, I)
- STATE (2, 2, C)
- S (1, 1, C)
- F (1, 1, C)
- STATE (2, 2, C)
- S_DATE (10, 10, I)
- F_DATE (10, 10, I)
- EL_SPE (6, 6, C)