Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Puget Sound and Strait of Juan de Fuca, Washington: 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:

Originator:

Publication_Date: 200607

Title:
Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Puget Sound and Strait of Juan de Fuca, Washington: HYDRO (Hydrography Lines and Polygons)

Edition: First

Geospatial_Data_Presentation_Form: Vector digital data

Series_Information:
Series_Name: None
Issue_Identification: Puget Sound and Strait of Juan de Fuca, Washington

Publication_Information:
Publication_Date: Seattle, Washington

Publisher:

Other_Citation_Details:
Funding was provided by Navy Region Northwest. This data set was prepared by Concurrent Technologies Corporation, Bremerton, Washington, and Sound GIS, Seattle, Washington with support from Research Planning, Inc., Columbia, South Carolina, for the National Oceanic and Atmospheric Administration (NOAA),

Description:

Abstract:
This data set contains vector lines and polygons representing coastal hydrography used in the creation of the Environmental Sensitivity Index (ESI) for Puget Sound and Strait of Juan de Fuca, Washington. 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 for geographic features, SOC for socioeconomic features, and HYDRO for water features.

This data set comprises a portion of the ESI data for Puget Sound and Strait of Juan de Fuca, Washington. ESI data characterize the marine and coastal environments and wildlife by their sensitivity to spilled oil. The 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: 1985
  Ending_Date: 2005

Currentness_Reference:
The data were compiled during 2005-2006. The currentness dates for the data range from 1985 to 2005 and are documented in the Lineage section.

Status:
Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:
Bounding_Coordinates:
  West_Bounding_Coordinate: -124.75100
  East_Bounding_Coordinate: -122.12600
  North_Bounding_Coordinate: 49.00000
  South_Bounding_Coordinate: 47.00000

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: Puget Sound and Strait of Juan de Fuca, Washington
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 Puget Sound and Strait of Juan de Fuca, Washington ESI data.
Browse_Graphic_File_Type: JPEG

Data_Set_Credit:
This project was funded by Navy Region Northwest and was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington.

Native_Data_Set_Environment:
The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 9.1) and SQL SERVER(r) (version 2000). The hardware configuration is PC's with Windows Operating System (2000/XP/2003).

The Spatial_Data_Organization Information section refers only to the source files in the ARC export format. The following files are included in the data set: birds.e00, esi.e00, fish.e00, fishl.e00, habitatl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mampt.e00, mgt.e00, nests.e00, socecon.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biores, breed, breed_dt, 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 linear and polygonal hydrography for Puget Sound and Strait of Juan de Fuca, Washington.

**Positional_Accuracy:**

**Horizontal_Positional_Accuracy:**

**Horizontal_Positional_Accuracy_Report:**

The HYDRO 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 U.S. Geological Survey (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: RESEARCH PLANNING, INC. (RPI)
Publication_Date: 2005
Title: RPI INDEX
Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
Other_Citation_Details: UNPUBLISHED
Source_Scale_Denominator: 24,000
Type_of_Source_Media: GENERATED BY RPI
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 2005
Source_Currentness_Reference: DATE OF PUBLICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: HYDRO INFORMATION

**Source_Information:**

**Source_Citation:**

**Citation_Information:**

Originator: RESEARCH PLANNING, INC. (RPI)
Publication_Date: 1985
Title: ENVIRONMENTAL SENSITIVITY INDEX MAP
Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
Other_Citation_Details: RESEARCH PLANNING, INC, COLUMBIA, SC
Source_Scale_Denominator: 24,000
Type_of_Source_Media: CD-ROM
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 1985
Source_Currentness_Reference: DATE OF PUBLICATION
Puget Sound and Strait of Juan de Fuca, Washington: HYDRO (Hydrography Lines and Polygons)

Source_Citation_Abbreviation: NONE
Source_Contribution: HYDRO INFORMATION

Source_Information:
Source_Citation:
  Citation_Information:
    Originator: U.S. GEOLOGICAL SURVEY (USGS)
    Publication_Date: 1999
    Title: 1999 DOQQ
    Geospatial_Data_Presentation_Form: RASTER DIGITAL DATA
    Other_Citation_Details: USGS
  Type_of_Source_Media: CD-ROM
  Source_Time_Period_of_Content:
    Time_Period_Information:
      Single_Date/Time:
        Calendar_Date: 1999
  Source_Currentness_Reference: DATE OF SURVEY
Source_Citation_Abbreviation: NONE
Source_Contribution: HYDRO INFORMATION

Source_Information:
Source_Citation:
  Citation_Information:
    Originator: U.S. GEOLOGICAL SURVEY (USGS)
    Publication_Date: 1994
    Title: USGS DIGITAL ORTHOPHOTO
    Geospatial_Data_Presentation_Form: RASTER DIGITAL DATA
    Other_Citation_Details: UNPUBLISHED
  Type_of_Source_Media: CD-ROM
  Source_Time_Period_of_Content:
    Time_Period_Information:
      Single_Date/Time:
        Calendar_Date: 1994
  Source_Currentness_Reference: DATE OF SURVEY
Source_Citation_Abbreviation: NONE
Source_Contribution: HYDRO INFORMATION

Source_Information:
Source_Citation:
  Citation_Information:
    Originator: U.S. GEOLOGICAL SURVEY (USGS)
    Publication_Date: VARIES
    Title: USGS DIGITAL RASTER GRAPHICS
    Geospatial_Data_Presentation_Form: RASTER DIGITAL DATA
    Other_Citation_Details: USGS, RESTON, VA.
  Source_Scale_Denominator: 24,000
  Type_of_Source_Media: CD-ROM
  Source_Time_Period_of_Content:
    Time_Period_Information:
      Single_Date/Time:
        Calendar_Date: VARIES
  Source_Currentness_Reference: DATE OF SURVEY
Source_Citation_Abbreviation: NONE
Source_Contribution: HYDRO INFORMATION

The shoreline was derived primarily from digital coastline data originating from Washington State Department of Natural Resources (DNR) and provided for the project by Concurrent Technologies Corporation (CTC). Changes in this data were digitized from U.S. Geological Survey USGS digital orthophoto quarter quadrangles (DOQQs) and USGS digital raster graphics (DRGs). In some cases, gross shoreline changes were sketched by Research Planning, Inc., based on oblique area photographs taken from 2000 to 2002.

The above digital and/or hardcopy sources were compiled to create the HYDRO data layer. Depending on the type of source data, three general approaches are used for compiling the data layer: (1) hardcopy maps are digitized at their source scale; (2) digital data layers are evaluated and used "as is" or integrated with the hardcopy data sources; and (3) overflight changes are digitized from the scanned and registered hardcopy field maps or aerial photography. After the initial shoreline classification, these data are edgematched and checked for logical consistency errors. Review maps are plotted at 1:24,000 scale for verification of polygonal and linear attributes. See the Lineage section for additional information on the type of source data for this data layer. The compiled ESI, biology, and human-use data are plotted onto hardcopy draft maps. Following the delivery of draft maps to the participating resource experts, a second set of interviews is conducted to review the maps. If necessary, edits to the HYDRO data layer are made based on the recommendations of the resource experts, and final hardcopy maps and digital data are created.

Process Date: 200605

Process Contact:

Contact Information:

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

Contact Address:
Puget Sound and Strait of Juan de Fuca, Washington: HYDRO (Hydrography Lines and Polygons)

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 chains
  Point_and_Vector_Object_Count: 508
  SDTS_Terms_Description:
  SDTS_Point_and_Vector_Object_Type: Area point
  Point_and_Vector_Object_Count: 509
  SDTS_Terms_Description:
  SDTS_Point_and_Vector_Object_Type: Complete chain
  Point_and_Vector_Object_Count: 10171
  SDTS_Terms_Description:
  SDTS_Point_and_Vector_Object_Type: Link
  Point_and_Vector_Object_Count: 203127
  SDTS_Terms_Description:
  SDTS_Point_and_Vector_Object_Type: Label Point
  Point_and_Vector_Object_Count: 329
  SDTS_Terms_Description:
  SDTS_Point_and_Vector_Object_Type: Node, planar graph
  Point_and_Vector_Object_Count: 10165

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
  Geographic:
  Latitude_Resolution: 0.000001
  Longitude_Resolution: 0.000001
  Geographic_Coordinate_Units: Decimal degrees
Geodetic_Model:
  Horizontal_Datum_Name: North American Datum of 1983
  Ellipsoid_Name: Geodetic Reference System 80
  Semi-major_Axis: 6378137.000000
  Denominator_of_Flattening_Ratio: 298.257222

Entity_and_Attribute_Information:
Overview_Description:
Entity_and_Attribute_Overview:
In addition to the geographic data layers, one relational attribute or data table, SOURCES, is used to store the source data information in the ESI data structure. The geographic data
layer containing resource information (in this case, HYDRO) is linked to the SOURCES table using the SOURCE_ID. The entity-relationship diagram describes the relationships between the attribute tables in the ESI data structure.

**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:** P
    - **Enumerated_Domain_Value_Definition:** Pier
    - **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:** Spatial data source for the data layer lines that link 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:** 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:
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.

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.

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; G_SOURCE and S_SOURCE in the BIORES table; and SOURCE_ID in the ESI, HYDRO, AND SOCECON data layers.
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: Description of the source scale.
Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Unrepresentable_Domain: Acceptable values change from atlas to atlas.

Attribute:

Attribute_Label: TIME_PERIOD
Attribute_Definition: Date(s) of data collection that the source material is based upon.
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 Puget Sound and Strait of Juan de Fuca, Washington

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 a Geodatabase; ARC export, MOSS, and Shape files; and MARPLOT map folders. An ArcMap .mxd file, an ArcView 3.x ESI project, and an 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: 200607
Metadata_Review_Date: 200607
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

Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Puget Sound and Strait of Juan de Fuca, Washington: 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:

Citation Information:
Originator:
Publication_Date: 200607
Title:
Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Puget Sound and Strait of Juan de Fuca, Washington: 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: Puget Sound and Strait of Juan de Fuca, Washington
Publication Information:
Publication_Date: Seattle, Washington
Publisher:
Other Citation Details:
Funding was provided by Navy Region Northwest. This data set was prepared by Concurrent Technologies Corporation, Bremerton, Washington, and Sound GIS, Seattle, Washington with support from Research Planning, Inc., Columbia, South
Description:

Abstract:

This data set contains vector lines and polygons representing the shoreline and coastal habitats in Puget Sound and Strait of Juan de Fuca, Washington, classified according to the Environmental Sensitivity Index (ESI) classification system. This data set comprises a portion of the ESI data for Puget Sound and Strait of Juan de Fuca. 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: 1994
Ending_Date: 2005

Currentness_Reference:

The data were compiled during 2005-2006. The currentness dates for the data range from 1994 to 2005 and are documented in the Lineage section.

Status:

Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

BoundingCoordinates:
West_Bounding_Coordinate: -124.75100
East_Bounding_Coordinate: -122.12600
North_Bounding_Coordinate: 49.00000
South_Bounding_Coordinate: 47.00000

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: Puget Sound and Strait of Juan de Fuca, Washington

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 Puget Sound and Strait of Juan de Fuca, Washington ESI data.
Browse Graphic File Type: JPEG

Data Set Credit:
This project was funded by Navy Region Northwest and was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington.

Native Data Set Environment:
The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 9.1) and SQL SERVER(r) (version 2000). The hardware configuration is PC's with Windows Operating System (2000/XP/2003).

The Spatial Data Organization Information section refers only to the source files in the ARC export format. The following files are included in the data set: birds.e00, esi.e00, fish.e00, fishl.e00, habitatl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mampt.e00, mgt.e00, nests.e00, socecon.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biores, breed, breed_dt, 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 Environmental Sensitivity Index (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 U.S. Geological Survey (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 fieldmaps. 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:

Citation Information:
Originator: RESEARCH PLANNING, INC. (RPI)
Publication Date: 2005
Title: RPI INDEX
Geospatial Data Presentation Form: VECTOR DIGITAL DATA
Other Citation Details: UNPUBLISHED
Source Scale Denominator: 24,000
Type of Source Media: GENERATED BY RPI
Source Time Period of Content:
Time Period Information:
Single Date/Time:
Calendar Date: 2005
Source Currentness Reference: DATE OF PUBLICATION
Source Citation Abbreviation: NONE
Source Contribution: ESI INFORMATION

Source Information:
Source Citation:

Citation Information:
Originator: U.S. GEOLOGICAL SURVEY (USGS)
Publication Date: 1994
Title: USGS DIGITAL ORTHOPHOTO
Geospatial Data Presentation Form: RASTER DIGITAL DATA
Other Citation Details: UNPUBLISHED
Type of Source Media: CD-ROM
Source Time Period of Content:
Time Period Information:
Single Date/Time:
Calendar Date: 1994
Source Currentness Reference: DATE OF SURVEY
Source Citation Abbreviation: NONE
Source Contribution: ESI INFORMATION
Process_Description:
Shoreline for Puget Sound was classified from oblique aerial photographs taken between 2000 and 2002 by Washington Department of Natural Resources (DNR). The classification was done on the Shorezone digital shoreline. Where appropriate, revisions to the existing shoreline were made based on the oblique aerial photos, digital raster graphics, and digital ortho quarter quads from 1990 and 1995. Where necessary, multiple habitats were described for each shoreline segment. All the work was done at 1:12,000 scale.

The above digital and/or hardcopy sources were compiled to create the ESI data layer. Depending on the type of source data, three general approaches are used for compiling the data layer: (1) hardcopy maps are digitized at their source scale; (2) digital data layers are evaluated and used "as is" or integrated with the hardcopy data sources; and (3) overflight classifications are digitized from the scanned and registered hardcopy field maps. After the initial shoreline classification, these data are edgematched and checked for logical consistency errors. Review maps are plotted at 1:24,000 scale for verification of polygonal and linear attributes. See the Lineage section for additional information on the type of source data for this data layer. The compiled ESI, biology, and human-use data are plotted onto hardcopy draft maps. Following the delivery of draft maps to the participating resource experts, a second set of interviews are conducted to review the maps. If necessary, edits to the ESI data layer are made based on the recommendations of the resource experts, and final hardcopy maps and digital data are created.

Process_Date: 200605
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_Protvince: 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 chains
      Point_and_Vector_Object_Count: 1066
Puget Sound and Strait of Juan de Fuca, Washington: ESI (Shoreline Types - Lines and Polygons)

Point and Vector Object Count: 1067

SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Complete chain
Point_and_Vector_Object_Count: 10698

SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Link
Point_and_Vector_Object_Count: 273245

SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Node, planar graph
Point_and_Vector_Object_Count: 10100

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Geographic:
Latitude Resolution: 0.000001
Longitude Resolution: 0.000001
Geographic_Coordinate_Units: Decimal degrees

Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137.000000
Denominator_of_Flattening_Ratio: 298.257222

Entity_and_Attribute_Information:
Overview_Description:
Entity_and_Attribute_Overview:
In addition to the geographic data layers, one relational attribute or data table, SOURCES, is used to store the source data information in the ESI data structure. The geographic data layer containing resource information (in this case, ESI) is linked to the SOURCES table using the SOURCE_ID. The entity-relationship diagram describes the relationships between the attribute tables in the ESI data structure.

Detailed_Description:
Entity_Type:
Entity_Type_Label: ESI.AAT
Entity_Type_Definition:
The ESI.AAT table contains attribute information for the vector lines representing linear shoreline 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 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, Mud, or Clay
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: 6D
Enumerated_Domain_Value_Definition: Boulder Rubble
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 and Sheltered Scarps in Bedrock, Mud, or Clay
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: 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: 10C
Enumerated_Domain_Value_Definition: Swamps
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.
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: 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: M
Enumerated_Domain_Value_Definition: Marsh
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:
Source identifier that links to records in the SOURCES data table.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 1
Range_Domain_Maximum: N

Attribute:
Attribute_Label: ENVIR
Attribute_Definition: Type of regional environment.
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: 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: 10A
  Enumerated_Domain_Value_Definition: Salt- and Brackish-water marshes
  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: U
  Enumerated_Domain_Value_Definition: Unranked
  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; G_SOURCE and S_SOURCE in the BIORES table; and SOURCE_ID in the ESI, HYDRO, and SOCECON data layers.

Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Range_Domain:

<table>
<thead>
<tr>
<th>Range_Domain_Minimum</th>
<th>Range_Domain_Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>N</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Enumerated_Domain_Value</th>
<th>Enumerated_Domain_Value_Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>YYYYMM</td>
<td>YYYY for year and optionally MM for month</td>
</tr>
</tbody>
</table>

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: Description of the source scale.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Unrepresentable_Domain: Acceptable values change from atlas to atlas.

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:
    Unrepresentable_Domain: Acceptable values change from atlas to atlas.

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 Puget Sound and Strait of Juan de Fuca, Washington
  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 a Geodatabase; ARC export, MOSS, and Shape files; and MARPLOT map folders. An ArcMap .mxd file, an ArcView 3.x ESI project, and an 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: 200607
Metadata_Review_Date: 200607
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 2.8.21 on Mon Jul 24 13:05:01 2006
Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Puget Sound and Strait of Juan de Fuca, Washington: INDEX (Index 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:**
  - **Publication Date:** 200607
  - **Title:** Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Puget Sound and Strait of Juan de Fuca, Washington: INDEX (Index Polygons)
  - **Edition:** First
  - **Geospatial Data Presentation Form:** Vector digital data
  - **Series Information:**
    - **Series Name:** None
    - **Issue Identification:** Puget Sound and Strait of Juan de Fuca, Washington
  - **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:**
- Funding was provided by Navy Region Northwest. This data set was prepared by Concurrent Technologies Corporation, Bremerton, Washington, and Sound GIS, Seattle, Washington with support from Research Planning, Inc., Columbia, South Carolina, for the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington.
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 Puget Sound and Strait of Juan de Fuca, Washington. This data set comprises a portion of the ESI data for Puget Sound and Strait of Juan de Fuca. 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:
Single_Date/Time:
Calendar_Date: 2005

Currentness Reference:
The INDEX data were compiled during 2005-2006. The currentness date for the data is 2005 and is documented in the Lineage section.

Status:
Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -124.75100
East_Bounding_Coordinate: -122.12600
North_Bounding_Coordinate: 49.00000
South_Bounding_Coordinate: 47.00000

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: Puget Sound and Strait of Juan de Fuca, Washington

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 Puget Sound and Strait of Juan de Fuca, Washington ESI data.

**Browse_Graphic_File_Type:** JPEG

**Data_Set_Credit:**

This project was funded by Navy Region Northwest and was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington.

**Native_Data_Set_Environment:**

The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 9.1) and SQL SERVER(r) (version 2000). The hardware configuration is PC's with Windows Operating System (2000/XP/2003).

The Spatial_Data_Organization Information section refers only to the source files in the ARC export format. The following files are included in the data set: birds.e00, esi.e00, fish.e00, fishl.e00, habitatl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mampt.e00, mgt.e00, nests.e00, socecon.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, bioreis, breed, breed_dt, 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 ESI for Puget Sound and Strait of Juan de Fuca, Washington, as well as the digital data.
Puget Sound and Strait of Juan de Fuca, Washington: INDEX (Index Polygons)

Positional Accuracy:

Horizontal Positional Accuracy:

Horizontal Positional Accuracy Report:
The polygons in this data layer were generated in ArcInfo from the coordinates of the U.S. Geological Survey (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. Some boundaries were developed from pre-existing digital and hardcopy sources and reflect the positional accuracy of these original data. 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: RESEARCH PLANNING, INC. (RPI)
 Publication_Date: 2005
 Title: RPI INDEX
 Geospatial Data Presentation Form: VECTOR DIGITAL DATA
 Other_Citation_Details: UNPUBLISHED
 Source Scale_Denominator: 24,000
 Type_of_Source_Media: GENERATED BY RPI
 Source_Time_Period_of_Content:
 Time_Period_Information:
 Single_Date/Time:
 Calendar_Date: 2005
 Source_Currentness_Reference: DATE OF PUBLICATION
 Source_Citation_Abbreviation: NONE
 Source_Contribution: INDEX INFORMATION

Source Information:

Source Citation:

Citation Information:
 Originator: U.S. GEOLOGICAL SURVEY (USGS)
 Publication_Date: VARIES
 Title: USGS DIGITAL RASTER GRAPHICS
 Geospatial Data Presentation Form: RASTER DIGITAL DATA
 Other_Citation_Details: USGS, RESTON, VA.
 Source Scale_Denominator: 24,000
 Type_of_Source_Media: CD-ROM
 Source_Time_Period_of_Content:
 Time_Period_Information:
 Single_Date/Time:
 Calendar_Date: VARIES
 Source_Currentness_Reference: DATE OF SURVEY
 Source_Citation_Abbreviation: NONE
 Source_Contribution: INDEX INFORMATION

Process Step:

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

**Process_Date:** 200605

**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 chains
    - **Point_and_Vector_Object_Count:** 112
  - **SDTS_Terms_Description:**
    - **SDTS_Point_and_Vector_Object_Type:** Area point
      - **Point_and_Vector_Object_Count:** 113
  - **SDTS_Terms_Description:**
    - **SDTS_Point_and_Vector_Object_Type:** Complete chain
      - **Point_and_Vector_Object_Count:** 299
  - **SDTS_Terms_Description:**
    - **SDTS_Point_and_Vector_Object_Type:** Link
      - **Point_and_Vector_Object_Count:** 299
  - **SDTS_Terms_Description:**
    - **SDTS_Point_and_Vector_Object_Type:** Node, planar graph
      - **Point_and_Vector_Object_Count:** 188

**Spatial_Reference_Information:**

- **Horizontal_Coordinate_System_Definition:**
  - **Geographic:**
    - **Latitude_Resolution:** 0.000001
    - **Longitude_Resolution:** 0.000001
    - **Geographic_Coordinate_Units:** Decimal degrees
  - **Geodetic_Model:**
    - **Horizontal_Datum_Name:** North American Datum of 1983
    - **Ellipsoid_Name:** Geodetic Reference System 80
    - **Semi-major_Axis:** 6378137.000000
    - **Denominator_of_Flattening_Ratio:** 298.257222
Entity and Attribute Information:
Detailed_Description:
Entity_Type:
  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 used in the creation of the ESI.
  Entity_Type_Definition_Source: Research Planning, Inc.
Attribute:
  Attribute_Label: TILE-NAME
  Attribute_Definition: 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: 111
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: 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:
    Unrepresentable_Domain: Acceptable values change from atlas to atlas.
Attribute:
  Attribute_Label: MAPANGLE
  Attribute_Definition: 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: 0.0000
      Range_Domain_Maximum: 2.8710
      Attribute_Units_of_Measure: Degree
Attribute:
  Attribute_Label: PAGESIZE
  Attribute_Definition: 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"
**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 Puget Sound and Strait of Juan de Fuca, Washington

**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 a Geodatabase; ARC export, MOSS, and Shape files; and MARPLOT map folders. An ArcMap .mxd file, an ArcView 3.x ESI project, and an 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:** 200607

**Metadata Review Date:** 200607

**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 2.8.21 on Mon Jul 24 13:40:49 2006
Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Puget Sound and Strait of Juan de Fuca, Washington: 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: 200607
Title:
Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Puget Sound and Strait of Juan de Fuca, Washington: MGT (Management Area Polygons)

Edition: First
Geospatial Data Presentation Form: Vector digital data
Series Information:
Series Name: None
Issue Identification: Puget Sound and Strait of Juan de Fuca, Washington

Publication Information:
Publication Place: Seattle, Washington
Publisher:

Other Citation Details:
Funding was provided by Navy Region Northwest. This data set was prepared by Concurrent Technologies Corporation, Bremerton, Washington, and Sound GIS, Seattle, Washington with support from Research Planning, Inc., Columbia, South Carolina, for the National Oceanic and Atmospheric Administration (NOAA),

Description:

Abstract:
This data set contains polygons that represent the following sensitive human-use management areas in Puget Sound and the Strait of Juan de Fuca, Washington: aquaculture sites, commercial fishing areas, Indian reservations, marine sanctuaries, Nature Conservancy areas, national parks, recreational fishing areas, state parks, subsistence areas, wildlife refuges, and other 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 Puget Sound and Strait of Juan de Fuca, Washington. 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 Puget Sound and Strait of Juan de Fuca 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: 1989
  Ending_Date: 2006

Currentness_Reference:
The data were compiled during 2005-2006. The currentness dates for the data range from 1989 to 2006 and are documented in the Lineage section.

Status:
  Progress: Complete
  Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:
  Bounding_Coordinates:
    West_Bounding_Coordinate: -124.75100
    East_Bounding_Coordinate: -122.12600
    North_Bounding_Coordinate: 49.00000
    South_Bounding_Coordinate: 47.00000

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
Puget Sound and Strait of Juan de Fuca, Washington: MGT (Management Area Polygons)

Theme_Keyword: Management areas
Theme_Keyword: Human use resources

Place:
Place_Keyword_Thesaurus: None
Place_Keyword: Puget Sound and Strait of Juan de Fuca, Washington

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 Puget Sound and Strait of Juan de Fuca, Washington ESI data.
Browse_Graphic_File_Type: JPEG

Data_Set_Credit:
This project was funded by Navy Region Northwest and was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington.

Native_Data_Set_Environment:
The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 9.1) and SQL SERVER(r) (version 2000). The hardware configuration is PC's with Windows Operating System (2000/XP/2003).

The Spatial_Data_Organization_Information section refers only to the source files in the ARC export format. The following files are included in the data set: birds.e00, esi.e00, fish.e00, fishl.e00, habitatl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mampt.e00, mgt.e00, nests.e00, socecon.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biore, breed, breed_dt, 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 a synthesis of digital boundaries for management areas. See also the SOCECON (Socioeconomic Resource Points and Lines) data layer, part of the larger Puget Sound and Strait of Juan de Fuca, Washington ESI database, for additional human-use information. These data do not necessarily represent all management areas in Puget Sound and Strait of Juan de Fuca.

Positional Accuracy:

Horizontal Positional Accuracy:

Horizontal Positional Accuracy Report:
Spatial components for the human-use data layers can come from expert interviews, hardcopy, or digital sources. Most of the spatial components of the human-use data layers are developed from pre-existing digital or hardcopy sources and reflect the positional accuracy of these original data. Some of the spatial components of the human-use data layers are compiled on hardcopy base maps with a scale of 1:24,000. 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: JAMESTOWN S'KLALLAM TRIBE
Publication Date: 2004
Title: JAMESTOWN S'KLALLAM TRIBE GIS DATA
Geospatial Data Presentation Form: VECTOR DIGITAL DATA
Other Citation Details:
DATA CONTACT: PAM EDENS (JAMESTOWN S'KLALLAM TRIBE, PEDENS@JAMESTOWNTRIBE.ORG)

Type of Source Media: CD-ROM
Source Time Period of Content:
Time Period Information:
Single Date/Time:
Calendar Date: 2004
Source Currentness Reference: GROUND CONDITION
Source Citation Abbreviation: NONE
Source Contribution: MGT INFORMATION

Source Information:

Source Citation:

Citation Information:
Originator: LUMMI INDIAN BUSINESS COUNCIL
Publication_Date: 2004
Title: GIS DATA: LUMMI NATION 2004
Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
Other_Citation_Details:
DATA CONTACT: WILLY LYNCH (LUMMI INDIAN BUSINESS COUNCIL, 360-384-2372)

Type_of_Source_Media: CD-ROM
Source_Time_Period_of_Content:
Time_Period_Information:
Calendar_Date: 2004
Source_Currentness_Reference: GROUND CONDITION
Source_Citation_Abbreviation: NONE
Source_Contribution: MGT INFORMATION
Source_Information:
Source_Citation:
Citation_Information:
Originator: MAKAH TRIBE
Publication_Date: 2004
Title: GIS DATA: MAKAH TRIBE
Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
Other_Citation_Details: DATA CONTACT: DAVE HERDA (MAKAH TRIBE, 360-645-3051)
Source_Scale_Denominator: VARIES
Type_of_Source_Media: EMAIL
Source_Time_Period_of_Content:
Time_Period_Information:
Range_of_Dates/Times:
Beginning_Date: 1994
Ending_Date: 2000
Source_Currentness_Reference: GROUND CONDITION
Source_Citation_Abbreviation: NONE
Source_Contribution: MGT INFORMATION
Source_Information:
Source_Citation:
Citation_Information:
Originator: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)
Publication_Date: 2005
Title: MARINE MANAGED AREAS OF THE UNITED STATES
Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
Other_Citation_Details:
Type_of_Source_Media: DOWNLOADABLE DATA
Source_Time_Period_of_Content:
Time_Period_Information:
Range_of_Dates/Times:
Beginning_Date: 1997
Ending_Date: 2006
Puget Sound and Strait of Juan de Fuca, Washington: MGT (Management Area Polygons)

Source_Currentness_Reference: DATE OF PUBLICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: MGT INFORMATION

Source Information:
Source_Citation:

Citation Information:
Originator: OLYMPIC COAST NATIONAL MARINE SANCTUARY
Publication_Date: 1997
Title: OLYMPIC COAST NATURAL MARINE SANCTUARY
Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
Other_Citation_Details:
DATA CONTACT: STEVEN S. INTELMAN (OLYMPIC COAST NATIONAL MARINE SANCTUARY, 360-457-6622 EXT. 22)

Type_of_Source_Media: EMAIL
Source_Time_Period_of_Content:
Single_Date/Time:
Calendar_Date: 1997

Source_Currentness_Reference: DATE OF PUBLICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: MGT INFORMATION

Source Information:
Source_Citation:

Citation Information:
Originator: OLYMPIC NATIONAL FOREST
Publication_Date: 1998
Title: ADMINISTRATIVE REGIONS
Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
Other_Citation_Details:
DATA CONTACT: (OLYMPIC NATIONAL FOREST, 360-956-2400)

Source_Scale_Denominator: 24000
Type_of_Source_Media: DOWNLOADABLE DATA
Source_Time_Period_of_Content:
Single_Date/Time:
Calendar_Date: 1989

Source_Currentness_Reference: GROUND CONDITION
Source_Citation_Abbreviation: NONE
Source_Contribution: MGT INFORMATION

Source Information:
Source_Citation:

Citation Information:
Originator: THE NATURE CONSERVANCY
Publication_Date: 2004
Title: WAFÖ FEE OWNERSHIP AND CONSERVATION EASEMENTS
Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
Other_Citation_Details:
DATA CONTACT: JESSE LANGDON (THE NATURE CONSERVANCY, WASHINGTON CHAPTER, 206-343-4345)

Type_of_Source_Media: DOWNLOADABLE DATA
Puget Sound and Strait of Juan de Fuca, Washington: MGT (Management Area Polygons)

Source Information:
Source Citation:
Citation Information:
Originator: WASHINGTON DEPARTMENT OF NATURAL RESOURCES
Publication Date: 2005
Title: WASHINGTON STATE NON-DEPARTMENT OF NATURAL RESOURCES MAJOR PUBLIC LANDS
Geospatial Data Presentation Form: VECTOR DIGITAL DATA
Other Citation Details:
DATA CONTACT: ELIZABETH EBERLE (WASHINGTON DEPARTMENT OF NATURAL RESOURCES, NDMPL MAINTENANCE CONTACT, 360-902-1222)

Source Scale Denominator: VARIES
Type of Source Media: DOWNLOADABLE DATA
Source Time Period of Content:
Time Period Information:
Range of Dates/Times:
Beginning Date: 2000
Ending Date: 2003
Source Currentness Reference: DATE OF PUBLICATION
Source Citation Abbreviation: NONE
Source Contribution: MGT INFORMATION

Source Information:
Source Citation:
Citation Information:
Originator: WASHINGTON STATE DEPARTMENT OF HEALTH
Publication Date: 2005
Title: COMMERCIAL SHELLFISH GROWING AREAS
Geospatial Data Presentation Form: VECTOR DIGITAL DATA
Other Citation Details:
DATA CONTACT: CRAIG ERICKSON (WASHINGTON STATE DEPARTMENT OF HEALTH, 360-236-4271)
<http://ww4.doh.wa.gov/gis/gisdata.htm>

Source Scale Denominator: 24000
Type of Source Media: DOWNLOADABLE DATA
Source Time Period of Content:
Time Period Information:
Single Date/Time:
Calendar Date: 2005
Source Currentness Reference: DATE OF PUBLICATION
Source Citation Abbreviation: NONE
Source Contribution: MGT INFORMATION

Source Information:
Source Citation:
Citation Information:
Originator: WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
Publication Date: 1999
Title: NATIONAL PARKS OF WASHINGTON STATE
Aquaculture: Digital polygons representing aquaculture facilities were provided by Washington State Department of Health (WDOH) and Washington Department of Fish and Wildlife (WDFW). WDOH's growing areas were included where the class was defined as "approved" or "conditional." Cultured mussels from WDFW's Marine Resource Database were also included as aquaculture sites. In order to depict the aquaculture sites as water-bound polygons, they were clipped with the water portion of the HYDRO layer. Any resulting land-based aquaculture sliver polygons were removed from the MGT layer. Where the polygons appeared to follow the shoreline but fell short, they were extended to meet the shoreline.

Commercial and Recreational Fishing: Digital polygons representing commercial fishing and recreational fishing areas were provided by Washington Department of Fish and Wildlife's (WDFW) Marine Resource Database. The following layers were included as commercial and recreational fishing areas: demersal, reef, and pelagic (where demersal, reef and pelagic field = 1, respectively). The salmoncm features were included as commercial fishing areas where the "intense" and "everyone" field
The salmonsp features were included as recreational fishing areas where the "sportsalmo" field = 1. In order to depict the commercial fishing and recreational fishing sites as water-bound polygons, they were clipped with the water portion of the HYDRO layer. Any resulting land-based sliver polygons were removed from the MGT layer. Where the polygons appeared the follow the shoreline but fell short, they were extended to meet the shoreline.

Indian Reservations: Digital polygons representing Indian reservation boundaries were provided by the following groups: Jamestown S'klallam Tribe, Lummi Indian Business Council, Makah Tribe, Washington State Department of Ecology (WDOE), and Washington Department of Natural Resources (WDNR). Only those reservation boundaries from WDOE and WDNR that were not already included from the tribal groups were included.

Management Areas: Digital polygons representing marine managed areas were provided by NOAA's Marine Protected Area (MPA) Center. Additional marine preservation areas were provided by Washington Department of Fish and Wildlife's (WDFW) Marine Resource Database.

Marine Sanctuaries: Digital polygons representing National Estuarine Research Reserve System boundaries were provided by NOAA's MPA Center. The Olympic Coast National Marine Sanctuary (OCNMS) boundary was provided by OCNMS.

Nature Conservancy Areas: Digital polygons representing lands managed by The Nature Conservancy were provided by the Washington Chapter of The Nature Conservancy.

National Parks: The Olympic National Park boundary was provided by Olympic National Forest as a digital polygon feature. The boundaries of National Historic Parks and Reserves in the study area were provided by Washington Department of Transportation.

State Parks: Digital polygons representing state parks were provided by Washington State Parks and Recreation Commission.

Subsistence: Digital polygons representing subsistence areas were gathered from the salmoncm layer provided by WDFW. Only those polygons where the field "treaty" = 1 were included.

Wildlife Refuges: Digital polygons representing wildlife refuge boundaries were provided by the Makah Tribe and NOAA's MPA Center.

The above digital and/or hardcopy sources were compiled by the project biologist to create the MGT data layer. Depending on the type of source data, three general approaches are used for compiling the data layer: (1) information gathered during initial interviews and from hardcopy sources are compiled onto U.S. Geological Survey 1:24,000 topographic quadrangles and digitized; (2) hardcopy maps are digitized at their source scale; (3) digital data layers are evaluated and used "as is" or integrated with the hardcopy data sources. See the Lineage section for additional information on the type of source data for this data layer.

*Process Date: 200603*
The compiled ESI, biology, and human-use data are plotted onto hardcopy draft maps. Following the delivery of draft maps to the participating resource experts, a second set of interviews is conducted to review the maps. If necessary, edits to the MGT data layer are made based on the recommendations of the resource experts, and final hardcopy maps and digital data are created.

Process _Date_: 200605

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 chains
Point and Vector Object Count: 3292

SDTS Terms Description:
SDTS Point and Vector Object Type: Area point
Point and Vector Object Count: 3293

SDTS Terms Description:
SDTS Point and Vector Object Type: Complete chain
Point and Vector Object Count: 7501

SDTS Terms Description:
SDTS_Point_and_Vector_Object_Type: Link
Point_and_Vector_Object_Count: 316046

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Geographic:
  Latitude_Resolution: 0.000001
  Longitude_Resolution: 0.000001
  Geographic_Coordinate_Units: Decimal degrees

Entity_and_Attribute_Information:
Overview_Description:
Entity_and_Attribute_Overview:
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 (for Puget Sound and Strait of Juan de Fuca, the number is 79). ID is a unique combination of the atlas number (79), 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 aquaculture sites, commercial fishing areas, Indian reservations, marine sanctuaries, Nature Conservancy areas, national parks, recreational fishing areas, state parks, subsistence areas, and wildlife refuges. 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: 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 Site
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

- **Enumerated Domain:**
  - **Enumerated Domain Value:** CF
  - **Enumerated Domain Value Definition:** Commercial Fishing Area
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

- **Enumerated Domain:**
  - **Enumerated Domain Value:** IR
  - **Enumerated Domain Value Definition:** Indian Reservation
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

- **Enumerated Domain:**
  - **Enumerated Domain Value:** MA
  - **Enumerated Domain Value Definition:** Management Area
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

- **Enumerated Domain:**
  - **Enumerated Domain Value:** MS
  - **Enumerated Domain Value Definition:** Marine Sanctuary
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

- **Enumerated Domain:**
  - **Enumerated Domain Value:** MR
  - **Enumerated Domain Value Definition:** Multiple Records - Signifies that multiple types overlap in the polygon
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

- **Enumerated Domain:**
  - **Enumerated Domain Value:** NC
  - **Enumerated Domain Value Definition:** Nature Conservancy Area
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

- **Enumerated Domain:**
  - **Enumerated Domain Value:** NP
  - **Enumerated Domain Value Definition:** National Park
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

- **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:** RF
Enumerated_Domain_Value_Definition: Recreational Fishing Area
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: S
Enumerated_Domain_Value_Definition: Subsistence Area
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
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 (79), 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: 0791100002
Range_Domain_Maximum: 0791103391

Attribute:
Attribute_Label: HUNUM
Attribute_Definition:
An identifier that links directly to the SOC_DAT table. HUNUM 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: 079000100
Range_Domain_Maximum: 079003970

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: 079000100
   Range_Domain_Maximum: 079003970

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 (79), 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: 0791000001
         Range_Domain_Maximum: 0791103391

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: 079000100
         Range_Domain_Maximum: 079003970

Attribute:
   Attribute_Label: TYPE
   Attribute_Definition: Identifies the feature type
   Attribute_Definition_Source: Research Planning, Inc.
   Attribute_Domain_Values:
      Enumerated_Domain:
         Enumerated_Domain_Value: AIRPORT
            Enumerated_Domain_Value_Definition: Airport
            Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
      Enumerated_Domain:
         Enumerated_Domain_Value: ACCESS
            Enumerated_Domain_Value_Definition: Access Location
            Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
      Enumerated_Domain:
         Enumerated_Domain_Value: AQUACULTURE
Enumerated_Domain_Value_Definition: Aquaculture Site
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:
  Enumerated_Domain_Value: ARTIFICIAL REEF
  Enumerated_Domain_Value_Definition: Artificial Reef
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:
  Enumerated_Domain_Value: BEACH
  Enumerated_Domain_Value_Definition: Beach
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:
  Enumerated_Domain_Value: BOAT RAMP
  Enumerated_Domain_Value_Definition: Boat Ramp
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:
  Enumerated_Domain_Value: COMMERCIAL FISHING
  Enumerated_Domain_Value_Definition: Commercial Fishing
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:
  Enumerated_Domain_Value: COAST GUARD
  Enumerated_Domain_Value_Definition: U.S. Coast Guard Station
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:
  Enumerated_Domain_Value: DIVING SITE
  Enumerated_Domain_Value_Definition: Diving Site
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:
  Enumerated_Domain_Value: EQUIPMENT
  Enumerated_Domain_Value_Definition: Equipment Storage Site
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:
  Enumerated_Domain_Value: FERRY
  Enumerated_Domain_Value_Definition: Ferry Terminal
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:
  Enumerated_Domain_Value: HATCHERY
  Enumerated_Domain_Value_Definition: Hatchery
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: HAZARDOUS WASTE SITE
Enumerated_Domain_Value_Definition: Hazardous Waste Site
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: INDIAN RESERVATION
Enumerated_Domain_Value_Definition: Indian Reservation
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: LOCK AND DAM
Enumerated_Domain_Value_Definition: Lock and Dam
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: LOG STORAGE
Enumerated_Domain_Value_Definition: Log Storage
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: MANAGEMENT AREA
Enumerated_Domain_Value_Definition: Management Area
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: MARINA
Enumerated_Domain_Value_Definition: Marina
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: MARINE SANCTUARY
Enumerated_Domain_Value_Definition: Marine Sanctuary
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: NATIONAL PARK
Enumerated_Domain_Value_Definition: National Park
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: NATURE CONSERVANCY
Enumerated_Domain_Value_Definition: Nature Conservancy Area
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: REGIONAL OR STATE 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: SUBSISTENCE
    Enumerated_Domain_Value_Definition: Subsistence Area
    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:
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; G_SOURCE and S_SOURCE in the BIORES table; and SOURCE_ID in the ESI, HYDRO, and SOCECON data layers.

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: Description of the source scale.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Unrepresentable_Domain: Acceptable values change from atlas to atlas.

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:
Unrepresentable_Domain: Acceptable values change from atlas to atlas.

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 Puget Sound and Strait of Juan de Fuca, Washington

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 a Geodatabase; ARC export, MOSS, and Shape files; and MARPLOT map folders. An ArcMap .mxd file, an ArcView 3.x ESI project, and an 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: 200607  
* Metadata Review Date: 200607  
* 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 µp version 2.8.21 on Mon Jul 24 22:44:33 2006
Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Puget Sound and Strait of Juan de Fuca, Washington: 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:
Citation Information:
Originator:
Publication Date: 200607
Title:
Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Puget Sound and Strait of Juan de Fuca, Washington: SOCECON (Socioeconomic Resource Points and Lines)
Edition: First
Geospatial Data Presentation Form: Vector digital data
Series Information:
Series Name: None
Issue Identification: Puget Sound and Strait of Juan de Fuca, Washington
Publication Information:
Publication Place: Seattle, Washington
Publisher:
Other Citation Details:
Funding was provided by Navy Region Northwest. This data set was prepared by Concurrent Technologies Corporation, Bremerton, Washington, and Sound GIS, Seattle, Washington with support from Research Planning, Inc., Columbia, South
Carolina, for the National Oceanic and Atmospheric Administration (NOAA),
National Ocean Service, Office of Response and Restoration, Hazardous Materials
Response Division, Seattle, Washington.

Description:

Abstract:

This data set contains points that represent the following sensitive human-use
socioeconomic sites in Puget Sound and the Strait of Juan de Fuca, Washington: access
locations, airports, aquaculture sites, archaeological sites, artificial reefs, beaches, boat
ramps, U.S. Coast Guard stations, dive sites, spill response equipment storage sites, ferry
terminals, hatcheries, hazardous waste sites, locks and dams, marinas, and parks. Also
included are lines that represent the international boundary, bridges, and ferry routes.
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
Puget Sound and Strait of Juan de Fuca, Washington. 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 Puget Sound and the Strait of Juan de Fuca 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: 1996
Ending_Date: 2006

Currentness_Reference:

The SOCECON data were compiled during 2005-2006. The currentness dates for the data
range from 1996 to 2006 and are documented in the Lineage section.

Status:

Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:

West_BoundingCoordinate: -124.75100
East_BoundingCoordinate: -122.12600
North_BoundingCoordinate: 49.00000
South_BoundingCoordinate: 47.00000

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:** Puget Sound and Strait of Juan de Fuca, Washington  

**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 Puget Sound and Strait of Juan de Fuca, Washington ESI data.  
**Browse_Graphic_File_Type:** JPEG  

**Data_Set_Credit:**  
This project was funded by Navy Region Northwest and was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington.

**Native_Data_Set_Environment:**  
The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 9.1) and SQL SERVER(r) (version 2000). The hardware configuration is PC's with Windows Operating System (2000/XP/2003).

The Spatial_Data_Organization_Information section refers only to the source files in the ARC export format. The following files are included in the data set: birds.e00, esi.e00, fish.e00, fishl.e00, habitatl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mampt.e00, mgt.e00, nests.e00, socecon.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biores, breed, breed_dt, 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 node, 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 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 Puget Sound and Strait of Juan de Fuca, Washington. See also the MGT (Management Area Polygons) data layer, part of the larger Puget Sound and Strait of Juan de Fuca ESI database, for additional human-use information.

**Positional Accuracy:**

**Horizontal Positional Accuracy:**

**Horizontal Positional Accuracy Report:**
Spatial components for the human-use data layers can come from expert interviews, hardcopy, or digital sources. Most of the spatial components of the human-use data layers are developed from pre-existing digital or hardcopy sources and reflect the positional accuracy of these original data. Some of the spatial components of the human-use data layers are compiled on hardcopy base maps with a scale of 1:24,000. 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:**

**Citation Information:**

**Originator:**

DEAN, TOM AND RAYNA HOLTZ, BIANCA PERLA (VASHON ISLAND LAND TRUST)

**Publication Date:** 2004

**Title:** ARCHAEOLOGICAL SITES

**Geospatial Data Presentation Form:** EXPERT KNOWLEDGE

**Other Citation Details:**

UNPUBLISHED. CONTACT: TOM DEAN (VASHON ISLAND LAND TRUST, 206-463-2644)

**Type of Source Media:** PERSONAL COMMUNICATION

**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:** SOCECON INFORMATION
Puget Sound and Strait of Juan de Fuca, Washington: SOCECON (Socioeconomic Resource Points and Lines)

Time_Period_Information:
  Single_Date/Time:
    Calendar_Date: 2004

Source_Currentness_Reference: DATE OF COMMUNICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: SOCECON INFORMATION

Source_Information:
  Source_Citation:
    Citation_Information:
      Originator: HINTON, DOUG (PARK MANAGER, DOSEWALLIPS STATE PARK)
      Publication_Date: 2004
      Title: ARCHAEOLOGICAL SITES
      Geospatial_Data_Presentation_Form: EXPERT KNOWLEDGE
      Other_Citation_Details:
        UNPUBLISHED. CONTACT: DOUG HINTON (DOSEWALLIPS STATE PARK, 360-796-4415)

Type_of_Source_Media: PERSONAL COMMUNICATION
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: SOCECON INFORMATION

Source_Information:
  Source_Citation:
    Citation_Information:
      Originator: JOHNSON, ROY (PARK RANGER, CAMANO ISLAND STATE PARK)
      Publication_Date: 2004
      Title: ARCHAEOLOGICAL SITES
      Geospatial_Data_Presentation_Form: EXPERT KNOWLEDGE
      Other_Citation_Details:
        UNPUBLISHED. CONTACT: ROY JOHNSON (CAMANO ISLAND STATE PARK, 360-387-3031)

Type_of_Source_Media: PERSONAL COMMUNICATION
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: SOCECON INFORMATION

Source_Information:
  Source_Citation:
    Citation_Information:
      Originator: KALINA, WILLIAM B. (NAVAL MAGAZINE INDIAN ISLAND, NATURAL RESOURCES MANAGER), PORT HADLOCK, WA
      Publication_Date: 2004
Title: INDIAN ISLAND ARCHAEOLOGICAL SITES
Geospatial_Data_Presentation_Form: EXPERT KNOWLEDGE
Other_Citation_Details:
UNPUBLISHED. CONTACT: BILL KALINA (NAVMAG INDIAN ISLAND, 360-396-5353
Type_of_Source_Media: PERSONAL COMMUNICATION
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: SOCECON INFORMATION
Source_Information:
Source_Citation:
Citation_Information:
Originator: LUMMI INDIAN BUSINESS COUNCIL
Publication_Date: 2004
Title: GIS DATA: LUMMI NATION 2004
Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
Other_Citation_Details:
DATA CONTACT: WILLY LYNCH (LUMMI INDIAN BUSINESS COUNCIL, 360-384-2372)
Type_of_Source_Media: CD-ROM
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 2004
Source_Currentness_Reference: GROUND CONDITION
Source_Citation_Abbreviation: NONE
Source_Contribution: SOCECON INFORMATION
Source_Information:
Source_Citation:
Citation_Information:
Originator: MCBEE, STEVE (PARK MANAGER, DASH POINT STATE PARK)
Publication_Date: 2004
Title: ARCHAEOLOGICAL SITES
Geospatial_Data_Presentation_Form: EXPERT KNOWLEDGE
Other_Citation_Details:
UNPUBLISHED. CONTACT: STEVE MCBEE (DASH POINT STATE PARK, 253-661-4955)
Type_of_Source_Media: PERSONAL COMMUNICATION
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: SOCECON INFORMATION
Source_Information:
Source_Citation:
  Citation_Information:
    Originator:
      MILLER, JOHN (ENGINEERING FIELD ACTIVITY NORTHWEST [EFA NW]) POULSBO, WA
    Publication_Date: 2004
    Title: ARCHAEOLOGICAL SITES AND LOG STORAGE
    Geospatial_Data_Presentation_Form: EXPERT KNOWLEDGE
    Other_Citation_Details: UNPUBLISHED. CONTACT: JOHN MILLER (EFA NW, 360-396-0065)
  Type_of_Source_Media: PERSONAL COMMUNICATION
  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: SOCECON INFORMATION
Source_Information:
Source_Citation:
  Citation_Information:
    Originator: MORRIS, TED (PARK MANAGER, BIRCH BAY STATE PARK)
    Publication_Date: 2004
    Title: ARCHAEOLOGICAL SITES
    Geospatial_Data_Presentation_Form: EXPERT KNOWLEDGE
    Other_Citation_Details: UNPUBLISHED. CONTACT: TED MORRIS (BIRCH BAY STATE PARK, 360-371-2800)
  Type_of_Source_Media: PERSONAL COMMUNICATION
  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: SOCECON INFORMATION
Source_Information:
Source_Citation:
  Citation_Information:
    Originator: PACIFIC NW SCUBA
    Publication_Date: 2005
    Title: PACIFIC NORTHWEST SCUBA: DIRECTIONS TO DIVE SITES AND DIVE SITE MAPS
    Geospatial_Data_Presentation_Form: WEBSITE
    Other_Citation_Details: DATA CONTACT: JANNA NICHOLS (JANNAN@PNWSCUBA.COM) <http://www.pnwscuba.com/directions.htm>
  Type_of_Source_Media: ONLINE
Source_Citation:

Citation_Information:

Originator: REGIONAL RESPONSE TEAM NORTHWEST AREA COMMITTEE
Publication_Date: 2005
Title: NW SPILL RESPONSE EQUIPMENT LIST
Geospatial_Data_Presentation_Form: DATABASE
Other_Citation_Details: 
<http://www.rrt10nwac.com/equipment_spreadsheet.htm>

Type_of_Source_Media: DOWNLOADABLE DATA

Source_Citation:

Citation_Information:

Originator: SCHMITT, JOE (CLALLAM COUNTY MARINE RESOURCES COMMITTEE [MRC])
Publication_Date: 2004
Title: BEACHES, ACCESS POINTS, AND BOAT RAMP
Geospatial_Data_Presentation_Form: EXPERT KNOWLEDGE
Other_Citation_Details: UNPUBLISHED DATA

Type_of_Source_Media: PERSONAL COMMUNICATION

Source_Citation:

Citation_Information:

Originator: SCHOUTEN, ARNOLD (ISLANDS' OIL SPILL ASSOCIATION [IOSA], SAN JUAN COUNTY) AND IAN MILLER (SURFRIDER)
Publication_Date: 2004
Title: LOG STORAGE, BEACHES, AND BOAT RAMP
Geospatial_Data_Presentation_Form: EXPERT KNOWLEDGE
Puget Sound and Strait of Juan de Fuca, Washington: SOCECON (Socioeconomic Resource Points and Lines)

Source_Scale_Denominator: 24K/500K
Type_of_Source_Media: DOWNLOADABLE DATA
Source_Time_Period_of_Content:
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Source_Currentness_Reference: GROUND CONDITION
Source_Citation_Abbreviation: NONE
Source_Contribution: SOCECON INFORMATION

Source_Information:
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  Originator: WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
  Publication_Date: 2005
  Title: NON-MILITARY AIRPORTS OF WASHINGTON
  Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
  Other_Citation_Details:
    DATA CONTACT: JOHN SHAMBAUGH (WASHINGTON STATE DEPARTMENT OF TRANSPORTATION, 360-651-6306)

Type_of_Source_Media: EMAIL
Source_Time_Period_of_Content:
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Source_Currentness_Reference: DATE OF PUBLICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: SOCECON INFORMATION

Source_Information:
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Citation_Information:
  Originator: WASHINGTON STATE INTERAGENCY COMMITTEE FOR OUTDOOR RECREATION
  Publication_Date: 2003
  Title: MOTORIZED BOAT LAUNCHES OF WASHINGTON STATE
  Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
  Other_Citation_Details:
    DATA CONTACT: BOB EULISS (WASHINGTON STATE INTERAGENCY COMMITTEE FOR OUTDOOR RECREATION, 360-902-3015)

Type_of_Source_Media: EMAIL
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      Calendar_Date: 1997
Source_Currentness_Reference: GROUND CONDITION
Source_Citation_Abbreviation: NONE
Source_Contribution: SOCECON INFORMATION

Source_Information:
Source_Citation:
Access locations: Three sources of data were used to depict locations where the shoreline can be accessed by foot or by vehicle: (1) Washington State Department of Ecology BEACH database (Ecology), (2) Lummi Indian Business Council, and (3) a local resource manager.

From Ecology's BEACH database, we extracted points depicting access locations. Approximately 79% of these points were repositioned to ensure that the locations more closely matched their actual position on land. The positions used in this database were identified using the HYDRO layer and 1-meter black-and-white digital orthophotographs. Not all access points identified in the BEACH database were included.

Access points provided by the Lummi Indian Business Council were repositioned to fall within the land portion of the HYDRO layer. Four additional access points were provided by a local resource expert. These points were collected on, and digitized off of, hardcopy base maps with a scale of 1:24,000.

Airports: Digital points representing non-military airports were provided by Washington State Department of Transportation (WSDOT).

Aquaculture sites: Digital points representing aquaculture sites (net pens) were acquired from the StreamNet website.

Archaeological sites: Local resource managers provided locations of archaeological sites on hardcopy 1:24,000 scale base maps. These data were digitized off of the hardcopy maps to produce point features.

Artificial reefs: Geographic coordinates for artificial reefs were provided by Washington Department of Fish and Wildlife via personal communication. The latitude and longitude coordinates were used to generate digital point features.

Beaches: Three sources of data were used to depict locations of recreational beaches: (1) Washington State Department of Ecology BEACH database (Ecology), (2) Lummi Indian Business Council, (3) local resource experts.

Approximately 88% of points included from Ecology's BEACH database were repositioned to ensure that each location more closely matched its actual position on land. The positions used in this database were identified using the HYDRO layer and 1-meter black-and-white digital orthophotographs. Not all beaches identified in the BEACH database were included.

Beach points provided by the Lummi Indian Business Council were repositioned to fall within the land portion of the HYDRO layer. Four additional beach points were collected from local resource experts using hardcopy base maps with a scale of 1:24,000.
1:24,000. These points were digitized off of the hardcopy maps.

**Boat Ramps:** Four sources of data were used to depict locations of boat ramps: (1) Washington State Interagency Committee for Outdoor Recreation (IAC), (2) Washington State Department of Ecology BEACH database (Ecology), (3) Lummi Indian Business Council, and (4) local resource experts.

Digital points provided by the IAC and Ecology's BEACH database were repositioned to ensure that each location more closely matched its actual position on land. The positions used in this database were identified using the HYDRO layer and 1-meter black-and-white digital orthophotographs. Not all boat ramps identified in both datasets were included.

Digital points provided by Lummi Indian Business Council were repositioned to fall within the land portion of the HYDRO layer, where necessary. Additional boat ramp points were provided by local resource experts using hardcopy base maps with a scale of 1:24,000. These points were digitized off of the hardcopy maps.

**Bridges:** Digital lines were provided by Washington State Department of Transportation. Due to cartographic limitations, not all bridges identified in the original dataset were included.

**Coast Guard stations:** Digital points representing U.S. Coast Guard stations were provided by the Portland Sector of the U.S. Coast Guard.

**Diving sites:** Geographic coordinates for diving sites were collected from three locally well-known diving information websites. The latitude and longitude coordinates were used to generate digital point features. Many of the points represent land-based dive site entry locations.

**Equipment:** Two sources of digital data points were used to depict locations of storage for, or availability of, spill response equipment: (1) Regional Response Team Northwest Area Committee and (2) Lummi Indian Business Council. Additional boat ramp points were provided by a local resource expert using hardcopy base maps with a scale of 1:24,000.

**Ferry routes:** Digital lines representing paths of ferry travel were provided by Washington State Department of Transportation.

**Ferry terminals:** Digital points representing ferry docking areas/terminals were provided by Washington State Department of Transportation and Washington State Department of Ecology (BEACH database).

**Hatcheries:** Two sources of digital data points were used to depict locations of hatcheries: (1) StreamNet website and (2) Lummi Indian Business Council.

**Hazardous waste:** Digital points representing Federal (Superfund) Cleanup Sites (FCS) were provided by Washington State Department of Ecology. All spatial duplicates were removed.

**International Boundary:** The line that marks the boundary between the United States (Washington) and Canada (British Columbia) was provided by Washington Department of Natural Resources.
Locks and dams: Digital points representing locks and/or dams were provided by the StreamNet website. Only those dams associated with streams were included.

Log Storage: Local resource managers provided locations of log storage sites on hardcopy 1:24,000 scale base maps. These data were digitized off of the hardcopy maps to produce point features.

Marinas: Four sources of data were used to depict locations of marinas: (1) Washington State Interagency Committee for Outdoor Recreation (IAC), (2) Washington State Department of Ecology BEACH database (Ecology), (3) Lummi Indian Business Council, and (4) a local resource expert.

Digital points provided by the IAC and Ecology's BEACH database were repositioned to ensure that each location more closely matched its actual position on land. The positions used in this database were identified using the HYDRO layer and 1-meter black-and-white digital orthophotographs. Not all marinas identified in both datasets were included.

Digital points provided by Lummi Indian Business Council were repositioned to fall within the land portion of the HYDRO layer, where necessary. These points were digitized off of the hardcopy maps.

Parks: Digital points representing parks were provided by Washington State Department of Ecology (BEACH database).

The above digital and/or hardcopy sources were compiled by the project biologist to create the SOCECON data layer. Depending on the type of source data, three general approaches are used for compiling the data layer: (1) information gathered during initial interviews and from hardcopy sources are compiled onto U.S. Geological Survey 1:24,000 topographic quadrangles and digitized; (2) hardcopy maps are digitized at their source scale; (3) digital data layers are evaluated and used "as is" or integrated with the hardcopy data sources. See the Lineage section for additional information on the type of source data for this data layer.
maps. Following the delivery of draft maps to the participating resource experts, a second set of interviews is conducted to review the maps. If necessary, edits to the SOCECON data layer are made based on the recommendations of the resource experts, and final hardcopy maps and digital data are created.

Process_Date: 200605
Process_Contact:
   Contact_Organization_Primary:
      Contact_Organization: NOAA
      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: Entity Point
         Point_and_Vector_Object_Count: 1132
      SDTS_Terms_Description:
         SDTS_Point_and_Vector_Object_Type: Complete chain
         Point_and_Vector_Object_Count: 159
      SDTS_Terms_Description:
         SDTS_Point_and_Vector_Object_Type: Link
         Point_and_Vector_Object_Count: 1431
      SDTS_Terms_Description:
         SDTS_Point_and_Vector_Object_Type: Node, planar graph
         Point_and_Vector_Object_Count: 278

Spatial_Reference_Information:
   Horizontal_Coordinate_System_Definition:
      Geographic:
         Latitude_Resolution: 0.000001
         Longitude_Resolution: 0.000001
      Geographic_Coordinate_Units: Decimal degrees
   Geodetic_Model:
      Horizontal_Datum_Name: North American Datum of 1983
      Ellipsoid_Name: Geodetic Reference System 80
      Semi-major_Axis: 6378137.000000
      Denominator_of_Flattening_Ratio: 298.257222
Entity_and_Attribute_Information:

Overview_Description:

Entity_and_Attribute_Overview:

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 (for Puget Sound and Strait of Juan de Fuca, the number is 79). ID is a unique combination of the atlas number (79), 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.PAT

Entity_Type_Definition:
The SOCECON.PAT table contains attribute information for the vector points representing access locations, airports, aquaculture sites, archaeological sites, artificial reefs, beaches, boat ramps, U.S. Coast Guard stations, dive sites, spill response equipment storage sites, ferry terminals, hatcheries, hazardous waste sites, locks and dams, marinas, and parks. 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: A

Enumerated_Domain_Value_Description: Airport

Enumerated_Domain_Value_Description_Source: Research Planning, Inc.

Enumerated_Domain_Value: A2

Enumerated_Domain_Value_Description: Access Location

Enumerated_Domain_Value_Description_Source: Research Planning, Inc.

Enumerated_Domain_Value: AQ

Enumerated_Domain_Value_Description: Aquaculture Site

Enumerated_Domain_Value_Description_Source: Research Planning, Inc.

Enumerated_Domain_Value:
Enumerated_Domain_Value: AR
  Enumerated_Domain_Value_Definition: Artificial Reef
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: AS
    Enumerated_Domain_Value_Definition: Archaeological Site
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: B
    Enumerated_Domain_Value_Definition: Beach
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: BR
    Enumerated_Domain_Value_Definition: Boat Ramp
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: CG
    Enumerated_Domain_Value_Definition: U.S. Coast Guard Station
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: DV
    Enumerated_Domain_Value_Definition: Diving Site
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: EQ
    Enumerated_Domain_Value_Definition: Equipment Storage Site
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: F
    Enumerated_Domain_Value_Definition: Ferry Terminal
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: HA
    Enumerated_Domain_Value_Definition: Hatchery
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: HW
    Enumerated_Domain_Value_Definition: Hazardous Waste Site
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: LD
Enumerated_Domain_Value_Definition: Lock and Dam
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: LS
Enumerated_Domain_Value_Definition: Log Storage
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
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Enumerated_Domain_Value: M
Enumerated_Domain_Value_Definition: Marina
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.

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 (79), element number (10), and record number.
Attribute_Definition_Source: NOAA
Range_Domain:
Range_Domain_Minimum: 0791000001
Range_Domain_Maximum: 0791001132

Attribute:
Attribute_Label: HUNUM
Attribute_Definition: An identifier that links directly to the SOC_DAT table.
Attribute_Definition_Source: NOAA
Range_Domain:
Range_Domain_Minimum: 079002004
Range_Domain_Maximum: 079003323

Detailed_Description:
Entity_Type:
Entity_Type_Label: SOCECON.AAT
Entity_Type_Definition:
The SOCECON.AAT table contains attribute information for the vector lines representing the international boundary, bridges, and ferry routes. 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:** FR
  - **Enumerated Domain Value Definition:** Ferry Route
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Attribute Domain Values:**

- **Enumerated Domain:**
  - **Enumerated Domain Value:** IB
  - **Enumerated Domain Value Definition:** International Border
  - **Enumerated Domain Value 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.

**Attribute:**

**Attribute Label:** SOURCE_ID

**Attribute Definition:**

Spatial data source for the data layer lines that link 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:** 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:** 079000100
  - **Range Domain Maximum:** 079003970

**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 (79), 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:

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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:

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</thead>
<tbody>
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<td>079003970</td>
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</tbody>
</table>

Attribute:

Attribute Label: TYPE

Attribute Definition: Identifies the feature type

Attribute Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

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<th>Enumerated Domain Value Definition</th>
<th>Enumerated Domain Value Definition Source</th>
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<td>ACCESS</td>
<td>Access Location</td>
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<tr>
<td>AQUACULTURE</td>
<td>Aquaculture Site</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>ARTIFICIAL REEF</td>
<td>Artificial Reef</td>
<td>Research Planning, Inc.</td>
</tr>
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</table>
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  Enumerated_Domain_Value: ARCHAEOLICAL SITE
  Enumerated_Domain_Value_Definition: Archaeological Site
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: BEACH
    Enumerated_Domain_Value_Definition: Beach
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: COMMERCIAL FISHING
    Enumerated_Domain_Value_Definition: Commercial Fishing
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: COAST GUARD
    Enumerated_Domain_Value_Definition: U.S. Coast Guard Station
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: DIVING SITE
    Enumerated_Domain_Value_Definition: Diving Site
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: EQUIPMENT
    Enumerated_Domain_Value_Definition: Equipment Storage Site
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: FERRY
    Enumerated_Domain_Value_Definition: Ferry Terminal
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
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    Enumerated_Domain_Value_Definition: Hatchery
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
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    Enumerated_Domain_Value: HAZARDOUS WASTE SITE
    Enumerated_Domain_Value_Definition: Hazardous Waste Site
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Enumerated_Domain_Value: INDIAN RESERVATION
Enumerated_Domain_Value_Definition: Indian Reservation
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain

Enumerated_Domain_Value: LOCK AND DAM
Enumerated_Domain_Value_Definition: Lock and Dam
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain

Enumerated_Domain_Value: LOG STORAGE
Enumerated_Domain_Value_Definition: Log Storage
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain

Enumerated_Domain_Value: MANAGEMENT AREA
Enumerated_Domain_Value_Definition: Management Area
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain

Enumerated_Domain_Value: MARINA
Enumerated_Domain_Value_Definition: Marina
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain

Enumerated_Domain_Value: MARINE SANCTUARY
Enumerated_Domain_Value_Definition: Marine Sanctuary
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain

Enumerated_Domain_Value: NATIONAL PARK
Enumerated_Domain_Value_Definition: National Park
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain

Enumerated_Domain_Value: NATURE CONSERVANCY
Enumerated_Domain_Value_Definition: Nature Conservancy Area
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: REGIONAL OR STATE 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: SUBSISTENCE
Enumerated_Domain_Value_Definition: Subsistence Area
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; G_SOURCE and S_SOURCE in the BIORES table; and SOURCE_ID in the ESI, HYDRO, and SOCECON data layers.  
*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: Description of the source scale.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Unrepresentable_Domain: Acceptable values change from atlas to atlas.

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:
    Unrepresentable_Domain: Acceptable values change from atlas to atlas.

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 Puget Sound and Strait of Juan de Fuca, Washington

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 a Geodatabase; ARC export, MOSS, and Shape files; and MARPLOT map folders. An ArcMap .mxd file, an ArcView 3.x ESI project, and an 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: 200607
Metadata_Review_Date: 200607
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

Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Puget Sound and Strait of Juan de Fuca, Washington: 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:
Citation Information:
Originator:
Publication Date: 200607
Title:
Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Puget Sound and Strait of Juan de Fuca, Washington: BIRDS (Bird Polygons)
Edition: First
Geospatial Data Presentation Form: Vector digital data
Series Information:
Series Name: None
Issue Identification: Puget Sound and Strait of Juan de Fuca, Washington
Publication Information:
Publication Place: Seattle, Washington
Publisher:
Other Citation Details:
Funding was provided by Navy Region Northwest. This data set was prepared by Concurrent Technologies Corporation, Bremerton, Washington, and Sound GIS, Seattle, Washington with support from Research Planning, Inc., Columbia, South Carolina, for the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington.
Description:

Abstract:
This data set contains sensitive biological resource data for wading birds, shorebirds, waterfowl, diving birds, seabirds, raptors, gulls, and terns in Puget Sound and Strait of Juan de Fuca, Washington. Vector polygons in this data set represent locations of bird 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 Puget Sound and Strait of Juan de Fuca, Washington. 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 Puget Sound and Strait of Juan de Fuca 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: 1990
  Ending_Date: 2006

Currentness Reference:
The biological data were compiled during 2005-2006. The currentness dates for the data range from 1990 to 2006 and are documented in the Lineage section.

Status:
  Progress: Complete
  Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:
  Bounding_Coordinates:
    West_BoundingCoordinate: -124.75100
    East_BoundingCoordinate: -122.12600
    North_BoundingCoordinate: 49.00000
    South_BoundingCoordinate: 47.00000

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: Birds

Place:
  Place_Keyword_Thesaurus: None
  Place_Keyword: Puget Sound and Strait of Juan de Fuca, Washington
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 Puget Sound and Strait of Juan de Fuca, Washington ESI data.
Browse Graphic File Type: JPEG

Data Set Credit:
This project was funded by Navy Region Northwest and supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington.

Native Data Set Environment:
The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO (version 9.1) and SQL SERVER (version 2000). The hardware configuration is PC's with Windows Operating System (2000/XP/2003).

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, habitatl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mampt.e00, mgt.e00, nests.e00, socecon.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biores, breed, breed_dt, 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 data on bird resting, migratory staging, feeding, and wintering concentration areas. This information was adapted from Washington Department of Fish and Wildlife's (WDFW) Priority Habitats digital data and Puget Sound Ambient Monitoring Program's Marine Bird Surveys. Contact WDFW for additional information on these databases. See also the NESTS (Nest Points) data layer, part of the larger Puget Sound and Strait of Juan de Fuca, Washington ESI database, for additional bird information. These data do not necessarily represent all bird occurrences in Puget Sound and Strait of Juan de Fuca. The following species are included in this data set: (Species_ID, Common Name, Scientific Name [n/a if not applicable]): 1, Common loon, Gavia immer; 3, Red-throated loon, Gavia stellata; 7, Western grebe, Aechmophorus occidentalis; 26, Bufflehead, Bucephala albeola; 27, Long-tailed duck, Clangula hyemalis; 28, Harlequin duck, Histrionicus histrionicus; 31, Pacific loon, Gavia pacifica; 47, Pigeon guillemot, Cepphus columba; 50, Rhinoceros auklet, Cerorhinca monocerata; 79, Cormorant, Phalacrocorax sp.; 104, Murre, Uria sp.; 106, Ancient murrelet, Synthliboramphus antiquus; 136, Caspian tern, Sterna caspia; 299, Scaup, Aythya spp.; 300, Goldeneye, Bucephala spp.; 302, Scoters, Melanitta spp.; 1001, Gulls, n/a; 1002, Shorebirds, n/a; 1003, Waterfowl, n/a.

Positional_Accuracy:
Horizontal_Positional_Accuracy_Report:
Spatial components for the biological data layers can come from expert interviews, hardcopy, or digital sources. Some of the spatial components of the biological data layers may have been 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 or hardcopy 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:
Two main sources of data were used to depict bird distribution for this data layer: (1) Washington Department of Fish and Wildlife's (WDFW) Priority Habitats and Species database, and (2) WDFW's Marine Bird Density Atlas.

From the WDFW Priority Habitats and Species data, we extracted polygons depicting concentration areas for harlequin duck, shorebirds, and waterfowl. From the WDFW Marine Bird Density Atlas, we extracted the 1-minute survey cells with the three highest density categories for each species and species group. Concentration and seasonality information was provided by resource experts, or was extracted from published sources, reports, and survey data.

The above digital and/or hardcopy sources were compiled by the project biologist to create the BIRDS data layer. Depending on the type of source data, three general approaches are used for compiling a biology data layer: (1) information gathered during initial interviews and from hardcopy sources are compiled onto U.S. Geological Survey 1:24,000 topographic quadrangles and digitized; (2) hardcopy maps are digitized at their source scale; (3) digital data layers are evaluated and used "as is" or integrated with the hardcopy data sources. See the Lineage section for additional information on the type of source data for this data layer.

The compiled ESI, biology, and human-use data are plotted onto hardcopy draft maps. Following the delivery of draft maps to the participating resource experts, a
A second set of interviews is conducted to review the maps. If necessary, edits to the BIRDS data layer are made based on the recommendations of the resource experts, and final hardcopy maps and digital data are created.

**Process Date:** 200605

**Process Contact:**

**Contact Information:**
- **Contact Organization Primary:** NOAA
- **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

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**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 chains
  - **Point and Vector Object Count:** 2851

- **SDTS Terms Description:**
  - **SDTS Point and Vector Object Type:** Area point
  - **Point and Vector Object Count:** 2852

- **SDTS Terms Description:**
  - **SDTS Point and Vector Object Type:** Complete chain
  - **Point and Vector Object Count:** 6861

- **SDTS Terms Description:**
  - **SDTS Point and Vector Object Type:** Link
  - **Point and Vector Object Count:** 196483

- **SDTS Terms Description:**
  - **SDTS Point and Vector Object Type:** Node, planar graph
  - **Point and Vector Object Count:** 4610

---

**Spatial Reference Information:**

**Horizontal Coordinate System Definition:**
- **Geographic:**
  - **Latitude Resolution:** 0.000001
  - **Longitude Resolution:** 0.000001
  - **Geographic Coordinate Units:** Decimal degrees

**Geodetic Model:**
- **Horizontal Datum Name:** North American Datum of 1983
- **Ellipsoid Name:** Geodetic Reference System 80
- **Semi-major Axis:** 6378137.000000
- **Denominator of Flattening Ratio:** 298.257222
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 Puget Sound and Strait of Juan de Fuca atlas, the number is 79), 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 in this
data set representing locations of bird 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.

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 (79), 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: 0790100002
  Range_Domain_Maximum: 0790103466

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: 079000004
  Range_Domain_Maximum: 079000398

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: 079000001
  Range_Domain_Maximum: 079000797

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 (79), 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: 0790100002
Range Domain Maximum: 0793400327

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: 079000001
Range Domain Maximum: 079000797

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. No concentration data were available for birds, 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.

*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

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 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: 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.

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.

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:
<table>
<thead>
<tr>
<th>Enumerated_Domain_Value</th>
<th>Definition</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>M_MAMMAL</td>
<td>Marine Mammals</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>REPTILE</td>
<td>Reptiles and Amphibians</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>T_MAMMAL</td>
<td>Terrestrial Mammals</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>alcid</td>
<td>Alcid</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>bivalve</td>
<td>Bivalve</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>cephalopod</td>
<td>Cephalopod</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>crab</td>
<td>Crab</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>diadromous</td>
<td>Diadromous fish</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>diving</td>
<td>Diving bird</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>echinoderm</td>
<td>Echinoderm</td>
<td>Research Planning, Inc.</td>
</tr>
</tbody>
</table>
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: 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: kelp
Enumerated_Domain_Value_Definition: Kelp
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: m_benthic
Enumerated_Domain_Value_Definition: Marine benthic fish
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: m_pelagic
Enumerated_Domain_Value_Definition: Marine pelagic fish
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: pelagic
Enumerated_Domain_Value_Definition: Pelagic 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: sea otter
Enumerated_Domain_Value_Definition: Sea otter
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.
  Enumerated_Domain:
    Enumerated_Domain_Value: shrimp
    Enumerated_Domain_Value_Definition: Shrimps
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Enumerated_Domain:
    Enumerated_Domain_Value: wading
    Enumerated_Domain_Value_Definition: Wading bird
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  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: 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_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 or not reported
    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

**Attribute:**
- **Attribute Label:** BREED2
- **Attribute Definition:** Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED2 = laying; 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 or not reported
        - **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 = hatching; 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:**
    - **Enumerated Domain Value:** N
      - **Enumerated Domain Value Definition:** Life-history stage or activity not present or not reported
        - **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.
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 "BIRD" then BREED4 = fledging; "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 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 or not reported
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: -

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 or not reported
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; G_SOURCE and S_SOURCE in the BIORES table; and SOURCE_ID in the ESI, HYDRO, and SOCECON data layers.
   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: Description of the source scale.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
  Unrepresentable_Domain: Acceptable values change from atlas to atlas.

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:
  Unrepresentable_Domain: Acceptable values change from atlas to atlas.

Detailed_Description:
  Entity_Type:
  Entity_Type_Label: STATUS
  Entity_Type_Definition:
    The data table STATUS identifies the species that are listed as either threatened or endangered by a state, federal, or international 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: 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: COUNTRY
    Attribute_Definition: Three-letter country abbreviation.
    Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
    Unrepresentable_Domain: Acceptable values change from atlas to atlas.

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: NOAA ESI Guidelines
Enumerated_Domain:
   Enumerated_Domain_Value: T
   Enumerated_Domain_Value_Definition: Threatened on state list
   Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines

Attribute_Domain_Values:
   Enumerated_Domain:
      Enumerated_Domain_Value: C
      Enumerated_Domain_Value_Definition: Species of Special Concern
      Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines

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: NOAA ESI Guidelines

Attribute_Domain_Values:
   Enumerated_Domain:
      Enumerated_Domain_Value: T
      Enumerated_Domain_Value_Definition: Threatened on federal list
      Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines

Attribute_Domain_Values:
   Enumerated_Domain:
      Enumerated_Domain_Value: C
      Enumerated_Domain_Value_Definition: Species of Special Concern
      Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines

Attribute:
   Attribute_Label: I
   Attribute_Definition: International 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 international list
         Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines

Attribute_Domain_Values:
   Enumerated_Domain:
      Enumerated_Domain_Value: T
      Enumerated_Domain_Value_Definition: Threatened on international list
      Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines

Attribute_Domain_Values:
   Enumerated_Domain:
      Enumerated_Domain_Value: C
      Enumerated_Domain_Value_Definition: Species of Special Concern
      Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines

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: I_DATE
  Attribute Definition:
    Publication date of source material used to assign international 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:
Puget Sound and Strait of Juan de Fuca, Washington: BIRDS (Bird Polygons)

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 Puget Sound and Strait of Juan de Fuca, Washington

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 a Geodatabase; ARC export, MOSS, and Shape files; and MARPLOT map folders. An ArcMap .mxd file, an ArcView 3.x ESI project, and an 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: 200607
Metadata Review Date: 200607
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
Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Puget Sound and Strait of Juan de Fuca, Washington: 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:

Citation Information:
Originator:

Publication Date: 200607
Title:
Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Puget Sound and Strait of Juan de Fuca, Washington: NESTS (Nest Points)

Edition: First
Geospatial Data Presentation Form: Vector digital data
Series Information:
Series Name: None
Issue Identification: Puget Sound and Strait of Juan de Fuca, Washington

Publication Information:
Publication Place: Seattle, Washington
Publisher:

Other Citation Details:
Funding was provided by Navy Region Northwest. This data set was prepared by Concurrent Technologies Corporation, Bremerton, Washington, and Sound GIS, Seattle, Washington with support from Research Planning, Inc., Columbia, South Carolina, for the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington.
Description:

Abstract:
This data set contains sensitive biological resource data for bald eagle, great blue heron, and seabird nesting sites in Puget Sound and Strait of Juan de Fuca, Washington. Vector points in this data set represent the 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 Puget Sound and Strait of Juan de Fuca. 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 Puget Sound and Strait of Juan de Fuca 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: 1978
Ending_Date: 2005

Currentness_Reference:
The biological data were compiled during 2005-2006. The currentness dates for the data range from 1978 to 2005 and are documented in the Lineage section.

Status:
Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:
Bounding_Coordinates:
West_BoundingCoordinate: -124.75100
East_BoundingCoordinate: -122.12600
North_BoundingCoordinate: 49.00000
South_BoundingCoordinate: 47.00000

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: Nests
Theme_Keyword: Birds

Place:
Puget Sound and Strait of Juan de Fuca, Washington: NESTS (Nest Points)

Place_Keyword_Thesaurus: None
Place_Keyword: Puget Sound and Strait of Juan de Fuca, Washington

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 Puget Sound and Strait of Juan de Fuca, Washington ESI data.
Browse_Graphic_File_Type: JPEG

Data_Set_Credit:
This project was funded by Navy Region Northwest and supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington.

Native_Data_Set_Environment:
The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 9.1) and SQL SERVER(r) (version 2000). The hardware configuration is PC's with Windows Operating System (2000/XP/2003).

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, habitatl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mampt.e00, mgt.e00, nests.e00, socecon.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biore, breed, breed_dt, 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 data on bird nesting sites. This information was adapted from Washington Department of Fish and Wildlife’s (WDFW) Wildlife Heritage Database and Seabird Colony Database. Contact WDFW for additional information on these databases. See also the BIRDS (Bird Polygons) data layer, part of the larger Puget Sound and Strait of Juan de Fuca, Washington ESI database, for additional bird information. These data do not necessarily represent all nest occurrences in Puget Sound and Strait of Juan de Fuca. The following species are included in this data set: (Species_ID, Common Name, Scientific Name [n/a if not applicable]): 54, Great blue heron, Ardea herodias; 76, Bald eagle, Haliaeetus leucocephalus; 1022, Seabirds, n/a.

Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:
Spatial components for the biological data layers can come from expert interviews, hardcopy, or digital sources. Some of the spatial components of the biological data layers may have been 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 or hardcopy 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: QUINN, T. AND R. MILNER
  Publication_Date: 2004
  Title:
Two main sources of data were used to depict bird distribution for this data layer: (1) Washington Department of Fish and Wildlife's (WDFW) Wildlife Heritage database, and (2) WDFW's Seabird Colony database. From the WDFW Wildlife Heritage data, we extracted points depicting bald eagle and great blue heron nesting sites. From the WDFW Marine Seabird Colony database, we extracted all colony
locations and then grouped all species into a single seabird category. Nest locations were reviewed with the HYDRO (Hydrography Lines and Polygons) layer to assure that all nests occurred on land. Some nest locations were adjusted to conform to the HYDRO layer. Concentration and seasonality information was provided by resource experts, or was extracted from published sources, reports, and survey data.

The above digital and/or hardcopy sources were compiled by the project biologist to create the NESTS data layer. Depending on the type of source data, three general approaches are used for compiling a biology data layer: (1) information gathered during initial interviews and from hardcopy sources are compiled onto U.S. Geological Survey 1:24,000 topographic quadrangles and digitized; (2) hardcopy maps are digitized at their source scale; (3) digital data layers are evaluated and used "as is" or integrated with the hardcopy data sources. See the Lineage section for additional information on the type of source data for this data layer.

Process_Date: 200603
Process_Contact:
  Contact_Information:
    Contact_Organization_Primary:
      Contact_Organization: Concurrent Technologies Corporation
      Contact_Person: Allison Bailey
  Contact_Address:
    Address_Type: Physical address
    Address: 5780 W. Werner Road
    City: Bremerton
    State_or_Province: Washington
    Postal_Code: 98312
    Contact_Voice_Telephone: (206) 459-2301
    Contact_Voice_Telephone: (360) 782-5500
    Contact_Facsimile_Telephone: (360) 782-5594
    Contact_Electronic_Mail_Address: allison@soundgis.com
  Process_Description:
    The compiled ESI, biology, and human-use data are plotted onto hardcopy draft maps. Following the delivery of draft maps to the participating resource experts, a second set of interviews are conducted to review the maps. If necessary, edits to the NESTS data layer are made based on the recommendations of the resource experts, and final hardcopy maps and digital data are created.

Process_Date: 200605
Process_Contact:
  Contact_Information:
    Contact_Organization_Primary:
      Contact_Organization: NOAA
      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
Puget Sound and Strait of Juan de Fuca, Washington: NESTS (Nest Points)

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: 1559

Spatial Reference Information:
Horizontal Coordinate System Definition:
Geographic:
Latitude Resolution: 0.000001
Longitude Resolution: 0.000001
Geographic Coordinate Units: Decimal degrees
Geodetic Model:
Horizontal Datum Name: North American Datum of 1983
Ellipsoid Name: Geodetic Reference System 80
Semi-major Axis: 6378137.000000
Denominator of Flattening Ratio: 298.257222

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, 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 Puget Sound and Strait of Juan de Fuca, Washington atlas, the number is 79), 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 in this data set representing locations of 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:**

*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 (79), element number (5), and record number.

*Attribute_Definition_Source*: NOAA

*Attribute_Domain_Values:*

*Range_Domain:*

- *Range_Domain_Minimum*: 0790500001
- *Range_Domain_Maximum*: 0790500559

**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*: 0790000001
- *Range_Domain_Maximum*: 079000003

**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: 079000001
  Range_Domain_Maximum: 079000797

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 (79), element number (5), 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: 0790100002
  Range_Domain_Maximum: 0793400327

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: 079000001
  Range_Domain_Maximum: 079000797
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. No concentration data were available for birds, so the CONC 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.

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 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
    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: alcid
        Enumerated_Domain_Value_Definition: Alcid
        Enumerated_Domain_Value_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: cephalopod
Enumerated_Domain_Value_Definition: Cephalopod
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: echinoderm
Enumerated_Domain_Value_Definition: Echinoderm
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: 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: kelp
Enumerated_Domain_Value_Definition: Kelp
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: m_benthic
Enumerated_Domain_Value_Definition: Marine benthic fish
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: m_pelagic
Enumerated_Domain_Value_Definition: Marine pelagic fish
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: pelagic
Enumerated_Domain_Value_Definition: Pelagic 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: sea otter
Enumerated Domain Value Definition: Sea otter
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: shrimp
Enumerated Domain Value Definition: Shrimps
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.
    Enumerated Domain Value: 0
    Enumerated Domain Value Definition: Date unspecified
    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:
   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.
Puget Sound and Strait of Juan de Fuca, Washington: NESTS (Nest Points)

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 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 or not reported
  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 = laying; 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 or not reported
  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 = hatching; 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 or not reported
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 "BIRD" then BREED4 = fledging; 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 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 or not reported
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 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 or not reported
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; G_SOURCE and S_SOURCE in the BIORES table; and SOURCE_ID in the ESI, HYDRO, and SOCECON data layers.
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: Description of the source scale.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Unrepresentable_Domain: Acceptable values change from atlas to atlas.

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:
  Unrepresentable_Domain: Acceptable values change from atlas to atlas.

Detailed_Description:
Entity_Type:
Entity_Type_Label: STATUS
Entity_Type_Definition:
The data table STATUS identifies the species that are listed as either threatened or endangered by a state, federal, or international 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.
**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 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 Label: COUNTRY
Attribute Definition: Three-letter country abbreviation.
Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Unrepresentable Domain: Acceptable values change from atlas to atlas.

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: NOAA ESI Guidelines
  Attribute Domain Values:
    Enumerated Domain:
      Enumerated Domain Value: T
        Enumerated Domain Value Definition: Threatened on state list
        Enumerated Domain Value Definition Source: NOAA ESI Guidelines
  Attribute Domain Values:
    Enumerated Domain:
      Enumerated Domain Value: C
        Enumerated Domain Value Definition: Species of Special Concern
        Enumerated Domain Value Definition Source: NOAA ESI Guidelines

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: NOAA ESI Guidelines
  Attribute Domain Values:
    Enumerated Domain:
      Enumerated Domain Value: T
        Enumerated Domain Value Definition: Threatened on federal list
        Enumerated Domain Value Definition Source: NOAA ESI Guidelines
  Attribute Domain Values:
    Enumerated Domain:
      Enumerated Domain Value: C
        Enumerated Domain Value Definition: Species of Special Concern
        Enumerated Domain Value Definition Source: NOAA ESI Guidelines

Attribute Label: I
Attribute Definition: International 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 international list
  Enumerated Domain Value Definition Source: NOAA ESI Guidelines

Attribute Domain Values:
Enumerated Domain:
  Enumerated Domain Value: T
  Enumerated Domain Value Definition: Threatened on international list
  Enumerated Domain Value Definition Source: NOAA ESI Guidelines

Attribute Domain Values:
Enumerated Domain:
  Enumerated Domain Value: C
  Enumerated Domain Value Definition: Species of Special Concern
  Enumerated Domain Value Definition Source: NOAA ESI Guidelines

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: I_DATE
Attribute Definition:
  Publication date of source material used to assign international 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.
for month

\textit{Enumerated\_Domain\_Value\_Definition\_Source:} Research Planning, Inc.

\textbf{Attribute:}

\textit{Attribute\_Label:} EL\_SPE

\textit{Attribute\_Definition:}

Concatenation of ELEMENT and SPECIES\_ID. This item links the STATUS data table to the BIORES and SPECIES data tables.

\textit{Attribute\_Definition\_Source:} Research Planning, Inc.

\textbf{Attribute\_Domain\_Values:}

\textbf{Enumerated\_Domain:}

\textit{Enumerated\_Domain\_Value:} E####

\textit{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').

\textit{Enumerated\_Domain\_Value\_Definition\_Source:} Research Planning, Inc.

\textbf{Distribution\_Information:}

\textbf{Distributor:}

\textbf{Contact\_Information:}

\textit{Contact\_Person\_Primary:}

\textit{Contact\_Person:} John Kaperick

\textit{Contact\_Organization:} NOAA, Office of Response and Restoration

\textit{Contact\_Address:}

\textit{Address\_Type:} Physical Address

\textit{Address:} 7600 Sand Point Way N.E.

\textit{City:} Seattle

\textit{State\_or\_Province:} Washington

\textit{Postal\_Code:} 98115-6349

\textit{Contact\_Voice\_Telephone:} (206) 526-6400

\textit{Contact\_Facsimile\_Telephone:} (206) 526-6329

\textbf{Resource\_Description:}

ESI Atlas for Puget Sound and Strait of Juan de Fuca, Washington

\textbf{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.

\textbf{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 a Geodatabase; ARC export, MOSS, and Shape files; and MARPLOT map folders. An ArcMap .mxd file, an ArcView 3.x ESI project, and an 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: 200607
Metadata_Review_Date: 200607
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 2.8.21 on Mon Jul 24 12:24:28 2006
Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Puget Sound and Strait of Juan de Fuca, Washington: FISH (Fish 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:

Citation_Information:
 Originator:

Publication_Date: 200607
Title:
Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Puget Sound and Strait of Juan de Fuca, Washington: FISH (Fish Polygons)
Edition: First
Geospatial_Data_Presentation_Form: Vector digital data
Series_Information:
 Series_Name: None
 Issue_Identification: Puget Sound and Strait of Juan de Fuca, Washington

Publication_Information:
 Publication_Place: Seattle, Washington
Publisher:

Other_Citation_Details:
Funding was provided by Navy Region Northwest. This data set was prepared by Concurrent Technologies Corporation, Bremerton, Washington, and Sound GIS, Seattle, Washington with support from Research Planning, Inc., Columbia, South Carolina, for the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington.
Description:

Abstract:

This data set contains sensitive biological resource data for forage fish in Puget Sound and Strait of Juan de Fuca, Washington. Vector polygons in this data set represent herring spawning and pre-spawner holding areas. 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 Puget Sound and Strait of Juan de Fuca, Washington. 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 Puget Sound and Strait of Juan de Fuca 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: 1992
Ending_Date: 2005

Currentness_Reference:

The biological data were compiled during 2005-2006. The currentness dates for the data range from 1992 to 2005 and are documented in the Lineage section.

Status:

Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -124.75100
East_Bounding_Coordinate: -122.12600
North_Bounding_Coordinate: 49.00000
South_Bounding_Coordinate: 47.00000

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: Puget Sound and Strait of Juan de Fuca, Washington

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 Puget Sound and Strait of Juan de Fuca, Washington ESI data.
Browse_Graphic_File_Type: JPEG

Data_Set_Credit:
This project was funded by Navy Region Northwest and supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington.

Native_Data_Set_Environment:
The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 9.1) and SQL SERVER(r) (version 2000). The hardware configuration is PC's with Windows Operating System (2000/XP/2003).

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, habitatl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mampt.e00, mgt.e00, nests.e00, socecon.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biores, breed, breed_dt, 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 data on herring spawn and pre-spawner holding areas. The information was adapted from WDFW's Marine Species database. See also the FISHL (Fish Lines) data layer, part of the larger Puget Sound and Strait of Juan de Fuca, Washington ESI database, for additional fish information. These data do not necessarily represent all forage fish occurrences in Puget Sound and Strait of Juan de Fuca. The following species are included in this data set: (Species_ID, Common Name, Scientific Name [n/a if not applicable]): 66, Pacific herring, Clupea pallasii pallasii.

Positional_Accuracy:
Horizontal_Positional_Accuracy_Report:
Spatial components for the biological data layers can come from expert interviews, hardcopy, or digital sources. Some of the spatial components of the biological data layers may have been 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 or hardcopy 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: STICK, K.C.
Publication_Date: 2005
Title: 2004 WASHINGTON STATE HERRING STOCK STATUS REPORT
Geospatial_Data_Presentation_Form: REPORT
Other_Citation_Details:
WASHINGTON DEPARTMENT OF FISH AND WILDLIFE, FISH PROGRAM, FISH MANAGEMENT DIVISION. OLYMPIA, WA. ONLINE:
The data source used to depict herring locations for this data layer was the Washington Department of Fish and Wildlife's (WDFW) Marine Species database. From this database, we extracted polygons delineating herring spawn areas and pre-spawner holding areas. Due to variation in shoreline delineation, the FISH polygons were clipped to the water portions of the HYDRO (Hydrography Lines and Polygons) layer. Concentration and seasonality information was provided by resource experts, or was extracted from published sources, reports, and survey data.

The above digital and/or hardcopy sources were compiled by the project biologist to create the FISH data layer. Depending on the type of source data, three general approaches are used for compiling a biology data layer: (1) information gathered during initial interviews and from hardcopy sources are compiled onto U.S. Geological Survey 1:24,000 topographic quadrangles and digitized; (2) hardcopy maps are digitized at their source scale; (3) digital data layers are evaluated and used "as is" or integrated with the hardcopy data sources. See the Lineage section for additional information on the type of source data for this data layer.
The compiled ESI, biology, and human-use data are plotted onto hardcopy draft maps. Following the delivery of draft maps to the participating resource experts, a second set of interviews is conducted to review the maps. If necessary, edits to the FISH data layer are made based on the recommendations of the resource experts, and final hardcopy maps and digital data are created.

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 chains
      Point_and_Vector_Object_Count: 116
    SDTS_Terms_Description:
      SDTS_Point_and_Vector_Object_Type: Area point
      Point_and_Vector_Object_Count: 117
    SDTS_Terms_Description:
      SDTS_Point_and_Vector_Object_Type: Complete chain
Puget Sound and Strait of Juan de Fuca, Washington: FISH (Fish Polygons)

**Point and Vector Object Count:** 161

**SDTS Terms Description:**
- **SDTS Point and Vector Object Type:** Link
- **Point and Vector Object Count:** 41130

**SDTS Terms Description:**
- **SDTS Point and Vector Object Type:** Node, planar graph
- **Point and Vector Object Count:** 159

**Spatial Reference Information:**

**Horizontal Coordinate System Definition:**
- **Geographic:**
  - **Latitude Resolution:** 0.000001
  - **Longitude Resolution:** 0.000001
  - **Geographic Coordinate Units:** Decimal degrees

**Geodetic Model:**
- **Horizontal Datum Name:** North American Datum of 1983
- **Ellipsoid Name:** Geodetic Reference System 80
- **Semi-major Axis:** 6378137.000000
- **Denominator of Flattening Ratio:** 298.257222

**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, 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 Puget Sound and Strait of Juan de Fuca atlas, the number is 79), 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 in this data set representing herring spawning and pre-spawner holding 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 (79), 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:** 0790200002
  - **Range_Domain_Maximum:** 0790200117

**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:** 079000399
  - **Range_Domain_Maximum:** 079000400
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**: 079000001  
**Range_Domain_Maximum**: 079000797

**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 (79), 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**: 0790100002  
**Range_Domain_Maximum**: 0793400327

**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**: 079000001  
**Range_Domain_Maximum**: 079000797

**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. No concentration data were available for 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.

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 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.

**Attribute 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: alcid
Enumerated_Domain_Value_Definition: Alcid
Enumerated_Domain_Value_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: cephalopod
Enumerated_Domain_Value_Definition: Cephalopod
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: echinoderm
   Enumerated_Domain_Value_Definition: Echinoderm
   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: 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: kelp
   Enumerated_Domain_Value_Definition: Kelp
   Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_DOMAIN_Values:
   Enumerated_Domain:
   Enumerated_Domain_Value: m_benthic
   Enumerated_Domain_Value_Definition: Marine benthic fish
   Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_DOMAIN_Values:
   Enumerated_Domain:
   Enumerated_Domain_Value: m_pelagic
   Enumerated_Domain_Value_Definition: Marine pelagic fish
   Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_DOMAIN_Values:
   Enumerated_Domain:
   Enumerated_Domain_Value: pelagic
   Enumerated_Domain_Value_Definition: Pelagic 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.

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: sea otter
  Enumerated Domain Value Definition: Sea otter
  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: shrimp
  Enumerated Domain Value Definition: Shrimps
  Enumerated Domain Value Definition Source: Research Planning, Inc.

Enumerated Domain:
- Enumerated Domain Value: wading
  Enumerated Domain Value Definition: Wading bird
  Enumerated Domain Value Definition Source: Research Planning, Inc.

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

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: Date unspecified
  - 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 element.

**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>N</td>
<td>Life-history stage or activity not present or not reported</td>
<td>Research Planning, Inc.</td>
<td></td>
</tr>
</tbody>
</table>

**Attribute:** BREED2

**Attribute Definition:**

Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED2 = laying; 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>
<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>N</td>
<td>Life-history stage or activity not present or not reported</td>
<td>Research Planning, Inc.</td>
<td></td>
</tr>
</tbody>
</table>

**Attribute:** BREED3

**Attribute Definition:**

Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED3 =
hatching; 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.

**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 or not reported
  - **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:** BREED4

**Attribute Label:** BREED4

**Attribute Definition:**

Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED4 = fledging; 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 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 or not reported
  - **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.
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 or not reported
    - 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; G_SOURCE and S_SOURCE in the BIORES table; and SOURCE_ID in the ESI, HYDRO, and SOCECON data layers.

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:**

- **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:** Description of the source scale.
  - **Attribute Definition Source:** Research Planning, Inc.
  - **Attribute Domain Values:**
    - **Unrepresentable Domain:** Acceptable values change from atlas to atlas.

**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:**
    - **Unrepresentable Domain:** Acceptable values change from atlas to atlas.

**Detailed Description:**

**Entity Type:**

- **Entity Type Label:** STATUS
  - **Entity Type Definition:**
    The data table STATUS identifies the species that are listed as either threatened or endangered by a state, federal, or international 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_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: 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: COUNTRY
Attribute_Definition: Three-letter country abbreviation.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
   Unrepresentable_Domain: Acceptable values change from atlas to atlas.

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: NOAA ESI Guidelines

Attribute_Domain_Values:
   Enumerated_Domain:
      Enumerated_Domain_Value: T
      Enumerated_Domain_Value_Definition: Threatened on state list
      Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines

Attribute_Domain_Values:
   Enumerated_Domain:
      Enumerated_Domain_Value: C
      Enumerated_Domain_Value_Definition: Species of Special Concern
      Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines

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: NOAA ESI Guidelines

Attribute_Domain_Values:
   Enumerated_Domain:
      Enumerated_Domain_Value: T
      Enumerated_Domain_Value_Definition: Threatened on federal list
      Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines

Attribute_Domain_Values:
   Enumerated_Domain:
      Enumerated_Domain_Value: C
      Enumerated_Domain_Value_Definition: Species of Special Concern
      Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines

Attribute:
Attribute_Label: I
Attribute_Definition: International 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 international list
   Enumerated Domain Value Definition Source: NOAA ESI Guidelines

Attribute Domain Values:
  Enumerated Domain:
   Enumerated Domain Value: T
   Enumerated Domain Value Definition: Threatened on international list
   Enumerated Domain Value Definition Source: NOAA ESI Guidelines

Attribute Domain Values:
  Enumerated Domain:
   Enumerated Domain Value: C
   Enumerated Domain Value Definition: Species of Special Concern
   Enumerated Domain Value Definition Source: NOAA ESI Guidelines

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: I DATE
  Attribute Definition:
  Publication date of source material used to assign international 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 Puget Sound and Strait of Juan de Fuca, Washington
  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 a Geodatabase; ARC export, MOSS, and Shape files; and MARPLOT map folders. An ArcMap .mxd file, an ArcView 3.x ESI project, and an 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: 200607
Metadata_Review_Date: 200607
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 2.8.21 on Mon Jul 24 12:28:16 2006
Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Puget Sound and Strait of Juan de Fuca, Washington: 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: 200607
Title:
Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Puget Sound and Strait of Juan de Fuca, Washington: FISHL (Fish Lines)
Edition: First
Geospatial_Data_Presentation_Form: Vector digital data
Series_Information:
Series_Name: None
Issue_Identification: Puget Sound and Strait of Juan de Fuca, Washington
Publication_Information:
Publication_Place: Seattle, Washington
Publisher:
Other_Citation_Details:
Funding was provided by Navy Region Northwest. This data set was prepared by Concurrent Technologies Corporation, Bremerton, Washington, and Sound GIS, Seattle, Washington with support from Research Planning, Inc., Columbia, South Carolina, for the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington.
Description:

Abstract:

This data set contains sensitive biological resource data for marine, estuarine, and anadromous fish in Puget Sound and Strait of Juan de Fuca, Washington. Vector lines in this data set represent anadromous fish spawning runs and spawning beaches for forage fish. 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 Puget Sound and Strait of Juan de Fuca, Washington. 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 Puget Sound and Strait of Juan de Fuca 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: 1990
Ending_Date: 2005

Currentness_Reference:

The biological data were compiled during 2005-2006. The currentness dates for the data range from 1990 to 2005 and are documented in the Lineage section.

Status:

Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:

West_BoundingCoordinate: -124.75100
East_BoundingCoordinate: -122.12600
North_BoundingCoordinate: 49.00000
South_BoundingCoordinate: 47.00000

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: Puget Sound and Strait of Juan de Fuca, Washington
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 Puget Sound and Strait of Juan de Fuca, Washington ESI data.
Browse_Graphic_File_Type: JPEG

Data_Set_Credit:

This project was funded by Navy Region Northwest and supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington.

Native_Data_Set_Environment:
The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 9.1) and SQL SERVER(r) (version 2000). The hardware configuration is PC's with Windows Operating System (2000/XP/2003).

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, habitatl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mampt.e00, mgt.e00, nests.e00, socecon.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biores, breed, breed_dt, 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 data on salmonid and forage fish spawning areas. This information was adapted from Washington Department of Fish and Wildlife's (WDFW) Marine Species database and WDFW's Washington Lakes and Rivers Information System database. Contact WDFW for additional information on these databases. See also the FISH (Fish Polygons) data layer, part of the larger Puget Sound and Strait of Juan de Fuca ESI database, for additional fish information. These data do not necessarily represent all marine, estuarine, and anadromous fish occurrences in Puget Sound and Strait of Juan de Fuca. The following species are included in this data set: (Species_ID, Common Name, Scientific Name [n/a if not applicable]): 9, Rock sole, Lepidopsetta bilineata; 69, Coho salmon, Oncorhynchus kisutch; 70, Pink salmon, Oncorhynchus gorbuscha; 71, Sockeye salmon, Oncorhynchus nerka; 75, Surf smelt, Hypomesus pretiosus; 80, Pacific sand lance, Ammodytes hexapterus; 490, Chinook salmon (fall), Oncorhynchus tshawytscha (fall); 493, Chinook salmon (spring), Oncorhynchus tshawytscha (spring); 962, Steelhead (summer), Oncorhynchus mykiss (summer); 963, Steelhead (winter), Oncorhynchus mykiss (winter); 965, Chinook salmon (summer), Oncorhynchus tshawytscha (summer); 993, Chum salmon (summer), Oncorhynchus keta (summer); 994, Chum salmon (fall), Oncorhynchus keta (fall); 1080, Native char, Salvelinus spp.; 1081, Chum salmon (winter), Oncorhynchus keta (winter).

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:
Spatial components for the biological data layers can come from expert interviews, hardcopy, or digital sources. Some of the spatial components of the biological data layers may have been 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 or hardcopy 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:
WAKNITZ, K. NEELY, S.T. LINDLEY, AND R.S. WAPLES

Publication_Date: 1998
Title: STATUS REVIEW OF CHINOOK SALMON FROM WASHINGTON, IDAHO, OREGON, AND CALIFORNIA
Geospatial_Data_Presentation_Form: REPORT
Other_Citation_Details: U.S. DEPARTMENT OF COMMERCE, NOAA TECHNICAL MEMORANDUM NMFS-NWFSC-35, 443 PP.
Type_of_Source_Media: PAPER
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 1998
Source_Currentness_Reference: DATE OF PUBLICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: FISHL INFORMATION
Source_Information:
Source_Citation:
Citation_Information:
Originator:
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, NATIONAL OCEAN SERVICE
Publication_Date: 1990
Title: DISTRIBUTION AND ABUNDANCE OF FISHES AND INVERTEBRATES IN WEST COAST ESTUARIES VOLUME 1: DATA SUMMARIES
Geospatial_Data_Presentation_Form: BOOK
Other_Citation_Details: AUTHORS: MONACO, M.E., D.M. NELSON, R.L. EMMETT, AND S.A. HINTON; 240 PP.
Type_of_Source_Media: PAPER
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 1990
Source_Currentness_Reference: DATE OF PUBLICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: FISHL INFORMATION
Source_Information:
Source_Citation:
Citation_Information:
Originator: WASHINGTON DEPARTMENT OF FISH AND WILDLIFE (WDFW)
Publication_Date: 2005
Title: WASHINGTON LAKES AND RIVERS INFORMATION SYSTEM (WLRIS)
Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
Other_Citation_Details: DATA CONTACT: MARTIN HUDSON, SPATIAL DATA
Puget Sound and Strait of Juan de Fuca, Washington: FISHL (Fish Lines)

Manager, WDFW, Fish Program, Biological Data Systems, Olympia, WA 98501

Source_Scale_Denominator: 24000
Type_of_Source_Media: CD-ROM
Source_Time_Period_of_Content:
  Time_Period_Information:
    Single_Date/Time:
      Calendar_Date: 2004
Source_CurrentnessReference: GROUND CONDITION
Source_Citation_Abbreviation: NONE
Source_Contribution: FISHL INFORMATION

Source_Citation:
Citation_Information:
  Originator: Washington Department of Fish and Wildlife (WDFW)
  Publication_Date: 2005
  Title: Marine Finfish, Shellfish and Baseline GIS Coverages, Published Map Files and the Web Version of Technical Report 79
Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
Other_Citation_Details: Data Contact: Dale Gombert (Washington Department of Fish and Wildlife, 425-379-2317)

Source_Scale_Denominator: Varies
Type_of_Source_Media: CD-ROM
Source_Time_Period_of_Content:
  Time_Period_Information:
    Range_of_Dates/Times:
      Beginning_Date: 1992
      Ending_Date: 2005
Source_CurrentnessReference: GROUND CONDITION
Source_Citation_Abbreviation: NONE
Source_Contribution: FISHL INFORMATION

Source_Citation:
Citation_Information:
  Originator: Washington Department of Fish and Wildlife (WDFW)
  Publication_Date: 2000
  Title: Final Bull Trout and Dolly Varden Management Plan
Geospatial_Data_Presentation_Form: REPORT
Other_Citation_Details: Olympia, Washington, Online: <http://wdfw.wa.gov/fish/bulltrt/bulldoly.htm>

Type_of_Source_Media: ONLINE
Source_Time_Period_of_Content:
  Time_Period_Information:
    Single_Date/Time:
Two sources of data were used to depict anadromous species and forage fish locations for this data layer: (1) Washington Department of Fish and Wildlife's (WDFW) Marine Species database, and (2) WDFW's Washington Lakes and Rivers Information System database.

From the WDFW Marine Species database, we extracted lines delineating smelt, sand lance, and rock sole spawning beaches. From WDFW's Washington Lakes and Rivers Information System database, we processed the ARC/INFO route and event data to determine the combination of anadromous species that were associated with each line segment. Concentration and seasonality information was provided by resource experts, or was extracted from published sources, reports, and survey data.

The above digital and/or hardcopy sources were compiled by the project biologist to create the FISHL data layer. Depending on the type of source data, three general approaches are used for compiling a biology data layer: (1) information gathered during initial interviews and from hardcopy sources are compiled onto U.S. Geological Survey 1:24,000 topographic quadrangles and digitized; (2) hardcopy maps are digitized at their source scale; (3) digital data layers are evaluated and used "as is" or integrated with the hardcopy data sources. See the Lineage section for additional information on the type of source data for this data layer.

The compiled ESI, biology, and human-use data are plotted onto hardcopy draft maps. Following the delivery of draft maps to the participating resource experts, a second set of interviews is conducted to review the maps. If necessary, edits to the FISHL data layer are made based on the recommendations of the resource experts, and final hardcopy maps and digital data are created.
Puget Sound and Strait of Juan de Fuca, Washington: FISHL (Fish Lines)

Process Contact:
Contact Information:

Contact Organization Primary:
  Contact Organization: NOAA
  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: 6995
  SDTS Terms Description:
    SDTS Point and Vector Object Type: Link
    Point and Vector Object Count: 124077
  SDTS Terms Description:
    SDTS Point and Vector Object Type: Node, planar graph
    Point and Vector Object Count: 7844

Spatial Reference Information:
Horizontal Coordinate System Definition:
  Geographic:
    Latitude Resolution: 0.000001
    Longitude Resolution: 0.000001
    Geographic Coordinate Units: Decimal degrees

  Geodetic Model:
    Horizontal Datum Name: North American Datum of 1983
    Ellipsoid Name: Geodetic Reference System 80
    Semi-major Axis: 6378137.000000
    Denominator of Flattening Ratio: 298.257222

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, FISHL) 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 Puget Sound and Strait of Juan de Fuca atlas, the number is 79), 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: FISHL.AAT
Entity_Type_Definition:
The FISHL.AAT table contains attribute information for the vector lines in this data set representing anadromous fish spawning runs and forage fish spawning beaches. 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 (79), element number (22; 20 because it is a line feature, plus 2, the element value for FISH), and record number.

**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 (79), 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:** 079000001
- **Range_Domain_Maximum:** 0793400327
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: 079000001
  Range_Domain_Maximum: 079000797

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. No concentration data were available for 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.

**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.
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:
      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_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: alcid
      Enumerated_Domain_Value_Definition: Alcid
      Enumerated_Domain_Value_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: cephalopod
      Enumerated_Domain_Value_Definition: Cephalopod
      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: echinoderm
      Enumerated_Domain_Value_Definition: Echinoderm
      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: 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: kelp
Enumerated_Domain_Value_Definition: Kelp
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: m_benthic
Enumerated_Domain_Value_Definition: Marine benthic fish
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: m_pelagic
Enumerated_Domain_Value_Definition: Marine pelagic fish
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: pelagic
Enumerated_Domain_Value_Definition: Pelagic 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: sea otter
Enumerated_Domain_Value_Definition: Sea otter
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: shrimp
Enumerated_Domain_Value_Definition: Shrimps
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.

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 Domain Values:

Enumerated Domain:

Enumerated Domain Value: 0
Enumerated Domain Value Definition: Date unspecified
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.
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_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 or not reported
  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 = laying; 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 or not reported
    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 = hatching; 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 or not reported
    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 "BIRD" then BREED4 = fledging; 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 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 or not reported
  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 or not reported
  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; G_SOURCE and S_SOURCE in the BIORES table; and SOURCE_ID in the ESI, HYDRO, and SOCECON data layers.
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:* Description of the source scale.
*Attribute_Definition_Source:* Research Planning, Inc.
*Attribute_Domain_Values:
  *Unrepresentable_Domain:* Acceptable values change from atlas to atlas.

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

**Detailed_Description:**
*Entity_Type:
  *Entity_Type_Label:* STATUS
  *Entity_Type_Definition:* The data table STATUS identifies the species that are listed as either threatened or endangered by a state, federal, or international 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.

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: 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: COUNTRY
  Attribute_Definition: Three-letter country abbreviation.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Unrepresentable_Domain: Acceptable values change from atlas to atlas.

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: NOAA ESI Guidelines
    Enumerated_Domain_Values:
      Enumerated_Domain:
        Enumerated_Domain_Value: T
        Enumerated_Domain_Value_Definition: Threatened on state list
        Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines
    Enumerated_Domain_Values:
      Enumerated_Domain:
        Enumerated_Domain_Value: C
        Enumerated_Domain_Value_Definition: Species of Special Concern
        Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines

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: NOAA ESI Guidelines
  Enumerated Domain Value: T
  Enumerated Domain Value Definition: Threatened on federal list
  Enumerated Domain Value Definition Source: NOAA ESI Guidelines
  Enumerated Domain Value: C
  Enumerated Domain Value Definition: Species of Special Concern
  Enumerated Domain Value Definition Source: NOAA ESI Guidelines

Attribute Label: I
Attribute Definition: International 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 international list
    Enumerated Domain Value Definition Source: NOAA ESI Guidelines
  Enumerated Domain Value: T
  Enumerated Domain Value Definition: Threatened on international list
  Enumerated Domain Value Definition Source: NOAA ESI Guidelines
  Enumerated Domain Value: C
  Enumerated Domain Value Definition: Species of Special Concern
  Enumerated Domain Value Definition Source: NOAA ESI Guidelines

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 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: I_DATE

Attribute Definition:
Publication date of source material used to assign international 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
Bus. Name: Puget Sound and Strait of Juan de Fuca, Washington: FISHL (Fish Lines)

Contact_Facsimile_Telephone: (206) 526-6329

Resource_Description:
ESI Atlas for Puget Sound and Strait of Juan de Fuca, Washington

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 a Geodatabase; ARC export, MOSS, and Shape files; and MARPLOT map folders. An ArcMap .mxd file, an ArcView 3.x ESI project, and an 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: 200607
Metadata_Review_Date: 200607
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 2.8.21 on Mon Jul 24 12:32:07 2006
Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Puget Sound and Strait of Juan de Fuca, Washington: 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: 200607

Title:

Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Puget Sound and Strait of Juan de Fuca, Washington: INVERT (Invertebrate Polygons)

Edition: First

Geospatial_Data_Presentation_Form: Vector digital data

Series_Information:

Series_Name: None

Issue_Identification: Puget Sound and Strait of Juan de Fuca, Washington

Publication_Information:

Publication_Place: Seattle, Washington

Publisher:


Other_Citation_Details:

Funding was provided by Navy Region Northwest. This data set was prepared by Concurrent Technologies Corporation, Bremerton, Washington, and Sound GIS, Seattle, Washington with support from Research Planning, Inc., Columbia, South Carolina, for the National Oceanic and Atmospheric Administration (NOAA),

Description:

Abstract:

This data set contains sensitive biological resource data for clams, oysters, crabs, and other invertebrate species in Puget Sound and Strait of Juan de Fuca, Washington. 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 Puget Sound and Strait of Juan de Fuca, Washington. 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: 1992
Ending_Date: 2005

Currentness_Reference:

The biological data were compiled during 2005-2006. The currentness dates for the data range from 1992 to 2005 and are documented in the Lineage section.

Status:

Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:

West_BoundingCoordinate: -124.75100
East_BoundingCoordinate: -122.12600
North_BoundingCoordinate: 49.00000
South_BoundingCoordinate: 47.00000

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: Puget Sound and Strait of Juan de Fuca, Washington

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 Puget Sound and Strait of Juan de Fuca, Washington ESI data.
Browse_Graphic_File_Type: JPEG

Data_Set_Credit:
This project was funded by Navy Region Northwest and supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington.

Native_Data_Set_Environment:
The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 9.1) and SQL SERVER(r) (version 2000). The hardware configuration is PC's with Windows Operating System (2000/XP/2003). 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, habitatl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mampt.e00, mgt.e00, nests.e00, soc econ.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biores, breed, breed_dt, 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 data on invertebrate concentration areas. This information was adapted from Washington Department of Fish and Wildlife's (WDFW) Marine Species database. Contact WDFW for additional information on this database. These data do not necessarily represent all invertebrate occurrences in Puget Sound and Strait of Juan de Fuca. The following species are included in this data set: (Species ID, Common Name, Scientific Name [n/a if not applicable]): 14, Dungeness crab, Cancer magister; 25, Softshell clam, Mya arenaria; 32, Geoduck, Panopea abrupta; 53, Red rock crab, Cancer productus; 79, Pacific oyster, Crassostrea gigas; 172, Giant octopus, Enteroctopus dofleini; 1009, Sea urchins, n/a; 1049, Pandalid shrimp, Pandalus spp.; 1051, Scallops, n/a; 1059, Hardshell clams, n/a.

Positional_Accuracy:
Horizontal_Positional_Accuracy:
Horizontal_Positional_Accuracy_Report:
Spatial components for the biological data layers can come from expert interviews, hardcopy, or digital sources. Some of the spatial components of the biological data layers may have been 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 or hardcopy 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: WASHINGTON DEPARTMENT OF FISH AND WILDLIFE
Publication_Date: 2005
Title: MARINE FINFISH, SHELLFISH AND BASELINE GIS COVERAGES, PUBLISHED MAP FILES AND THE WEB VERSION
The data source used to depict invertebrate distribution for this data layer was Washington Department of Fish and Wildlife's (WDFW) Marine Species database.

From the WDFW Marine Species data, we extracted polygons depicting concentration areas for clams, oyster, scallops, shrimp, sea urchins, crabs, and octopus. Concentration and seasonality information was provided by resource experts, or was extracted from published sources, reports, and survey data.

The above digital and/or hardcopy sources were compiled by the project biologist to create the INVERT data layer. Depending on the type of source data, three general approaches are used for compiling a biology data layer: (1) information gathered during initial interviews and from hardcopy sources are compiled onto U.S. Geological Survey 1:24,000 topographic quadrangles and digitized; (2) hardcopy maps are digitized at their source scale; (3) digital data layers are evaluated and used "as is" or integrated with the hardcopy data sources. See the Lineage section for additional information on the type of source data for this data layer.
Process Description:
The compiled ESI, biology, and human-use data are plotted onto hardcopy draft maps. Following the delivery of draft maps to the participating resource experts, a second set of interviews is conducted to review the maps. If necessary, edits to the INVERT data layer are made based on the recommendations of the resource experts, and final hardcopy maps and digital data are created.

Process_Date: 200605

Process Contact:
Contact Information:
  Contact Organization_Primary:
    Contact Organization: NOAA
    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 chains
    Point_and_Vector_Object_Count: 4035
  SDTS_Terms_Description:
    SDTS_Point_and_Vector_Object_Type: Area point
    Point_and_Vector_Object_Count: 4036
  SDTS_Terms_Description:
    SDTS_Point_and_Vector_Object_Type: Complete chain
    Point_and_Vector_Object_Count: 8216
  SDTS_Terms_Description:
    SDTS_Point_and_Vector_Object_Type: Link
    Point_and_Vector_Object_Count: 187397
  SDTS_Terms_Description:
    SDTS_Point_and_Vector_Object_Type: Node, planar graph
    Point_and_Vector_Object_Count: 4773

Spatial Reference Information:
  Horizontal_Coordinate_System_Definition:
    Geographic:
      Latitude_Resolution: 0.000001
      Longitude_Resolution: 0.000001
      Geographic_Coordinate_Units: Decimal degrees
    Geodetic_Model:
      Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80  
Semi-major_Axis: 6378137.000000  
Denominator_of_Flattening_Ratio: 298.257222

Entity_and_Attribute_Information:  
Overview_Description:  
Entity_and_Attribute_Overview:  
In addition to the geographic data layers, six relational attribute or data tables, BIORES, BREEED, 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 Puget Sound and Strait of Juan de Fuca atlas, the number is 79), 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 in this data set representing locations of concentrations areas for clams, oysters, crabs, and other invertebrate 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.

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 (79), 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: 0790700002
  Range_Domain_Maximum: 0790704099

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: 079000655
  Range_Domain_Maximum: 079000787

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: 079000001
Puget Sound and Strait of Juan de Fuca, Washington: INVERT (Invertebrate Polygons)

**Range_Domain_Maximum:** 079000797

**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 (79), 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:** 0790100002
- **Range_Domain_Maximum:** 0793400327

**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:** 079000001
- **Range_Domain_Maximum:** 079000797

**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. No concentration data were available for invertebrates, 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.

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: 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
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: alcid
Enumerated_Domain_Value_Definition: Alcid
Enumerated_Domain_Value_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: cephalopod
Enumerated_Domain_Value_Definition: Cephalopod
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: echinoderm
    Enumerated_Domain_Value_Definition: Echinoderm
    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: 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: kelp
    Enumerated_Domain_Value_Definition: Kelp
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: m_benthic
    Enumerated_Domain_Value_Definition: Marine benthic fish
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: m_pelagic
    Enumerated_Domain_Value_Definition: Marine pelagic fish
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: pelagic
    Enumerated_Domain_Value_Definition: Pelagic 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: sea otter
  Enumerated_Domain_Value_Definition: Sea otter
  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: shrimp
  Enumerated_Domain_Value_Definition: Shrimps
  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
  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: Date unspecified
  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:

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:

Enumerated_Domain_Value: VERT
Enumerated_Domain_Value_Definition: Vertebrates
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
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.

**Attribute_Domain_Values:**  
**Enumerated_Domain:**  
**Enumerated_Domain_Value:** N  
**Enumerated_Domain_Value_Definition:** Life-history stage or activity not present or not reported  
**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 = laying; 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 or not reported
    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 = hatching; 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 or not reported
Attribute Domain Values:

Enumerated Domain:
- Enumerated Domain Value: Breed category not used or not appropriate for record(s) in question

Enumerated Domain Value Definition: Research Planning, Inc.

Attribute:

Attribute Label: BREED4

Attribute Definition:
Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED4 = fledging; 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 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:
- Enumerated Domain Value: N
  Enumerated Domain Value Definition: Life-history stage or activity not present or not reported
  Enumerated Domain Value Definition Source: Research Planning, Inc.

Enumerated Domain Value:
- 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 Value:
- Enumerated Domain Value: N
  Enumerated Domain Value Definition: Life-history stage or activity not present or not reported
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.

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; G_SOURCE and S_SOURCE in the BIORES table; and SOURCE_ID in the ESI, HYDRO, and SOCECON data layers.

Attribute_Domain_Values:

Attribute:
Attribute_Label: ORIGINATOR
Attribute_Definition: Author or developer of source material or data set.

Attribute_Domain_Values:

Attribute:
Attribute_Label: DATE_PUB
Attribute_Definition: Date of source material, publication, or date of personal communication with expert source.

Attribute_Domain_Values:

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

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:
  Unrepresentable_Domain: Acceptable values change from atlas to atlas.

Detailed_Description:
Entity_Type:
  Entity_Type_Label: STATUS
  Entity_Type_Definition:
  The data table STATUS identifies the species that are listed as either threatened or endangered by a state, federal, or international 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.

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: 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: COUNTRY
  Attribute_Definition: Three-letter country abbreviation.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Unrepresentable_Domain: Acceptable values change from atlas to atlas.

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: NOAA ESI Guidelines

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: T
    Enumerated_Domain_Value_Definition: Threatened on state list
    Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines

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: NOAA ESI Guidelines

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: T
    Enumerated_Domain_Value_Definition: Threatened on federal list
    Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: C
    Enumerated_Domain_Value_Definition: Species of Special Concern
    Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines

Attribute:
  Attribute_Label: I
  Attribute_Definition: International 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 international list
      Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: T
    Enumerated_Domain_Value_Definition: Threatened on international list
    Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: C
    Enumerated_Domain_Value_Definition: Species of Special Concern
    Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines
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: I_DATE
Attribute_Definition:
Publication date of source material used to assign international 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 Puget Sound and Strait of Juan de Fuca, Washington

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 a Geodatabase; ARC export, MOSS, and Shape files; and MARPLOT map folders. An ArcMap .mxd file, an ArcView 3.x ESI project, and an 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: 200607
Metadata Review Date: 200607
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_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 2.8.21 on Mon Jul 24 12:35:55 2006
Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Puget Sound and Strait of Juan de Fuca, Washington: 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:

Citation Information:

Originator:


Publication Date: 200607

Title:

Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Puget Sound and Strait of Juan de Fuca, Washington: M_MAMPT (Marine Mammal Points)

Edition: First

Geospatial Data Presentation Form: Vector digital data

Series Information:

Series Name: None

Issue Identification: Puget Sound and Strait of Juan de Fuca, Washington

Publication Information:

Publication Place: Seattle, Washington

Publisher:


Other Citation Details:

Funding was provided by Navy Region Northwest. This data set was prepared by Concurrent Technologies Corporation, Bremerton, Washington, and Sound GIS, Seattle, Washington with support from Research Planning, Inc., Columbia, South Carolina, for the National Oceanic and Atmospheric Administration (NOAA),

Description:

Abstract:
This data set contains sensitive biological resource data for sea otters, sea lions, and harbor seals in Puget Sound and Strait of Juan de Fuca, Washington. Vector points in this data set represent seal and sea lion haulout sites, as well as observed sea otter concentrations. 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 Puget Sound and Strait of Juan de Fuca, Washington. 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: 1978
  Ending_Date: 2006

Currentness_Reference:
The biological data were compiled during 2005-2006. The currentness dates for the data range from 1978 to 2006 and are documented in the Lineage section.

Status:
  Progress: Complete
  Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:
  West_Bounding_Coordinate: -124.75100
  East_Bounding_Coordinate: -122.12600
  North_Bounding_Coordinate: 49.00000
  South_Bounding_Coordinate: 47.00000

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 Mammals

Place:
  Place_Keyword_Thesaurus: None
Place_Keyword: Puget Sound and Strait of Juan de Fuca, Washington
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 Puget Sound and Strait of Juan de Fuca, Washington ESI data.
Browse_Graphic_File_Type: JPEG
Data_Set_Credit:
This project was funded by Navy Region Northwest and supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington.
Native_Data_Set_Environment:
The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 9.1) and SQL SERVER(r) (version 2000). The hardware configuration is PC's with Windows Operating System (2000/XP/2003).
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, habitatl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mampt.e00, mgt.e00, nests.e00, socecon.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biores, breed, breed_dt, 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_Conistency_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 data on seal and sea lion haulout sites and observed sea otter concentrations. This information was adapted from Washington Department of Fish and Wildlife’s (WDFW) Wildlife Heritage database and WDFW's Seal and Sea Lion Haulout database. Contact WDFW for additional information on these databases. These data do not necessarily represent all marine mammal occurrences in Puget Sound and Strait of Juan de Fuca. The following species are included in this data set: (Species_ID, Common Name, Scientific Name [n/a if not applicable]): 1, Steller sea lion, Eumetopias jubatus; 2, Harbor seal, Phoca vitulina; 7, Sea otter, Enhydra lutris; 22, California sea lion, Zalophus californianus.

Positional_Accuracy:

Horizontal_Positional_Accuracy:
Horizontal_Positional_Accuracy_Report:
Spatial components for the biological data layers can come from expert interviews, hardcopy, or digital sources. Some of the spatial components of the biological data layers may have been 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 or hardcopy 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: BARRY TROUTMAN (WASHINGTON DEPARTMENT OF FISH AND WILDLIFE)
Publication_Date: 2006
Title: SEASONALITY DATA FOR STELLER SEA LIONS AND CALIFORNIA SEA LIONS
Geospatial_Data_Presentation_Form: EXPERT KNOWLEDGE
Other_Citation_Details: UNPUBLISHED
Type_of_Source_Media: PERSONAL COMMUNICATION
Source_Time_Period_of_Content:
   Time_Period_Information:
      Single_Date/Time:
         Calendar_Date: 2006
Source_Currentness_Reference: DATE OF COMMUNICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: M_MAMPT INFORMATION
Source_Information:
   Source_Citation:
      Citation_Information:
         Publication_Date: 2000
         Title: ATLAS OF SEAL AND SEA LION HAULOUT SITES IN WASHINGTON
         Geospatial_Data_Presentation_Form: REPORT
      Other_Citation_Details:
         WASHINGTON DEPARTMENT OF FISH AND WILDLIFE, WILDLIFE SCIENCE DIVISION, 600 CAPITOL WAY NORTH, OLYMPIA WA. PP. 150. ONLINE: <http://wdfw.wa.gov/wlm/research/papers/seal_haulout>

Type_of_Source_Media: ONLINE
Source_Time_Period_of_Content:
   Time_Period_Information:
      Single_Date/Time:
         Calendar_Date: 2000
Source_Currentness_Reference: DATE OF PUBLICATIONS
Source_Citation_Abbreviation: NONE
Source_Contribution: M_MAMPT INFORMATION
Source_Information:
   Source_Citation:
      Citation_Information:
         Originator: LANCE, M.M., S.A. RICHARDSON AND H.L. ALLEN
         Publication_Date: 2004
         Title: WASHINGTON STATE RECOVERY PLAN FOR THE SEA OTTER
         Geospatial_Data_Presentation_Form: REPORT
      Other_Citation_Details:

Type_of_Source_Media: ONLINE
Source_Time_Period_of_Content:
   Time_Period_Information:
      Single_Date/Time:
         Calendar_Date: 2004
Source_Currentness_Reference: DATE OF PUBLICATIONS
Source_Citation_Abbreviation: NONE
Two main sources of data were used to depict marine mammal locations for this data layer: (1) Washington Department of Fish and Wildlife's (WDFW) Wildlife Heritage database, and (2) WDFW's Seal and Sea Lion Haulout database.

From the WDFW Seal and Sea Lion Haulout data, we extracted all points depicting seal and sea lion haulouts. The harbor seal haulouts were spatially subset into regions due to the geographic variation in pupping and molting seasons. From the WDFW Wildlife Heritage database, we extracted all sea otter point locations. Concentration and seasonality information was provided by resource experts, or was...
extracted from published sources, reports, and survey data.

The above digital and/or hardcopy sources were compiled by the project biologist to create the M_MAMPT data layer. Depending on the type of source data, three general approaches are used for compiling a biology data layer: (1) information gathered during initial interviews and from hardcopy sources are compiled onto U.S. Geological Survey 1:24,000 topographic quadrangles and digitized; (2) hardcopy maps are digitized at their source scale; (3) digital data layers are evaluated and used "as is" or integrated with the hardcopy data sources. See the Lineage section for additional information on the type of source data for this data layer.

Process_Date: 200603
Process_Contact:
Contact_Information:
  Contact_Organization_Primary:
    Contact_Organization: Concurrent Technologies Corporation
    Contact_Person: Allison Bailey
  Contact_Address:
    Address_Type: Physical address
    Address: 5780 W. Werner Road
    City: Bremerton
    State_orProvince: Washington
    Postal_Code: 98312
  Contact_Voice_Telephone: (206) 459-2301
  Contact_Voice_Telephone: (360) 782-5500
  Contact_Facsimile_Telephone: (360) 782-5594
  Contact_Electronic_Mail_Address: allison@soundgis.com

Process_Description:
The compiled ESI, biology, and human-use data are plotted onto hardcopy draft maps. Following the delivery of draft maps to the participating resource experts, a second set of interviews is conducted to review the maps. If necessary, edits to the M_MAMPT data layer are made based on the recommendations of the resource experts, and final hardcopy maps and digital data are created.

Process_Date: 200605
Process_Contact:
Contact_Information:
  Contact_Organization_Primary:
    Contact_Organization: NOAA
    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: Entity Point
  - Point and Vector Object Count: 327

Spatial Reference Information:
- Horizontal Coordinate System Definition:
  - Geographic:
    - Latitude Resolution: 0.000001
    - Longitude Resolution: 0.000001
    - Geographic Coordinate Units: Decimal degrees
  - Geodetic Model:
    - Horizontal Datum Name: North American Datum of 1983
    - Ellipsoid Name: Geodetic Reference System 80
    - Semi-major Axis: 6378137.00000
    - Denominator of Flattening Ratio: 298.257222

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, 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 Puget Sound and Strait of Juan de Fuca atlas, the number is 79), 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_Definition:**

The M_MAMPT.PAT table contains attribute information for the vector points in this data set representing seal and sea lion haulout sites, as well as observed sea otter concentrations. 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 (79), 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:**

<table>
<thead>
<tr>
<th>Range_Domain_Minimum</th>
<th>Range_Domain_Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>0793400001</td>
<td>0793400327</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.

**Attribute_Definition_Source:** NOAA

**Attribute_Domain_Values:**

**Range_Domain:**

<table>
<thead>
<tr>
<th>Range_Domain_Minimum</th>
<th>Range_Domain_Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>079000788</td>
<td>079000797</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.

**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:** 079000001
- **Range_Domain_Maximum:** 079000797

**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 (79), 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:** 790100002
- **Range_Domain_Maximum:** 793400327

**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:** 079000001
- **Range_Domain_Maximum:** 079000797
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. No concentration data were available for marine mammals, 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**
**Label:** EL_SPE
**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.
**Definition Source:** Research Planning, Inc.
**Domain Values:**
- **Enumerated Domain:**
  - **Enumerated Domain Value:** E#####
  - **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').
  - **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
    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: alcid
    Enumerated Domain Value Definition: Alcid
    Enumerated Domain Value 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: cephalopod
Enumerated_Domain_Value_Definition: Cephalopod
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: echinoderm
    Enumerated_Domain_Value_Definition: Echinoderm
    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: 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: kelp
    Enumerated_Domain_Value_Definition: Kelp habitat, community, or species
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: m_benthic
    Enumerated_Domain_Value_Definition: Marine benthic fish
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: m_pelagic
    Enumerated_Domain_Value_Definition: Marine pelagic fish
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: pelagic
Enumerated_Domain_Value_Definition: Pelagic 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: sea otter
    Enumerated_Domain_Value_Definition: Sea otter
    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: shrimp
    Enumerated_Domain_Value_Definition: Shrimps
    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 Domain Values:
  Enumerated Domain:
  Enumerated Domain Value: 0
  Enumerated Domain Value Definition: Date unspecified
  Enumerated Domain Value Definition Source: Research Planning, Inc.

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 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.
<table>
<thead>
<tr>
<th>Attribute Label</th>
<th>Attribute Definition</th>
<th>Attribute Domain Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>FEB</td>
<td>February</td>
<td>X</td>
</tr>
<tr>
<td>MAR</td>
<td>March</td>
<td>X</td>
</tr>
<tr>
<td>APR</td>
<td>April</td>
<td>X</td>
</tr>
<tr>
<td>MAY</td>
<td>May</td>
<td>X</td>
</tr>
<tr>
<td>JUN</td>
<td>June</td>
<td>X</td>
</tr>
<tr>
<td>JUL</td>
<td>July</td>
<td>X</td>
</tr>
</tbody>
</table>
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 or not reported
  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 = laying; 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 or not reported
  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 = hatching; 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, N, -]
- **Enumerated Domain Value Definition**:
  - Y: Life-history stage or activity present
  - N: Life-history stage or activity not present or not reported
  - -: Breed category not used or not appropriate for record(s) in question

**Attribute Label**: BREED4

**Attribute Definition:**
Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED4 = fledging; 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 HABITAT or T_MAMMAL elements.

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

**Attribute Domain Values**:
- **Enumerated Domain**: [Y, N, -]
- **Enumerated Domain Value Definition**:
  - Y: Life-history stage or activity present
  - N: Life-history stage or activity not present or not reported
  - -: Breed category not used or not appropriate for record(s) in question
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 or not reported
  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; G_SOURCE and S_SOURCE in the BIORES table; and SOURCE_ID in the ESI, HYDRO, and SOCECON data layers.

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: Description of the source scale.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Unrepresentable_Domain: Acceptable values change from atlas to atlas.

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:
Unrepresentable_Domain: Acceptable values change from atlas to atlas.

Detailed_Description:
Entity_Type:
Entity_Type_Label: STATUS
Entity_Type_Definition:
The data table STATUS identifies the species that are listed as either threatened or endangered by a state, federal, or international 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**: 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**: COUNTRY  
**Attribute_Definition**: Three-letter country abbreviation.  
**Attribute_Definition_Source**: Research Planning, Inc.  
**Attribute_Domain_Values**:  
- Unrepresentable_Domain: Acceptable values change from atlas to atlas.

### 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: NOAA ESI Guidelines  
- Enumerated_Domain:  
  - Enumerated_Domain_Value: T  
  - Enumerated_Domain_Value_Definition: Threatened on state list  
  - Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines  
- Enumerated_Domain:  
  - Enumerated_Domain_Value: C  
  - Enumerated_Domain_Value_Definition: Species of Special Concern  
  - Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines

### 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: NOAA ESI Guidelines  
- Enumerated_Domain:  
  - Enumerated_Domain_Value: T  
  - Enumerated_Domain_Value_Definition: Threatened on federal list  
  - Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines  
- Enumerated_Domain:  
  - Enumerated_Domain_Value: C  
  - Enumerated_Domain_Value_Definition: Species of Special Concern  
  - Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines
Attribute **Label**: I
**Attribute Definition:** International 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 international list
  - **Enumerated Domain Value Definition Source:** NOAA ESI Guidelines

**Attribute Domain Values:**
- **Enumerated Domain:**
  - **Enumerated Domain Value:** T
  - **Enumerated Domain Value Definition:** Threatened on international list
  - **Enumerated Domain Value Definition Source:** NOAA ESI Guidelines

**Attribute Domain Values:**
- **Enumerated Domain:**
  - **Enumerated Domain Value:** C
  - **Enumerated Domain Value Definition:** Species of Special Concern
  - **Enumerated Domain Value Definition Source:** NOAA ESI Guidelines

**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:** I_DATE
**Attribute Definition:** Publication date of source material used to assign international 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 Puget Sound and Strait of Juan de Fuca, Washington

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 a Geodatabase; ARC export, MOSS, and Shape files; and MARPLOT map folders. An ArcMap .mxd file, an ArcView 3.x ESI project, and an 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.
Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Puget Sound and Strait of Juan de Fuca, Washington: 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:

Citation_Information:
Originator:

Publication_Date: 200607
Title:
Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Puget Sound and Strait of Juan de Fuca, Washington: HABITATS (Habitat Polygons)
Edition: First
Geospatial_Data_Presentation_Form: Vector digital data
Series_Information:
Series_Name: None
Issue_Identification: Puget Sound and Strait of Juan de Fuca, Washington
Publication_Information:
Publication_Place: Seattle, Washington
Publisher:

Other_Citation_Details:
Funding was provided by Navy Region Northwest. This data set was prepared by Concurrent Technologies Corporation, Bremerton, Washington, and Sound GIS, Seattle, Washington with support from Research Planning, Inc., Columbia, South Carolina, for the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington.
Description:
Abstract:
This data set contains sensitive biological resource data for marine and estuarine vegetation in Puget Sound and Strait of Juan de Fuca, Washington. Vector polygons in this data set represent locations of concentrations areas for kelp and eelgrass. 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 Puget Sound and Strait of Juan de Fuca, Washington. 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 HABITATL (Habitat Lines) data layer, part of the larger Puget Sound and Strait of Juan de Fuca ESI database, for additional habitat 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: 1994
Ending_Date: 2003

Currentness_Reference:
The biological data were compiled during 2005-2006. The currentness dates for this data range from 1994 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: -124.75100
East_Bounding_Coordinate: -122.12600
North_Bounding_Coordinate: 49.00000
South_Bounding_Coordinate: 47.00000

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: Habitats

Place:
Place_Keyword_Thesaurus: None
Place_Keyword: Puget Sound and Strait of Juan de Fuca, Washington

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 Puget Sound and Strait of Juan de Fuca, Washington ESI data.
Browse_Graphic_File_Type: JPEG

Data_Set_Credit:
This project was funded by Navy Region Northwest and supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington.

Native_Data_Set_Environment:
The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 9.1) and SQL SERVER(r) (version 2000). The hardware configuration is PC's with Windows Operating System (2000/XP/2003).

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, habitatl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mampt.e00, mgt.e00, nests.e00, socecon.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biores, breed, breed_dt, 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 data on kelp and eelgrass concentration areas. This information was adapted from various Washington Department of Natural Resources (WDNR) databases. Contact WDNR for additional information on these databases. See also the HABITATL (Habitat Lines) data layer, part of the larger Puget Sound and Strait of Juan de Fuca, Washington ESI database, for additional habitat information. These data do not necessarily represent all habitats occurrences in Puget Sound and Strait of Juan de Fuca. The following species are included in this data set: (Species_ID, Common Name, Scientific Name [n/a if not applicable]): 1, Eelgrass, Zostera marina; 1056, Kelp, n/a.

Positional_Accuracy:
Horizontal_Positional_Accuracy:
Horizontal_Positional_Accuracy_Report:
Spatial components for the biological data layers can come from expert interviews, hardcopy, or digital sources. Some of the spatial components of the biological data layers may have been 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 or hardcopy 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: WASHINGTON DEPARTMENT OF NATURAL RESOURCES (WDNR)
Publication_Date: 1999
Title: PUGET SOUND INTERTIDAL HABITAT INVENTORY
Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
Three sources of data were used to depict kelp and eelgrass distribution for this data layer: (1) Washington Department of Natural Resource's (WDNR) Floating Kelp Inventory of the Strait of Juan de Fuca and Outer Coast, (2) WDNR's Intertidal Shoreline Characteristics Inventory 1995, Whatcom County Area, Washington, and (3) Intertidal Shoreline Characteristics Inventory 1996, Skagit County and Northern Whidbey Island, Washington.

From the WDNR floating kelp data, we extracted polygons depicting any occurrence of kelp throughout the entire time period (1989-2004). From the other two data sources, we included any kelp and eelgrass polygon that occurred on broad flats or in areas not depicted by the ShoreZone Inventory data (see the Habitat Lines data layer).

The above digital and/or hardcopy sources were compiled by the project biologist to create the HABITATS data layer. Depending on the type of source data, three general approaches are used for compiling a biology data layer: (1) information gathered during initial interviews and from hardcopy sources are compiled onto U.S. Geological Survey 1:24,000 topographic quadrangles and digitized; (2) hardcopy maps are digitized at their source scale; (3) digital data layers are evaluated and used "as is" or integrated with the hardcopy data sources. See the Lineage section for additional information on the type of source data for this data layer.

The compiled ESI, biology, and human-use data are plotted onto hardcopy draft maps. Following the delivery of draft maps to the participating resource experts, a second set of interviews is conducted to review the maps. If necessary, edits to the HABITATS data layer are made based on the recommendations of the resource experts, and final hardcopy maps and digital data are created.
Contact Information:
Contact Organization Primary:
Contact Organization: NOAA
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 chains
    Point and Vector Object Count: 5211
  SDTS Terms Description:
    SDTS Point and Vector Object Type: Area point
    Point and Vector Object Count: 5212
  SDTS Terms Description:
    SDTS Point and Vector Object Type: Complete chain
    Point and Vector Object Count: 5856
  SDTS Terms Description:
    SDTS Point and Vector Object Type: Link
    Point and Vector Object Count: 339669
  SDTS Terms Description:
    SDTS Point and Vector Object Type: Node, planar graph
    Point and Vector Object Count: 5375

Spatial Reference Information:
Horizontal Coordinate System Definition:
Geographic:
  Latitude Resolution: 0.000001
  Longitude Resolution: 0.000001
  Geographic Coordinate Units: Decimal degrees
Geodetic Model:
  Horizontal Datum Name: North American Datum of 1983
  Ellipsoid Name: Geodetic Reference System 80
  Semi-major Axis: 6378137.000000
  Denominator of Flattening Ratio: 298.257222

Entity and Attribute Information:
Overview Description:
Entity and Attribute Overview:
In addition to the geographic data layers, six relational attribute or data tables, BIORES, BREEED, 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 Puget Sound and Strait of Juan de Fuca atlas, the number is 79), 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, seasonals, 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, BREEED1, BREEED2, BREEED3, BREEED4, BREEED5, RARNUM, G_SOURCE, S_SOURCE, and BREEED. All of these items are the same as their counterparts in the individual data tables described below, except the BREEED1-BREEED5 and BREEED items. BREEED is a newly generated variable used to link to the BREEED_DT data table, a modified, more compact version of the relational BREEED data table. BREEED1-BREEED5 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 BREEED 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, BREEED_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 BREEED_DT is the BREEED 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 in this data set representing locations of concentrations areas for kelp and eelgrass. 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 (79), element number (3), 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:** 0790300002
    - **Range_Domain_Maximum:** 0790305215

**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:** 079000001
    - **Range_Domain_Maximum:** 079000797

**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:** 079000001
    - **Range_Domain_Maximum:** 079000797

**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 (79), element number (3), 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:** 0790100002
- **Range Domain Maximum:** 0793400327

#### 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:** 079000001
  - **Range Domain Maximum:** 079000797

#### 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 concentration data were available for habitats, so the concentration 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.
    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 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**: 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 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:
    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: alcid
        Enumerated Domain Value Definition: Alcid
        Enumerated Domain Value 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: cephalopod
        Enumerated Domain Value Definition: Cephalopod
        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: echinoderm
        Enumerated Domain Value Definition: Echinoderm
        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: 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: kelp
    Enumerated_Domain_Value_Definition: Kelp
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: m_benthic
    Enumerated_Domain_Value_Definition: Marine benthic fish
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: m_pelagic
    Enumerated_Domain_Value_Definition: Marine pelagic fish
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: pelagic
    Enumerated_Domain_Value_Definition: Pelagic 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: sea otter
    Enumerated_Domain_Value_Definition: Sea otter
    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: shrimp
    Enumerated_Domain_Value_Definition: Shrimps
    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_Domain_Values:
Enumerated_Domain:
    Enumerated_Domain_Value: 0
    Enumerated_Domain_Value_Definition: Date unspecified
    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').

Enum_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.

Enum_Domain_Value_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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<tr>
<th>Enumerated_Domain</th>
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<th>Enumerated_Domain_Value_Definition</th>
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</thead>
<tbody>
<tr>
<td>BIRD</td>
<td>BIRD</td>
<td>Birds</td>
<td>Research Planning, Inc.</td>
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Attribute_Domain_Values:

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<tr>
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Attribute_Domain_Values:

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</thead>
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<tr>
<td>HABITAT</td>
<td>HABITAT</td>
<td>Habitats and Plants</td>
<td>Research Planning, Inc.</td>
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Attribute_Domain_Values:

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<tbody>
<tr>
<td>INVERT</td>
<td>INVERT</td>
<td>Invertebrates</td>
<td>Research Planning, Inc.</td>
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Attribute_Domain_Values:

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</thead>
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<tr>
<td>M_MAMMAL</td>
<td>M_MAMMAL</td>
<td>Marine Mammals</td>
<td>Research Planning, Inc.</td>
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Attribute_Domain_Values:

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<tr>
<td>REPTILE</td>
<td>REPTILE</td>
<td>Reptiles and Amphibians</td>
<td>Research Planning, Inc.</td>
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Attribute_Domain_Values:

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<th>Enumerated_Domain_Value_Definition</th>
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<tbody>
<tr>
<td>T_MAMMAL</td>
<td>T_MAMMAL</td>
<td>Terrestrial Mammals</td>
<td>Research Planning, Inc.</td>
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</table>
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:
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<th>Attribute_Definition</th>
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<tr>
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<td>MAY</td>
<td>May</td>
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<td>Present in May</td>
</tr>
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<td></td>
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<td>June</td>
<td>Research Planning, Inc.</td>
<td>Present in June</td>
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<td>Research Planning, Inc.</td>
<td>Present in July</td>
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<td>AUG</td>
<td>August</td>
<td>Research Planning, Inc.</td>
<td>Present in August</td>
</tr>
<tr>
<td></td>
<td>SEP</td>
<td>September</td>
<td>Research Planning, Inc.</td>
<td>Present in September</td>
</tr>
</tbody>
</table>

**Enumerated_Domain:**

- **Enumerated_Domain_Value:** X
- **Enumerated_Domain_Value_Definition:** Present in April
- **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.
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:**

<table>
<thead>
<tr>
<th>Enumerated Domain</th>
<th>Enumerated Domain Value</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<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</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<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</th>
<th>Enumerated Domain Value</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Y</td>
<td>Life-history stage or activity present</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>Life-history stage or activity not present or not reported</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>Breed category not used or not appropriate for record(s) in question</td>
</tr>
</tbody>
</table>

**Attribute:**

**Attribute Label:** BREED2
**Attribute Definition:**

Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED2 = laying; 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 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 or not reported
  - **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 = hatching; 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 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 or not reported
  - **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 Label: BREED4

Attribute Definition:
Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED4 = fledging; 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 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 or not reported
  - 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 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 Value: N
  - Enumerated Domain Value Definition: Life-history stage or activity not present or not reported
  - 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; G_SOURCE and S_SOURCE in the BIORES table; and SOURCE_ID in the ESI, HYDRO, and SOCECON data layers.
  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 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 Label: SCALE
Attribute Definition: Description of the source scale.
Attribute Definition Source: Research Planning, Inc.
Attribute Domain Values:
  Unrepresentable_Domain: Acceptable values change from atlas to atlas.

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:
  Unrepresentable_Domain: Acceptable values change from atlas to atlas.

Detailed_Description:

Entity Type:
  Entity_Type_Label: STATUS
  Entity_Type_Definition:
    The data table STATUS identifies the species that are listed as either threatened or endangered by a state, federal, or international 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.
<table>
<thead>
<tr>
<th>Attribute</th>
<th>Attribute Label</th>
<th>Attribute Definition</th>
<th>Attribute 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>
</tr>
<tr>
<td>COUNTRY</td>
<td>COUNTRY</td>
<td>Three-letter country abbreviation.</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>S</td>
<td>S</td>
<td>State threatened or endangered status.</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>E</td>
<td>E</td>
<td>Endangered on state list</td>
<td>NOAA ESI Guidelines</td>
</tr>
<tr>
<td>T</td>
<td>T</td>
<td>Threatened on state list</td>
<td>NOAA ESI Guidelines</td>
</tr>
</tbody>
</table>
Attribute Domain Values:
Enumerated_Domain:
  Enumerated_Domain_Value: C
  Enumerated_Domain_Value_Definition: Species of Special Concern
  Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines

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: NOAA ESI Guidelines
    Enumerated_Domain:
      Enumerated_Domain_Value: T
      Enumerated_Domain_Value_Definition: Threatened on federal list
      Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines
    Enumerated_Domain:
      Enumerated_Domain_Value: C
      Enumerated_Domain_Value_Definition: Species of Special Concern
      Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines

Attribute:
  Attribute_Label: I
  Attribute_Definition: International 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 international list
      Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines
    Enumerated_Domain:
      Enumerated_Domain_Value: T
      Enumerated_Domain_Value_Definition: Threatened on international list
      Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines
    Enumerated_Domain:
      Enumerated_Domain_Value: C
      Enumerated_Domain_Value_Definition: Species of Special Concern
      Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines

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: I_DATE
Attribute_Definition:
Publication date of source material used to assign international 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 Puget Sound and Strait of Juan de Fuca, Washington

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 a Geodatabase; ARC export, MOSS, and Shape files; and MARPLOT map folders. An ArcMap .mxd file, an ArcView 3.x ESI project, and an 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: 200607
Metadata_Review_Date: 200607
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_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 2.8.21 on Mon Jul 24 12:45:33 2006
Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Puget Sound and Strait of Juan de Fuca, Washington: HABITATL (Habitat 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:

Citation_Information:
Originator:

Publication_Date: 200607
Title:
Sensitivity of Coastal Environments and Wildlife to Spilled Oil: Puget Sound and Strait of Juan de Fuca, Washington: HABITATL (Habitat Lines)

Edition: First
Geospatial_Data_Presentation_Form: Vector digital data
Series_Information:
Series_Name: None
Issue_Identification: Puget Sound and Strait of Juan de Fuca, Washington

Publication_Information:
Publication_Place: Seattle, Washington
Publisher:

Other_Citation_Details:
Funding was provided by Navy Region Northwest. This data set was prepared by Concurrent Technologies Corporation, Bremerton, Washington, and Sound GIS, Seattle, Washington with support from Research Planning, Inc., Columbia, South Carolina, for the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington.
Description:

Abstract:
This data set contains sensitive biological resource data for marine and estuarine vegetation in Puget Sound and Strait of Juan de Fuca, Washington. Vector lines in this data set represent shoreline segments with kelp and eelgrass in Puget Sound and Strait of Juan de Fuca. 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 Puget Sound and Strait of Juan de Fuca, Washington. 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 HABITATS (Habitat Polygons) data layer, part of the larger Puget Sound and Strait of Juan de Fuca ESI database, for additional habitat 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: 1994
  Ending_Date: 2003

Currentness_Reference:
The biological data were compiled during 2005-2006. The currentness dates for the data range from 1994 to 2003 and are documented in the Lineage section.

Status:
Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:
Bounding_Coordinates:
  West_BoundingCoordinate: -124.75100
  East_BoundingCoordinate: -122.12600
  North_BoundingCoordinate: 49.00000
  South_BoundingCoordinate: 47.00000

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: Habitats

Place:
Place_Keyword_Thesaurus: None
**Place_Keyword:** Puget Sound and Strait of Juan de Fuca, Washington

**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 Puget Sound and Strait of Juan de Fuca, Washington ESI data.

**Browse_Graphic_File_Type:** JPEG

**Data_Set_Credit:**

This project was funded by Navy Region Northwest and supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington.

**Native_Data_Set_Environment:**

The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 9.1) and SQL SERVER(r) (version 2000). The hardware configuration is PC's with Windows Operating System (2000/XP/2003).

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, habitatl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mampt.e00, mgt.e00, nests.e00, socecon.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biore, breed, breed_dt, 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 data on kelp and eelgrass areas. This information was adapted from Washington Department of Natural Resource's (WDNR) ShoreZone Inventory and Friends of the San Juans eelgrass survey. Contact WDNR and Friends of the San Juans for additional information on these databases. See also the HABITATS (Habitat Polygons) data layer, part of the larger Puget Sound and Strait of Juan de Fuca, Washington ESI database, for additional habitat information. These data do not necessarily represent all habitat occurrences in Puget Sound and Strait of Juan de Fuca. The following species are included in this data set:
(Species_ID, Common Name, Scientific Name [n/a if not applicable]): 1, Eelgrass, Zostera marina; 1056, Kelp, n/a.

**Positional_Accuracy:**

**Horizontal_Positional_Accuracy:**

**Horizontal_Positional_Accuracy_Report:**
Spatial components for the biological data layers can come from expert interviews, hardcopy, or digital sources. Some of the spatial components of the biological data layers may have been 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 or hardcopy 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:* FRIENDS OF THE SAN JUANS

*Publication_Date:* 2004

*Title:* SAN JUAN COUNTY EELGRASS SURVEY AND MAPPING PROJECT
Two sources of data were used to depict kelp and eelgrass distribution for this data layer: (1) Washington Department of Natural Resource's (WDNR) ShoreZone Inventory, and (2) Friends of the San Juans' San Juan County Eelgrass Survey. From the ShoreZone data, we extracted all shoreline segments that indicated patchy or continuous floating kelp or eelgrass. To avoid redundancy with the HABITAT polygon layer, we removed any segments along the Strait of Juan de Fuca that contained only kelp. To maintain a consistent spatial context, the eelgrass segments from the Friends of the San Juan data were used as a guide to code additional segments of the ShoreZone shoreline in San Juan County that do not currently indicate the presence of eelgrass.

The above digital and/or hardcopy sources were compiled by the project biologist to create the HABITATL data layer. Depending on the type of source data, three general approaches are used for compiling a biology data layer: (1) information gathered during initial interviews and from hardcopy sources are compiled onto U.S. Geological Survey 1:24,000 topographic quadrangles and digitized; (2) hardcopy
maps are digitized at their source scale; (3) digital data layers are evaluated and used "as is" or integrated with the hardcopy data sources. See the Lineage section for additional information on the type of source data for this data layer.

Process Date: 200603
Process Contact:
   Contact Information:
      Contact Organization Primary:
         Contact Organization: Concurrent Technologies Corporation
         Contact Person: Allison Bailey
      Contact Address:
         Address Type: Physical address
         Address: 5780 W. Werner Road
         City: Bremerton
         State or Province: Washington
         Postal Code: 98312
      Contact Voice Telephone: (206) 459-2301
      Contact Voice Telephone: (360) 782-5500
      Contact Facsimile Telephone: (360) 782-5594
      Contact Electronic Mail Address: allison@soundgis.com

Process Step:
Process Description:
The compiled ESI, biology, and human-use data are plotted onto hardcopy draft maps. Following the delivery of draft maps to the participating resource experts, a second set of interviews is conducted to review the maps. If necessary, edits to the HABITATL data layer are made based on the recommendations of the resource experts, and final hardcopy maps and digital data are created.

Process Date: 200605
Process Contact:
   Contact Information:
      Contact Organization Primary:
         Contact Organization: NOAA
         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: 3910
      SDTS Terms Description:
**SDTS_Point_and_Vector_Object_Type:** Link  
**Point_and_Vector_Object_Count:** 81667

**SDTS_Terms_Description:**  
**SDTS_Point_and_Vector_Object_Type:** Node, planar graph  
**Point_and_Vector_Object_Count:** 4616

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**Spatial_Referencer Information:**  
**HorizontalCoordinateSystemDefinition:**  
- **Geographic:**  
  - **Latitude_Resolution:** 0.000001  
  - **Longitude_Resolution:** 0.000001  
  - **Geographic_Coordinate_Units:** Decimal degrees

**Geodetic_Model:**  
- **Horizontal_Datum_Name:** North American Datum of 1983  
- **Ellipsoid_Name:** Geodetic Reference System 80  
- **Semi-major_Axis:** 6378137.000000  
- **Denominator_of_Flattening_Ratio:** 298.257222

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**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, HABITATL) 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 Puget Sound and Strait of Juan de Fuca atlas, the number is 79), 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
Puget Sound and Strait of Juan de Fuca, Washington: HABITATL (Habitat Lines)

Detailed_Description:
Entity_Type:
  Entity_Type_Label: HABITATL.AAT
  Entity_Type_Definition:
  The HABITATL.AAT table contains attribute information for the vector lines in this
data set representing data for marine and estuarine vegetation. 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 (79), element number
  (23; 20 because it is a line feature, plus 3, the element value for HABITATS), and
  record number.
  Attribute_Definition_Source: NOAA
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 0792300025
      Range_Domain_Maximum: 0792303906

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: 079000645
      Range_Domain_Maximum: 079000654

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
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.
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: 079000001
  Range_Domain_Maximum: 079000797

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 (79), element number 
(23; 20 because it is a line feature, plus 3, the element value for HABITATS), 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: 0790100002
  Range_Domain_Maximum: 0793400327

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_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: 079000001
  Range_Domain_Maximum: 079000797

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. No quantitative concentration data were available for this data layer, so the CONC field contains descriptive terms, such as "patchy" or "continuous".
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: 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 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: alcid
Enumerated_Domain_Value_Definition: Alcid
Enumerated_Domain_Value_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: cephalopod
Enumerated_Domain_Value_Definition: Cephalopod
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: echinoderm
Enumerated_Domain_Value_Definition: Echinoderm
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: 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: kelp
Enumerated_Domain_Value_Definition: Kelp
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: m_benthic
Enumerated_Domain_Value_Definition: Marine benthic fish
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: m_pelagic
Enumerated_Domain_Value_Definition: Marine pelagic fish
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: pelagic
Enumerated_Domain_Value_Definition: Pelagic bird
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
<table>
<thead>
<tr>
<th>Attribute Domain Values</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Enumerated Domain:</strong></td>
</tr>
<tr>
<td><strong>Enumerated Domain Value:</strong> pinniped</td>
</tr>
<tr>
<td><strong>Enumerated Domain Value Definition:</strong> Pinniped</td>
</tr>
<tr>
<td><strong>Enumerated Domain Value Definition Source:</strong> Research Planning, Inc.</td>
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<tr>
<td><strong>Enumerated Domain Value:</strong> raptor</td>
</tr>
<tr>
<td><strong>Enumerated Domain Value Definition:</strong> Raptor</td>
</tr>
<tr>
<td><strong>Enumerated Domain Value Definition Source:</strong> Research Planning, Inc.</td>
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<tr>
<td><strong>Enumerated Domain Value:</strong> sav</td>
</tr>
<tr>
<td><strong>Enumerated Domain Value Definition:</strong> Submerged aquatic vegetation</td>
</tr>
<tr>
<td><strong>Enumerated Domain Value Definition Source:</strong> Research Planning, Inc.</td>
</tr>
<tr>
<td><strong>Enumerated Domain Value:</strong> sea otter</td>
</tr>
<tr>
<td><strong>Enumerated Domain Value Definition:</strong> Sea otter</td>
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<tr>
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</tr>
<tr>
<td><strong>Enumerated Domain Value:</strong> shorebird</td>
</tr>
<tr>
<td><strong>Enumerated Domain Value Definition:</strong> Shorebird</td>
</tr>
<tr>
<td><strong>Enumerated Domain Value Definition Source:</strong> Research Planning, Inc.</td>
</tr>
<tr>
<td><strong>Enumerated Domain Value:</strong> shrimp</td>
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<tr>
<td><strong>Enumerated Domain Value Definition:</strong> Shrimps</td>
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<tr>
<td><strong>Enumerated Domain Value Definition Source:</strong> Research Planning, Inc.</td>
</tr>
<tr>
<td><strong>Enumerated Domain Value:</strong> wading</td>
</tr>
<tr>
<td><strong>Enumerated Domain Value Definition:</strong> Wading bird</td>
</tr>
<tr>
<td><strong>Enumerated Domain Value Definition Source:</strong> Research Planning, Inc.</td>
</tr>
<tr>
<td><strong>Enumerated Domain Value:</strong> waterfowl</td>
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<tr>
<td><strong>Enumerated Domain Value Definition:</strong> Waterfowl</td>
</tr>
<tr>
<td><strong>Enumerated Domain Value Definition Source:</strong> Research Planning, Inc.</td>
</tr>
</tbody>
</table>

**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 Domain Values:
  Enumerated_Domain:
  Enumerated_Domain_Value: 0
  Enumerated_Domain_Value_Definition: Date unspecified
  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.

AttributeValueSource: Research Planning, Inc.
AttributeDomainValues:
EnumeratedDomain:
EnumeratedDomainValue: Y
EnumeratedDomainValueDefinition: Life-history stage or activity present
EnumeratedDomainValueDefinitionSource: Research Planning, Inc.

AttributeValueDomainValues:
EnumeratedDomain:
EnumeratedDomainValue: N
EnumeratedDomainValueDefinition: Life-history stage or activity not present or not reported
EnumeratedDomainValueDefinitionSource: Research Planning, Inc.

AttributeValueDomainValues:
EnumeratedDomain:
EnumeratedDomainValue: -
EnumeratedDomainValueDefinition: Breed category not used or not appropriate for record(s) in question
EnumeratedDomainValueDefinitionSource: Research Planning, Inc.

Attribute:
AttributeLabel: BREED2
AttributeDefinition:
Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED2 = laying; 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.

AttributeValueDefinitionSource: Research Planning, Inc.
AttributeDomainValues:
EnumeratedDomain:
EnumeratedDomainValue: Y
EnumeratedDomainValueDefinition: Life-history stage or activity present
EnumeratedDomainValueDefinitionSource: Research Planning, Inc.

AttributeValueDomainValues:
EnumeratedDomain:
EnumeratedDomainValue: N
EnumeratedDomainValueDefinition: Life-history stage or activity not present or not reported
EnumeratedDomainValueDefinitionSource: Research Planning, Inc.

AttributeValueDomainValues:
EnumeratedDomain:
EnumeratedDomainValue: -
EnumeratedDomainValueDefinition: Breed category not used or not appropriate for record(s) in question
EnumeratedDomainValueDefinitionSource: Research Planning, Inc.

Attribute:
AttributeLabel: BREED3
AttributeDefinition:
Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED3 = hatching; 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 or not reported
   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: BREED4

Attribute_Definition:
Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED4 = fledging; 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 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 or not reported
   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: 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 or not reported
      - **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 BrowseGraphic 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; G_SOURCE and S_SOURCE in the BIORES table; and SOURCE_ID in the ESI, HYDRO, and SOCECON data layers.

**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:**
Puget Sound and Strait of Juan de Fuca, Washington: HABITATL (Habitat Lines)

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: Description of the source scale.
    Attribute_Definition_Source: Research Planning, Inc.
    Attribute_Domain_Values:
        Unrepresentable_Domain: Acceptable values change from atlas to atlas.

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:
        Unrepresentable_Domain: Acceptable values change from atlas to atlas.

Detailed_Description:
    Entity_Type:
        Entity_Type_Label: STATUS
        Entity_Type_Definition: The data table STATUS identifies the species that are listed as either threatened or endangered by a state, federal, or international 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: 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: COUNTRY
Attribute_Definition: Three-letter country abbreviation.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
    Unrepresentable_Domain: Acceptable values change from atlas to atlas.

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: NOAA ESI Guidelines
    Enumerated_Domain:
        Enumerated_Domain_Value: T
        Enumerated_Domain_Value_Definition: Threatened on state list
        Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines
    Enumerated_Domain:
        Enumerated_Domain_Value: C
        Enumerated_Domain_Value_Definition: Species of Special Concern
        Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines

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: NOAA ESI Guidelines
    Enumerated_Domain:
        Enumerated_Domain_Value: T
        Enumerated_Domain_Value_Definition: Threatened on federal list
        Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines
    Enumerated_Domain:
        Enumerated_Domain_Value: C
        Enumerated_Domain_Value_Definition: Species of Special Concern
        Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines

Attribute:
Attribute_Label: I
Attribute_Definition: International 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 international list
  - **Enumerated Domain Value Definition Source:** NOAA ESI Guidelines

**Attribute Domain Values:**

- **Enumerated Domain:**
  - **Enumerated Domain Value:** T
  - **Enumerated Domain Value Definition:** Threatened on international list
  - **Enumerated Domain Value Definition Source:** NOAA ESI Guidelines

**Attribute Domain Values:**

- **Enumerated Domain:**
  - **Enumerated Domain Value:** C
  - **Enumerated Domain Value Definition:** Species of Special Concern
  - **Enumerated Domain Value Definition Source:** NOAA ESI Guidelines

**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:** I_DATE
- **Attribute Definition:**
  Publication date of source material used to assign international 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 Puget Sound and Strait of Juan de Fuca, Washington

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 a Geodatabase; ARC export, MOSS, and Shape files; and MARPLOT map folders. An ArcMap .mxdf file, an ArcView 3.x ESI project, and an 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.
Puget Sound and Strait of Juan de Fuca, Washington 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)

**Lookup Tables**

**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.)

**BIO_LUT**
- RARNUM (9, 9, I)
  - ID (10, 10, I)
  - SOURCE_ID (6, 6, I)

(The BIO_LUT table can be bypassed by linking the biology tables to BIORES using RARNUM.)

**Data Tables**

**SOURCES**
- SOURCE_ID (6, 6, I)
- ORIGINATOR (255, 255, C)
- DATE_PUB (10, 10, I)
- TITLE (255, 255, C)
- DATA_FORMAT (255, 255, C)
- PUBLICATION (255, 255, C)
- SCALE (255, 255, C)
- TIME_PERIOD (255, 255, C)

**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)
  - SOURCE_ID (6, 6, I)

**SPECIES**
- SPECIES_ID (5, 5, I)
- NAME (35, 35, C)
- GEN_SPEC (45, 45, 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)

**STATUS**
- ELEMENT (10, 10, C)
  - SPECIES_ID (5, 5, I)
  - STATE (2, 2, C)
  - COUNTRY (3, 3, C)
  - S (1, 1, C)
  - F (1, 1, C)
  - I (1, 1, C)
  - S_DATE (10, 10, I)
  - F_DATE (10, 10, I)
  - I_DATE (10, 10, I)

**BREED**
- EL_SPE_SEA (6, 6, C)

The BIO_LUT table can be bypassed by linking the biology tables to BIORES using RARNUM.

The SOC_LUT table can be bypassed by linking the human-use tables to SOC_DAT using HUNUM.