Maryland ESI: HYDRO (Hydrography Lines and Polygons)

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

Metadata:

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

Identification Information:

Citation:

Citation Information:

Originator:

Publication Date: 200707

Title: Maryland ESI: HYDRO (Hydrography Lines and Polygons)

Edition: First

Geospatial Data Presentation Form: Vector digital data

Series Information:

Series Name: None

Issue Identification: Maryland

Publication Information:

Publication Place: Seattle, Washington

Publisher:

Other Citation Details:

Description:

Abstract:
This data set contains vector lines and polygons representing coastal hydrography used in the creation of the Environmental Sensitivity Index (ESI) for Maryland. The HYDRO data

HYDRO: Page 1 of 13
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 Maryland. 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:** 1988
  **Ending_Date:** 2006

**Currentness_Reference:**
The data were compiled during 2005-2007. The currentness dates for the data range from
1988 to 2006 and are documented in the Lineage section.

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

**Spatial_Domain:**
**Bounding_Coordinates:**
  **West_BoundingCoordinate:** -77.37500
  **East_BoundingCoordinate:** -75.00000
  **North_BoundingCoordinate:** 39.75000
  **South_BoundingCoordinate:** 37.87500

**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:** Maryland

**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 Maryland ESI data.
_Browse_Graphic_File_Type:_ JPEG

_Data_Set_Credit:_
This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Emergency Response Division (formerly Hazardous Materials Response Division), Seattle, Washington and NOAA Chesapeake Bay Office, Gloucester Point, Virginia.

_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 (NT4.0/2000).

The Spatial_Data_Organization Information section refers only to the source files in the ARC export format. The following files are included in the data set: birds.e00, esi.e00, fish.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mammal.e00, mgt.e00, nests.e00, reptiles.e00, soccon.e00, t_mammal.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biorees, 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® to ARC/INFO® 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 Maryland.

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. 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: MARYLAND DEPARTMENT OF NATURAL RESOURCES (DNR)
Publication_Date: 1993
Title: DNR WETLANDS
Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
Other_Citation_Details: MARYLAND DEPARTMENT OF NATURAL RESOURCES, ANnapolis, MD
Source_Scale_Denominator: 12,000
Type_of_Source_Media: ONLINE
Source_Time_Period_of_Content:
Time_Period_Information:
Range_of_Dates/Times:
Beginning_Date: 1988
Ending_Date: 1995
Source_Currentness_Reference: DATE OF SURVEY
Source_Citation_Abbreviation: NONE
Source_Contribution: HYDRO INFORMATION

Source_Information:

Source_Citation:

Citation_Information:
Originator: MARYLAND DEPARTMENT OF NATURAL RESOURCES (DNR)
Publication_Date: 2004
Title: NATURAL COLOR IMAGERY OF SOMMERSET COUNTY
Geospatial_Data_Presentation_Form: RASTER DIGITAL DATA
Other_Citation_Details: MARYLAND DEPARTMENT OF NATURAL RESOURCES, ANnapolis, MD
Source_Scale_Denominator: 0.25 METER RESOLUTION
Type_of_Source_Media: CD-ROM
Source_Time_Period_of_Content:
Time_Period_Information:
Range_of_Dates/Times:
Beginning_Date: 200403
Ending_Date: 200404
Source_Currentness_Reference: DATE OF SURVEY
Source_Citation_Abbreviation: NONE
Source_Contribution: HYDRO INFORMATION
Publication Date: 2005  
Title: ENVIRONMENTAL SENSITIVITY INDEX ATLAS OF VIRGINIA  
Geospatial Data Presentation Form: VECTOR DIGITAL DATA  
Other Citation Details:  
NATIONAL OCEAN SERVICE, HAZARDOUS MATERIALS RESPONSE DIVISION, 7600 SAND POINT WAY, SEATTLE, WA 98115-6349  
Source Scale Denominator: 24,000  
Type of Source Media: CD-ROM  
Source Time Period of Content:  
Time Period Information:  
Single Date/Time:  
Calendar Date: 2004  
Source Currentness Reference: DATE OF SURVEY  
Source Citation Abbreviation: NONE  
Source Contribution: HYDRO INFORMATION  
Source Information:  
Source Citation:  
Citation Information:  
Originator: RESEARCH PLANNING, INC. (RPI)  
Publication Date: 2006  
Title: MARYLAND ESI INDEX GRID  
Geospatial Data Presentation Form: VECTOR DIGITAL DATA  
Other Citation Details:  
NATIONAL OCEAN SERVICE, HAZARDOUS MATERIALS RESPONSE DIVISION, 7600 SAND POINT WAY, SEATTLE, WA 98115-6349  
Source Scale Denominator: 24,000  
Type of Source Media: DISC  
Source Time Period of Content:  
Time Period Information:  
Single Date/Time:  
Calendar Date: 2006  
Source Currentness Reference: DATE OF PUBLICATION  
Source Citation Abbreviation: NONE  
Source Contribution: HYDRO INFORMATION  
Source Information:  
Source Citation:  
Citation Information:  
Originator: TALBOT COUNTY DEPT. OF PUBLIC WORKS  
Publication Date: 2000  
Title: B&W IMAGERY OF TALBOT COUNTY  
Geospatial Data Presentation Form: RASTER DIGITAL DATA  
Other Citation Details:  
TALBOT COUNTY DEPT. OF PUBLIC WORKS, 28712 GLOBE RD., SUITE 3, EASTON, MD 21601  
Source Scale Denominator: 0.25 METER RESOLUTION  
Type of Source Media: CD-ROM  
Source Time Period of Content:  
Time Period Information:  
Single Date/Time:
The shoreline was derived primarily from digital coastline data originating from the Virginia Geographic Information Network (VGIN) and provided for the project by the Virginia Institute of Marine Science (VIMS). Gaps in this data set were filled in with digital shorelines from Maryland Department of Natural Resources (DNR) Wetlands shoreline and Maryland Geological Survey Erosion rate shorelines as well as digitized from U.S. Geological Survey (USGS) Digital Orthophoto Quarter.
Quadrangles (DOQQs), natural color aerial photos of Sommerset County, and black and white aerial photos of Talbot County.

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 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: 200704

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: 3483

SDTS Terms Description:

SDTS Point and Vector Object Type: Area point
Point and Vector Object Count: 3483

SDTS Terms Description:

SDTS Point and Vector Object Type: Complete chain
Point and Vector Object Count: 59797

SDTS Terms Description:

SDTS Point and Vector Object Type: Link
Point and Vector Object Count: 2015013
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Label Point
Point_and_Vector_Object_Count: 370

SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Node, planar graph
Point_and_Vector_Object_Count: 59874

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Geographic:
  Latitude_Resolution: 0.0000001
  Longitude_Resolution: 0.0000001
  Geographic_Coordinate_Units: Decimal degrees
Geodetic_Model:
  Horizontal_Datum_Name: North American Datum of 1927
  Ellipsoid_Name: Clark 1866
  Semi-major_Axis: 6378206.400000
  Denominator_of_Flattening_Ratio: 294.978698

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 relationships between 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: E
      Enumerated_Domain_Value_Definition: Extent of Digital Data
      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 and HYDRO 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 Maryland

*Distribution_Liability:*
Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration (NOAA), 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 the widest community of GIS/mapping users. Distribution formats include 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 for use with the MARPLOT data are also included on the distribution DVDs 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: 200707
Metadata_Review_Date: 200707
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 30 19:16:36 2007
Maryland ESI: ESI (Environmental Sensitivity Index Shoreline Types - Lines and Polygons)

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

Metadata:

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

Identification_Information:

Citation:

Citation_Information:

Originator:

Publication_Date: 200707
Title:
Maryland ESI: ESI (Environmental Sensitivity Index Shoreline Types - Lines and Polygons)
Edition: First
Geospatial_Data_Presentation_Form: Vector digital data
Series_Information:
Series_Name: None
Issue_Identification: Maryland
Publication_Information:
Publication_Place: Seattle, Washington
Publisher:

Other_Citation_Details:

Description:

Abstract:
This data set contains vector lines and polygons representing the shoreline and coastal habitats for Maryland, classified according to the Environmental Sensitivity Index (ESI) classification system. This data set comprises a portion of the ESI data for Maryland. 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:** 1988
- **Ending_Date:** 2006

**Currentness_Reference:**

The data were compiled during 2005-2007. The currentness dates for the data range from 1988 to 2006 and are documented in the Lineage section.

**Status:**

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

**Spatial_Domain:**

**Bounding_Coordinates:**

- **West_BoundingCoordinate:** -77.37500
- **East_BoundingCoordinate:** -75.00000
- **North_BoundingCoordinate:** 39.75000
- **South_BoundingCoordinate:** 37.87500

**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:** Shoreline habitats

**Place:**

- **Place_Keyword_Thesaurus:** None
- **Place_Keyword:** Maryland

**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 Maryland ESI data.  
*Browse_Graphic_File_Type:* JPEG

**Data_Set_Credit:**

This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Emergency Response Division (formerly Hazardous Materials Response Division), Seattle, Washington and NOAA Chesapeake Bay Office, Gloucester Point, Virginia.

**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 (NT4.0/2000).

The Spatial_Data_Organization Information section refers only to the source files in the ARC export format. The following files are included in the data set: birds.e00, esi.e00, fish.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mammal.e00, mgt.e00, nests.e00, reptiles.e00, soccon.e00, t_mammal.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biores, breed, breed_dt, 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® to ARC/INFO® 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 USGS topographic quads should conform to National Map Accuracy Standards at scales of 1:24,000. For the Maryland atlas, shoreline classification segment breaks were digitized at a maximum scale of 1:5,000. 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: MARYLAND DEPARTMENT OF NATURAL RESOURCES (DNR)
    Publication Date: 1993
    Title: DNR WETLANDS
    Geospatial Data Presentation Form: VECTOR DIGITAL DATA
    Other Citation Details: MARYLAND DEPARTMENT OF NATURAL RESOURCES, ANNAPOLIS, MD
Source Scale Denominator: 12,000
Type of Source Media: ONLINE
Source Time Period of Content:
    Time Period Information:
        Range of Dates/Times:
            Beginning Date: 1988
            Ending Date: 1995
    Source Currentness Reference: DATE OF SURVEY
Source Citation Abbreviation: NONE
Source Contribution: ESI INFORMATION

Source Information:
Source Citation:
Citation Information:
    Originator: MARYLAND DEPARTMENT OF NATURAL RESOURCES (DNR)
    Publication Date: 2004
    Title: NATURAL COLOR IMAGERY OF SOMMERSET COUNTY
    Geospatial Data Presentation Form: RASTER DIGITAL DATA
    Other Citation Details: MARYLAND DEPARTMENT OF NATURAL RESOURCES, ANNAPOLIS, MD
Source Scale Denominator: 0.25 METER RESOLUTION
Type of Source Media: CD-ROM
Source Time Period of Content:
    Time Period Information:
        Range of Dates/Times:
            Beginning Date: 200403
Ending_Date: 200404
Source_Currentness_Reference: DATE OF SURVEY
Source_Citation_Abbreviation: NONE
Source_Contribution: ESI INFORMATION
Source_Information:
Source_Citation:
Citation_Information:
Originator: MARYLAND GEOLOGICAL SURVEY
Publication_Date: 2003
Title:
RECENT (1988-1995) MARYLAND SHORELINES WITH EROSION RATE ATTRIBUTES
Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
Other_Citation_Details:
MARYLAND DEPARTMENT OF NATURAL RESOURCES, MARYLAND GEOLOGICAL SURVEY, BALTIMORE, MARYLAND
Source_Scale_Denominator: 24,000
Type_of_Source_Media: ONLINE
Source_Time_Period_of_Content:
Time_Period_Information:
Range_of_Dates/Times:
Beginning_Date: 1988
Ending_Date: 2002
Source_Currentness_Reference: DATE OF PUBLICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: ESI INFORMATION
Source_Information:
Source_Citation:
Citation_Information:
Originator: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)
Publication_Date: 1996
Title:
DELAWARE, NEW JERSEY, PENNSYLVANIA ENVIRONMENTAL SENSITIVITY INDEX
Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
Other_Citation_Details:
NATIONAL OCEAN SERVICE, HAZARDOUS MATERIALS RESPONSE DIVISION, 7600 SAND POINT WAY, SEATTLE, WA 98115-6349
Source_Scale_Denominator: 24,000
Type_of_Source_Media: CD-ROM
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 1996
Source_Currentness_Reference: DATE OF SURVEY
Source_Citation_Abbreviation: NONE
Source_Contribution: ESI INFORMATION
Source_Information:
Process Step:

Process Description:

Original ESI maps, published in 1983, were re-examined and fully updated using the sources and methods described below. The intertidal shoreline habitats of Maryland
were mapped via interpretation of a continuous, overlapping set of georeferenced oblique aerial photographs. These photographs were acquired in March and October 2006 during overflights conducted at elevations of 400-600 feet and slow air speed. All flights were planned to maximize time on site during the 2.5 hours preceding and the 2.5 hours following peak low tide. Where appropriate, revisions to the existing shoreline were made and, where necessary, multiple habitats were described for each shoreline segment. In areas where an overflight was not possible, shoreline classifications were taken from a combination of the Maryland Shoreline Situation shapefile (used to classify manmade structures), Maryland Department of Natural Resources (DNR) wetland coverages (used to classify marshes and swamps), and the 1983 Environmental Sensitivity Index (ESI) 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 is 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: 200704
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: 15055
    SDTS_Terms_Description:
      SDTS_Point_and_Vector_Object_Type: Area point
      Point_and_Vector_Object_Count: 15055
    SDTS_Terms_Description:
      SDTS_Point_and_Vector_Object_Type: Complete chain
      Point_and_Vector_Object_Count: 74014
**Spatial_Reference_Information:**

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

**Geodetic_Model:**
- **Horizontal_Datum_Name:** North American Datum of 1927
- **Ellipsoid_Name:** Clark 1866
- **Semi-major_Axis:** 6378206.40000
- **Denominator_of_Flattening_Ratio:** 294.978698

---

**Entity_and_Attribute_Information:**

**Overview_Description:**

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: 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 Clay
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:

Enumerated_Domain_Value: 2B
Enumerated_Domain_Value_Definition: Exposed Scarps and Steep Slopes in 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: 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 Scarps in 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: Sheltered, Vegetated Low Banks
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

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

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

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

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

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

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: E
Enumerated_Domain_Value_Definition: Extent of Digital Data
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: 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

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: 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: 10B
    Enumerated_Domain_Value_Definition: Freshwater Marshes
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Enumerated_Domain:
    Enumerated_Domain_Value: 10C
    Enumerated_Domain_Value_Definition: Swamps
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Enumerated_Domain:
    Enumerated_Domain_Value: 10D
    Enumerated_Domain_Value_Definition: Scrub-shrub Wetlands
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Enumerated_Domain:
    Enumerated_Domain_Value: U
    Enumerated_Domain_Value_Definition: Unranked
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

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
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 and HYDRO 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: YYYYY 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 Maryland
**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 the widest community of GIS/mapping users. Distribution formats include 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 for use with the MARPLOT data are also included on the distribution DVDs 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:** 200707

**Metadata_Review_Date:** 200707

**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

**Metadata Standard Version:** FGDC-STD-001-1998

Generated by mp version 2.8.21 on Mon Jul 30 18:38:58 2007
Maryland ESI: 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:**

**Originator:**

**Publication Date:** 200707

**Title:** Maryland ESI: INDEX (Index Polygons)

**Edition:** First

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

**Series Information:**

- **Series Name:** None
- **Issue Identification:** Maryland

**Publication Information:**

- **Publication Place:** Seattle, Washington
- **Publisher:**

**Other Citation Details:**


**Description:**

**Abstract:**
This data set contains vector polygons representing the boundaries of all hardcopy cartographic products produced as part of the Environmental Sensitivity Index (ESI) for Maryland. This data set comprises a portion of the ESI data for Maryland. 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:** 2006

**Currentness Reference:**
The INDEX data were compiled during 2005-2007. The currentness date for the data is 2006 and is documented in the Lineage section.

**Status:**

**Progress:** Complete

**Maintenance_and_Update_Frequency:** None Scheduled

**Spatial_Domain:**

**Bounding_Coordinates:**

**West_Bounding_Coordinate:** -77.37500

**East_Bounding_Coordinate:** -75.00000

**North_Bounding_Coordinate:** 39.75000

**South_Bounding_Coordinate:** 37.87500

**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:** Maryland

**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 Maryland ESI data.

**Browse Graphic File Type:** JPEG

**Data Set Credit:**
This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Emergency Response Division (formerly Hazardous Materials Response Division), Seattle, Washington and NOAA Chesapeake Bay Office, Gloucester Point, Virginia.

**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 (NT4.0/2000).

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

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**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® to ARC/INFO® 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 Maryland ESI, as well as the digital data extents.

**Positional Accuracy:**

**Horizontal Positional Accuracy:**

**Horizontal Positional Accuracy Report:**
The index polygons in this data layer were generated in ArcInfo from the coordinates of the 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: 2006
Title: MARYLAND ESI INDEX GRID
Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA

Other_Citation_Details:
NATIONAL OCEAN SERVICE, HAZARDOUS MATERIALS RESPONSE DIVISION, 7600 SAND POINT WAY, SEATTLE, WA 98115-6349

Source_Scale_Denominator: 24,000
Type_of_Source_Media: DISC
Source_Time_Period_of_Content:

Time_Period_Information:
Single_Date/Time:
Calendar_Date: 2006

Source_Currentness_Reference: DATE OF PUBLICATION
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 most 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: 200704

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_orProvince: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: Jill.Petersen@noaa.gov

Spatial_Data_Organization_Information:
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
  SDTS_Terms_Description:
    SDTS_Point_and_Vector_Object_Type: GT-polygon composed of chains
    Point_and_Vector_Object_Count: 125
  SDTS_Terms_Description:
    SDTS_Point_and_Vector_Object_Type: Area point
    Point_and_Vector_Object_Count: 125
  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: 176

Spatial_Reference_Information:
  Horizontal_Coordinate_System_Definition:
    Geographic:
      Latitude_Resolution: 0.0000001
      Longitude_Resolution: 0.0000001
      Geographic_Coordinate_Units: Decimal degrees
  Geodetic_Model:
    Horizontal_Datum_Name: North American Datum of 1927
    Ellipsoid_Name: Clark 1866
    Semi-major_Axis: 6378206.400000
    Denominator_of_Flattening_Ratio: 294.978698

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 boundaries used in the creation of the ESI.
      Entity_Type_Definition_Source: Research Planning, Inc.
    Attribute:
      Attribute_Label: TILE-NAME
      Attribute_Definition:
        The TILE-NAME contains the map number according to the specified layout of the atlas.
      Attribute_Definition_Source: Research Planning, Inc.
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: 1
          Range_Domain_Maximum: 125
      Attribute:
Attribute_Label: TOPO-NAME
Attribute_Definition: USGS Topographic map name, short description of location, or atlas name.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Unrepresentable_Domain: Acceptable values change from atlas to atlas.

Attribute:
Attribute_Label: SCALE
Attribute_Definition: SCALE contains the value of the denominator of the scale at which the map is plotted in the final map product.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Unrepresentable_Domain: Acceptable values change from atlas to atlas.

Attribute:
Attribute_Label: MAPANGLE
Attribute_Definition: MAPANGLE contains the value to rotate the final map product so that it is situated straight up and down.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Range_Domain:
    Range_Domain_Minimum: 0.0390
    Range_Domain_Maximum: 1.4450
  Attribute_Units_of_Measure: Degree

Attribute:
Attribute_Label: PAGESIZE
Attribute_Definition: PAGESIZE contains the value of the width and height of the map in the final map product.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: 11,17
    Enumerated_Domain_Value_Definition: Page size= 11" by 17"
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

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 Maryland

Distribution Liability:

Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration (NOAA), 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 the widest community of GIS/mapping users. Distribution formats include 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 for use with the MARPLOT data are also included on the distribution DVDs 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: 200707
Metadata Review Date: 200707
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

Maryland ESI: MGT (Management Area Polygons)

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

Metadata:

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

Identification Information:

Citation:

Originator:

Publication Date: 200707
Title: Maryland ESI: MGT (Management Area Polygons)
Edition: First
Geospatial Data Presentation Form: Vector digital data
Series Information:
Series Name: None
Issue Identification: Maryland
Publication Information:
Publication Place: Seattle, Washington
Publisher:

Other Citation Details:

Description:

Abstract:
This data set contains polygons that represent the following sensitive human-use management areas in Maryland: wildlife refuges, national parks, wildlife management areas and sanctuaries, state parks, conservation lands, state forests, and terrestrial communities. Location-specific type and source information is stored in relational data.
This data set comprises a portion of the Environmental Sensitivity Index (ESI) data for Maryland. 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 Maryland 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:** 1966
  - **Ending_Date:** 2007

**Currentness Reference:**
The data were compiled during 2005-2007. The currentness dates for the data range from 1966 to 2007 and are documented in the Lineage section.

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

**Spatial_Domain:**
- **Bounding_Coordinates:**
  - **West_Bounding_Coordinate:** -77.37500
  - **East_Bounding_Coordinate:** -75.00000
  - **North_Bounding_Coordinate:** 39.75000
  - **South_Bounding_Coordinate:** 37.87500

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

- **Place:**
  - **Place_Keyword_Thesaurus:** None
  - **Place_Keyword:** Maryland

**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 Maryland ESI data.
- **Browse_Graphic_File_Type:** JPEG

**Data_Set_Credit:**

This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Emergency Response Division (formerly Hazardous Materials Response Division), Seattle, Washington and NOAA Chesapeake Bay Office, Gloucester Point, Virginia.

**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 (NT4.0/2000).

The Spatial_Data_Organization Information section refers only to the source files in the ARC export format. The following files are included in the data set: birds.e00, esi.e00, fish.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mammal.e00, mgt.e00, nests.e00, reptiles.e00, socecon.e00, t_mammal.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biorel, 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® to ARC/INFO® 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. These data do not necessarily represent all management areas in Maryland. See also the SOCECON (Socioeconomic Resource Points and Lines) data layer, part of the larger Maryland ESI database, for additional human-use information.

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: ASIS GIS
  Publication_Date: 2002
  Title: ASIS BOUNDARY 2002
  Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
  Other_Citation_Details: ASSATEAGUE ISLAND NATIONAL SEASHORE (ASIS), BERLIN, MD
  Type_of_Source_Media: CD-ROM
  Source_Time_Period_of_Content:
    Time_Period_Information:
      Single_Date/Time:
        Calendar_Date: 2002
  Source_Currentness_Reference: DATE OF PUBLICATION
  Source_Citation_Abbreviation: NONE
  Source_Contribution: MGT INFORMATION
  Source_Information:
  Source_Citation:
  Citation_Information:
    Originator: BLACKWATER NATIONAL WILDLIFE REFUGE (NWR)
    Publication_Date: 2004
    Title: CHESAPEAKE MARSHLANDS NATIONAL WILDLIFE REFUGE COMPLEX BOUNDARIES
    Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
    Other_Citation_Details: UNPUBLISHED
    Source_Scale_Denominator: 24,000
    Type_of_Source_Media: CD-ROM
    Source_Time_Period_of_Content:
      Time_Period_Information:
        Single_Date/Time:
          Calendar_Date: 2004
    Source_Currentness_Reference: DATE OF PUBLICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: MGT INFORMATION
Source_Information:
Source_Citation:
Citation_Information:
Originator: MARYLAND DEPARTMENT OF NATURAL RESOURCES (DNR)
Publication_Date: 1999
Title: DNR LANDS
Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
Other_Citation_Details: MARYLAND DNR, ANNA POLIS, MD
Source_Scale_Denominator: 24,000
Type_of_Source_Media: ONLINE
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 1999
Source_Currentness_Reference: DATE OF PUBLICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: MGT INFORMATION
Source_Information:
Source_Citation:
Citation_Information:
Originator: MARYLAND DEPARTMENT OF NATURAL RESOURCES (MD DNR) WILDLIFE AND HERITAGE
Publication_Date: 2006
Title: ECOLOGICALLY SIGNIFICANT AREAS OF MARYLAND'S TIDAL WATERS AND SHORELINES
Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
Other_Citation_Details: MD DNR, ANNA POLIS, MD
Type_of_Source_Media: EMAIL
Source_Time_Period_of_Content:
Time_Period_Information:
Range_of_Dates/Times:
Beginning_Date: 1966
Ending_Date: 2006
Source_Currentness_Reference: DATE OF SURVEY
Source_Citation_Abbreviation: NONE
Source_Contribution: MGT INFORMATION
Source_Information:
Source_Citation:
Citation_Information:
Originator: MD DNR WILDLIFE AND HERITAGE DIVISION
Publication_Date: 2002
Title: STATE WIDE FEDERAL LANDS
Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
Other_Citation_Details: MARYLAND DNR, ANNA POLIS, MD
Source_Scale_Denominator: 63,360
Type_of_Source_Media: ONLINE
Existing digital data sets from Maryland Department of Natural Resources (DNR), U.S. Fish & Wildlife Service (USFWS), and Assateague Island National Seashore (ASIS) were used to depict human-use resources for this 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; and (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 MGT data layer are made based on the recommendations of the resource experts, and final hardcopy maps and digital data are created.

Process Date: 200704
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: 526
  SDTS Terms Description:
    SDTS Point and Vector Object Type: Area point
    Point and Vector Object Count: 526
  SDTS Terms Description:
    SDTS Point and Vector Object Type: Complete chain
    Point and Vector Object Count: 969
  SDTS Terms Description:
    SDTS Point and Vector Object Type: Link
    Point and Vector Object Count: 200782
  SDTS Terms Description:
    SDTS Point and Vector Object Type: Node, planar graph
    Point and Vector Object Count: 909

Spatial Reference Information:
  Horizontal Coordinate System Definition:
    Geographic:
      Latitude Resolution: 0.0000001
Entity and Attribute Information:

Overview Description:
In addition to the geographic data layers, two relational attribute or data tables, SOC_DAT and SOURCES, are used to store the complex socioeconomic data in the ESI data structure. The geographic data layer containing socioeconomic data resource information (in this case, MGT) is linked to the Socioeconomic Resources table (SOC_DAT) using the unique ID and the lookup table SOC_LUT, or it can be linked directly using HUNUM. HUNUM is a unique reference number concatenated with the atlas number (for Maryland, the number is 47). ID is a unique combination of the atlas number (47), 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 wildlife refuges, national parks, wildlife management areas and sanctuaries, state parks, conservation lands, state forests, and terrestrial communities. 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: MA
Enumerated_Domain_Value_Definition: Management Area
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

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.
Attribute Domain Values:
Enumerrated Domain:
Enumerrated Domain Value: NP
Enumerrated Domain Value Definition: National Park
Enumerrated Domain Value Definition Source: Research Planning, Inc.
Attribute Domain Values:
Enumerrated Domain:
Enumerrated Domain Value: P
Enumerrated Domain Value Definition: Regional or State Park
Enumerrated Domain Value Definition Source: Research Planning, Inc.
Attribute Domain Values:
Enumerrated Domain:
Enumerrated Domain Value: WR
Enumerrated Domain Value Definition: Wildlife Refuge
Enumerrated 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 (47), 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: 0471100002
Range Domain Maximum: 047110560

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: 047000117
Range Domain Maximum: 04700255

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:** 047000001
- **Range_Domain_Maximum:** 047000255

**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 (47), 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:** 047100001
- **Range_Domain_Maximum:** 047110560

**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:** 047000001
- **Range_Domain_Maximum:** 047000255

**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.

**Attribute_Domain_Values:**

**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: BEACH
Enumerated_Domain_Value_Definition: Beach
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:

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

Enumerated_Domain:

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

Enumerated_Domain:

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

Enumerated_Domain:

Enumerated_Domain_Value: HELIPORT
Enumerated_Domain_Value_Definition: Heliport
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:

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

Enumerated_Domain:

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

Enumerated_Domain:

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

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.

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 and HYDRO 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
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 Maryland

Distribution Liability:

Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration (NOAA), 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 the widest community of GIS/mapping users. Distribution formats include 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 for use with the MARPLOT data are also included on the distribution DVDs 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: 200707
Metadata Review Date: 200707

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:
Maryland ESI: SOCECON (Socioeconomic Resource Points and Lines)

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

Metadata:

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

Identification_Information:

Citation:

Citation_Information:

Originator:


Publication_Date: 200707
Title: Maryland ESI: SOCECON (Socioeconomic Resource Points and Lines)
Edition: First
Geospatial_Data_Presentation_Form: Vector digital data
Series_Information:

Series_Name: None
Issue_Identification: Maryland

Publication_Information:

Publication_PLACE: Seattle, Washington
Publisher:


Other_Citation_Details:


Description:

Abstract:

This data set contains human-use resource data for airports, heliports, marinas, boat ramps, aquaculture sites, beaches, coast guard stations, ferries, bridges, and state borders in
Maryland. Vector points and lines in this data set represent the human-use site locations. Location-specific type and source information are stored in relational data tables (described below) designed to be used in conjunction with this spatial data layer.

This data set comprises a portion of the Environmental Sensitivity Index (ESI) data for Maryland. 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 Maryland 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:** 1988
- **Ending_Date:** 2007

**Currentness_Reference:**

The SOCECON data were compiled during 2005-2007. The currentness dates for the data range from 1988 to 2007 and are documented in the Lineage section.

**Status:**

**Progress:** Complete

**Maintenance_and_Update_Frequency:** None Scheduled

**Spatial_Domain:**

**Bounding_Coordinates:**

- **West_BoundingCoordinate:** -77.37500
- **East_BoundingCoordinate:** -75.00000
- **North_BoundingCoordinate:** 39.75000
- **South_BoundingCoordinate:** 37.87500

**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:** Maryland

**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 FileName: datafig.jpg*

*Browse Graphic Description:*

Depicts the relationships between spatial data layers and attribute data tables for the Maryland ESI data.

*Browse Graphic File Type: JPEG*

**Data Set Credit:**

This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Emergency Response Division (formerly Hazardous Materials Response Division), Seattle, Washington and NOAA Chesapeake Bay Office, Gloucester Point, Virginia.

**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 (NT4.0/2000).

The Spatial Data Organization Information section refers only to the source files in the ARC export format. The following files are included in the data set: birds.e00, esi.e00, fish.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mammal.e00, mgt.e00, nests.e00, reptiles.e00, soccecon.e00, t_mammal.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, 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® to ARC/INFO® consistencies. A final review is made by the GIS
manager, where the data are written to CD-ROM and the metadata are written.

Completeness_Report:
These data represent a synthesis of expert knowledge and available hardcopy reports and digital data on socioeconomic resources. These data do not necessarily represent all human-use sites in Maryland. See also the MGT (Management Area Polygons) data layer, part of the larger Maryland ESI database, for additional human-use information.

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: BOHN, R., MARYLAND DEPARTMENT OF NATURAL RESOURCES (MD DNR)
Publication_Date: 2007
Title: AQUACULTURE IN THE CHESAPEAKE BAY
Geospatial_Data_Presentation_Form: HARDCOPY MAP
Other_Citation_Details: UNPUBLISHED
Type_of_Source_Media: PAPER
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 2007
Source_Currentness_Reference: DATE OF COMMUNICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: SOCECON INFORMATION

Source_Information:
Source_Citation:
Citation_Information:
Originator: COMPREHENSIVE COASTAL INVENTORY PROGRAM (CCI), VIRGINIA INSTITUTE OF MARINE SCIENCE (VIMS)
Publication_Date: 2004
Title: MARYLAND SHORELINE SITUATION PORTFOLIO
Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
Other_Citation_Details: VIMS, GLOUCESTER POINT, VA
Type_of_Source_Media: ONLINE
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 2004
Source_Currentness_Reference: DATE OF PUBLICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: SOCECON INFORMATION
Source_Information:
  Citation_Information:
    Originator: MD DNR WILDLIFE AND HERITAGE DIVISION
                NATIONAL PARK SERVICE (NPS), ASSATEAGUE ISLAND
                NATIONAL SEASHORE
    Publication_Date: 2002
    Title: STATE WIDE FEDERAL LANDS
    Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
    Other_Citation_Details: MARYLAND DEPARTMENT OF NATURAL
                RESOURCES, ANNAPOLIS, MD
Source_Scale_Denominator: 63,360
Type_of_Source_Media: ONLINE
Source_Time_Period_of_Content:
  Time_Period_Information:
    Single_Date/Time:
    Calendar_Date: 2002
    Source_Currentness_Reference: DATE OF PUBLICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: SOCECON INFORMATION
Source_Information:
  Citation_Information:
    Originator: NATIONAL PARK SERVICE (NPS), ASSATEAGUE ISLAND
                NATIONAL SEASHORE
    Publication_Date: 2006
    Title: ASSATEAGUE ISLAND NATIONAL SEASHORE SPECIES
                DISTRIBUTION AND SEASONALITY
    Geospatial_Data_Presentation_Form: EXPERT KNOWLEDGE
    Other_Citation_Details: UNPUBLISHED
Type_of_Source_Media: PERSONAL COMMUNICATION
Source_Time_Period_of_Content:
  Time_Period_Information:
    Range_of_Dates/Times:
    Beginning_Date: 2005
    Ending_Date: 2007
    Source_Currentness_Reference: DATE OF COMMUNICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: SOCECON INFORMATION
Source_Information:
  Citation_Information:
    Originator: U.S. GEOLOGICAL SURVEY (USGS)
    Publication_Date: 2006
    Title: GEOGRAPHIC NAMES INFORMATION SYSTEM (GNIS)
                AIRPORTS
    Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
    Other_Citation_Details: UNPUBLISHED
Type_of_Source_Media: ONLINE
Two main sources of data were used to depict human-use resources for this data layer: (1) personal interviews with resource experts from the Maryland Department of Natural Resources (DNR) and (2) digital vector data provided by numerous agencies.

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; and (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 SOCECON data layer are made based on the recommendations of the resource experts, and final hardcopy maps and digital data are created.
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 Maryland,
the number is 47). ID is a unique combination of the atlas number (47), 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 airports, heliports, marinas, boat ramps, aquaculture sites, beaches, coast guard stations, and ferries. 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_Definition:** Airport
  - **Enumerated_Domain_Value_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.

**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:** Coast Guard Station
    - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

- **Enumerated_Domain:**
  - **Enumerated_Domain_Value:** F
    - **Enumerated_Domain_Value_Definition:** Ferry
**Enumerated_Domain_Value_Definition_Source**: Research Planning, Inc.

**Attribute_Domain_Values**:

**Enumerated_Domain**:
- **Enumerated_Domain_Value**: HP
- **Enumerated_Domain_Value_Definition**: Heliport
- **Enumerated_Domain_Value_Definition_Source**: Research Planning, Inc.

**Attribute_Domain_Values**:

**Enumerated_Domain**:
- **Enumerated_Domain_Value**: M
- **Enumerated_Domain_Value_Definition**: Marina
- **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 (47), element number (10), and record number.

**Attribute_Definition_Source**: NOAA

**Attribute_Domain_Values**:

**Range_Domain**:
- **Range_Domain_Minimum**: 0471000001
- **Range_Domain_Maximum**: 0471000901

**Attribute**: 

**Attribute_Label**: HUNUM

**Attribute_Definition**: An identifier that links directly to the SOC_DAT table.

**Attribute_Definition_Source**: NOAA

**Attribute_Domain_Values**:

**Range_Domain**:
- **Range_Domain_Minimum**: 047000001
- **Range_Domain_Maximum**: 047000201

**Detailed_Description**:

**Entity_Type**: 

**Entity_Type_Label**: SOCECON.AAT

**Entity_Type_Definition**: The SOCECON.AAT table contains attribute information for the vector lines representing bridges and state borders. Note that all attribute information is stored in a series of relational files, described below. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the relationships between attribute tables in the ESI data structure.

**Entity_Type_Definition_Source**: Research Planning, Inc.

**Attribute**: 

**Attribute_Label**: TYPE

**Attribute_Definition**: The human-use features depicted on the maps are those that could be impacted by an oil spill or could provide access for response operations.

**Attribute_Definition_Source**: Research Planning, Inc.

**Attribute_Domain_Values**:

**Enumerated_Domain**:
- **Enumerated_Domain_Value**: R
- **Enumerated_Domain_Value_Definition**: Road, Transportation, or Bridge
- **Enumerated_Domain_Value_Definition_Source**: Research Planning, Inc.
Attribute Domain Values:

Enumerated Domain:
  Enumerated Domain Value: SB
  Enumerated Domain Value Definition: State Border
  Enumerated Domain Value Definition Source: Research Planning, Inc.

Detailed Description:

Entity Type:
  Entity Type Label: 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: 047000001
    Range Domain Maximum: 047000255

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 (47), element number (10), 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: 047100001
    Range Domain Maximum: 047110560

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: 047000001
    Range_Domain_Maximum: 047000255
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.
  Attribute_Domain_Values:
    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: 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: COAST GUARD
      Enumerated_Domain_Value_Definition: Coast Guard Station
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: FERRY
      Enumerated_Domain_Value_Definition: Ferry
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
    Enumerated_Domain:
      Enumerated_Domain_Value: HELIPORT
      Enumerated_Domain_Value_Definition: Heliport
      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.
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: NATIONAL PARK
  Enumerated_Domain_Value_Definition: National Park
  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: 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 dataset. 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 and HYDRO 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 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 Maryland
Distribution Liability:
Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration (NOAA), 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 the widest community of GIS/mapping users. Distribution formats include 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 for use with the MARPLOT data are also included on the distribution DVDs 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: 200707
 Metadata_Review_Date: 200707
 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 30 18:11:39 2007
Maryland ESI: BIRDS (Bird Polygons)

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

Metadata:

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

Identification Information:
Citation:

Originator:

Publication Date: 200707
Title: Maryland ESI: BIRDS (Bird Polygons)
Edition: First
Geospatial Data Presentation Form: Vector digital data
Series Information:
Series Name: None
Issue Identification: Maryland
Publication Information:
Publication Place: Seattle, Washington
Publisher:

Other Citation Details:

Description:
Abstract:
This data set contains sensitive biological resource data for wading birds, shorebirds, waterfowl, raptors, diving birds, seabirds, passerine birds, and gulls and terns in Maryland. Vector polygons in this data set represent bird nesting, 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 Maryland. 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 Maryland 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:** 1962
- **Ending_Date:** 2007

**Currentness Reference:**

The biological data were compiled during 2005-2007. The currentness dates for the data range from 1962 to 2007 and are documented in the Lineage section.

**Status:**

**Progress:** Complete

**Maintenance_and_Update_Frequency:** None Scheduled

**Spatial_Domain:**

**Bounding_Coordinates:**

- **West_BoundingCoordinate:** -77.37500
- **East_BoundingCoordinate:** -75.00000
- **North_BoundingCoordinate:** 39.75000
- **South_BoundingCoordinate:** 37.87500

**Keywords:**

**Theme:**

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

**Place:**

- **Place_Keyword_Thesaurus:** None
- **Place_Keyword:** Maryland

**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 Maryland ESI data.

*Browse_Graphic_File_Type: JPEG*

*Data_Set_Credit:*

This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Emergency Response Division (formerly Hazardous Materials Response Division), Seattle, Washington and NOAA Chesapeake Bay Office, Gloucester Point, Virginia.

*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 (NT4.0/2000).

The Spatial_Data_Organization Information section refers only to the source files in the ARC export format. The following files are included in that data set: birds.e00, esi.e00, fish.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mammal.e00, mgt.e00, nests.e00, reptiles.e00, soc_econ.e00, t_mammal.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® to ARC/INFO® consistencies. A final review is made by the GIS manager, where the data are written to CD-ROM and the metadata are written.

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

**Completeness Report:**
These data represent a synthesis of expert knowledge, available hardcopy documents, survey data, maps, and and digital data on bird nesting, feeding, wintering, migratory staging and other spatial/temporal concentration areas. See also the NESTS (Nest Points) data layer, part of the larger Maryland ESI database, for additional bird information. These data do not necessarily represent all bird occurrences in Maryland. 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; 8, Double-crested cormorant, Phalacrocorax auritus; 11, Tundra swan, Cygnus columbianus; 12, Canada goose, Branta canadensis; 13, Brant, Branta bernicla; 15, Snow goose, Chen caerulescens; 16, Mallard, Anas platyrhynchos; 17, Northern pintail, Anas acuta; 18, Green-winged teal, Anas crecca; 20, Northern shoveler, Anas clypeata; 21, Canvasback, Aythya valisineria; 22, Greater scaup, Aythya marila; 23, Lesser scaup, Aythya affinis; 24, Common goldeneye, Bucephala clangula; 26, Bufflehead, Bucephala albeola; 27, Long-tailed duck, Clangula hyemalis; 29, White-winged scoter, Melanitta fusca; 30, Surf scoter, Melanitta perspicillata; 32, Common merganser, Mergus merganser; 33, Red-breasted merganser, Mergus serrator; 34, American coot, Fulica americana; 38, Herring gull, Larus argentatus; 40, Ring-billed gull, Larus delawarensis; 45, Common tern, Sterna hirundo; 54, Great blue heron, Ardea herodias; 56, Spotted sandpiper, Actitis macularia; 58, Greater yellowlegs, Tringa melanoleuca; 59, Lesser yellowlegs, Tringa flavipes; 60, Red knot, Calidris canutus; 61, Pectoral sandpiper, Calidris melanotos; 62, Least sandpiper, Calidris minutilla; 63, Dunlin, Calidris alpina; 64, Short-billed dowitcher, Limnodromus griseus; 65, Long-billed dowitcher, Limnodromus scolopacens; 67, Sanderling, Calidris alba; 69, Semipalmated plover, Charadrius semipalmatus; 70, Killdeer, Charadrius vociferus; 71, Black-bellied plover, Pluvialis squatarola; 73, Ruddy turnstone, Arenaria interpres; 76, Bald eagle, Haliaeetus leucocephalus; 77, Osprey, Pandion haliaetus; 86, Least tern, Sterna antillarum; 87, Little blue heron, Egretta caerulea; 88, Great egret, Ardea alba; 89, Snowy egret, Egretta thula; 90, Black-crowned night-heron, Nycticorax nycticorax; 91, Glossy ibis, Plegadis falcinellus; 92, Great black-backed gull, Larus marinus; 93, Cattle egret, Bubulcus ibis; 94, Tricolored heron, Egretta tricolor; 98, Laughing gull, Larus atricilla; 118, Brown pelican, Pelecanus occidentalis; 120, Yellow-crowned night-heron, Nyctanassa violacea; 124, Redhead, Aythya americana; 125, Clapper rail, Rallus longirostris; 133, Black skimmer, Rynchops niger; 134, Gull-billed tern, Sterna nilotica; 136, Caspian tern, Sterna caspia; 137, Royal tern, Sterna maxima; 138, Forster's tern, Sterna forsteri; 148, Ruddy duck, Oxyura jamaicensis; 150, Black rail, Laterallus jamaicensis; 152, American oystercatcher, Haematopus palliatus; 153, Piping plover, Charadrius melodus; 155, Willet, Catoptrophorus semipalmatus; 156, Semipalmated sandpiper, Calidris pusilla; 162, Gadwall, Anas strepera; 167, Northern gannet, Morus bassanus; 169, American wigeon, Anas americana; 178, Least bittern, Ixobrychus exilis; 179, Pied-billed grebe, Podilymbus podiceps; 180, Ring-necked duck, Aythya collaris; 181, Northern harrier, Circus cyaneus; 185, American bittern, Botaurus lentiginosus; 186, American black duck, Anas rubripes; 187, Virginia rail, Rallus limicola; 190, Blue-winged teal, Anas discors; 191, Wood duck, Aix sponsa; 192, Common moorhen, Gallinula chloropus;
197, Black scoter, Melanitta nigra; 198, Hooded merganser, Lophodytes cucullatus; 217, Mute swan, Cygnus olor; 224, Sedge wren, Cistothorus platensis; 225, Marsh wren, Cistothorus palustris; 273, Geese, n/a; 277, Seaside sparrow, Ammodramus maritimus; 278, Saltmarsh sharp-tailed sparrow, Ammodramus caudacutus; 299, Scaup, Aythya spp.; 301, Mergansers, n/a; 302, Scoters, Melanitta spp.; 310, Rare passerine bird, n/a; 462, Loons, Gavia spp.; 626, American peregrine falcon, Falco peregrinus anatum; 1001, Gulls, n/a; 1002, Shorebirds, n/a; 1003, Waterfowl, n/a; 1006, Diving birds, n/a; 1014, Diving ducks, n/a; 1021, Ducks, n/a; 1026, Grebes, n/a; 1027, Swans, Cygnus spp.

**Positional Accuracy:**

**Horizontal Positional Accuracy:**

Spatial components for the biological data layers can come from expert interviews, hardcopy, or digital sources. Most of the spatial components of the biological data layers are developed using regional experts who estimate concentration areas. It is difficult to estimate the positional accuracy of such data, except to state that they are compiled on hardcopy base maps with a scale of 1:24,000. Some of the spatial components of the biological data sets are developed from pre-existing digital 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:* CLICHE, RACHEL, U.S. FISH & WILDLIFE SERVICE (USFWS)
*Publication Date:* 2005
*Title:* BLACKWATER NATIONAL WILDLIFE REFUGE (NWR) SPECIES DISTRIBUTION AND SEASONALITY

**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:* 2005

**Source Currentness Reference:** DATE OF COMMUNICATION

**Source Citation Abbreviation:** NONE

**Source Contribution:** BIRDS INFORMATION

**Source Information:**

**Source Citation:**

**Citation Information:**

*Originator:* DOCTOR, S., MARYLAND (MD) DEPARTMENT OF NATURAL RESOURCES (DNR)
*Publication Date:* 2006
*Title:* PERSONAL COMMUNICATION LIVING MARINE RESOURCES
WITHIN THE COASTAL BAYS OF MD

Type_of_Source_Media: PERSONAL COMMUNICATION
Source_Time_Period_of_Content:
  Time_Period.Information:
    Range_of_Dates/Times:
      Beginning_Date: 2006
      Ending_Date: 2007
  Source_Currentness_Reference: DATE OF COMMUNICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: BIRDS INFORMATION
Source_Information:
  Source_Citation:
    Citation_Information:
      Originator: FORSELL, DOUG, USFWS
      Publication_Date: 2007
      Title: WATERFOWL, DIVING DUCK, AND DIVING BIRD SEASONALITY
      Geospatial_Data_Presentation_Form: EXPERT KNOWLEDGE
      Other_Citation_Details: UNPUBLISHED

Type_of_Source_Media: PAPER
Source_Time_Period_of_Content:
  Time_Period.Information:
    Single_Date/Time:
      Calendar_Date: 1991
  Source_Currentness_Reference: DATE OF PUBLICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: BIRDS INFORMATION
Source_Information:
  Source_Citation:
    Citation_Information:
      Originator: FUNDERBURK, S.L ET AL. (EDS)
      Publication_Date: 1991
      Title: HABITAT REQUIREMENTS FOR CHESAPEAKE BAY LIVING RESOURCES
      Geospatial_Data_Presentation_Form: HARDCOPY TEXT
      Other_Citation_Details:
        CHESAPEAKE BAY PROGRAM OFFICE, U.S. ENVIRONMENTAL PROTECTION AGENCY, ANNAPOLIS, MD

Type_of_Source_Media: PERSONAL COMMUNICATION
Source_Time_Period_of_Content:
  Time_Period.Information:
    Range_of_Dates/Times:
      Beginning_Date: 2005
      Ending_Date: 2007
  Source_Currentness_Reference: DATE OF COMMUNICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: BIRDS INFORMATION
Source_Information:
  Source_Citation:
    Citation_Information:
      Originator: FORSELL, DOUG, USFWS
      Publication_Date: 2007
      Title: WATERFOWL, DIVING DUCK, AND DIVING BIRD SEASONALITY
      Geospatial_Data_Presentation_Form: EXPERT KNOWLEDGE
      Other_Citation_Details: UNPUBLISHED
Publication_Date: 2006
Title: ECOLOGICALLY SIGNIFICANT AREAS OF MARYLAND'S TIDAL WATERS AND SHORELINES
Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
Other_Citation_Details: MD DNR, ANNAPOLIS, MD
Type_of_Source_Media: EMAIL
Source_Time_Period_of_Content:
Time_Period_Information:
Range_of_Dates/Times:
   Beginning_Date: 1966
   Ending_Date: 2006
Source_Currentness_Reference: DATE OF SURVEY
Source_Citation_Abbreviation: NONE
Source_Contribution: BIRDS INFORMATION
Source_Information:
Source_Citation:
Citation_Information:
   Originator: MD DNR WILDLIFE AND HERITAGE
Publication_Date: 2006
Title: WATERFOWL CONCENTRATION AND STAGING AREAS
Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
Other_Citation_Details: MD DNR, ANNAPOLIS, MD
Type_of_Source_Media: EMAIL
Source_Time_Period_of_Content:
Time_Period_Information:
   Single_Date/Time:
      Calendar_Date: 2006
Source_Currentness_Reference: DATE OF PUBLICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: BIRDS INFORMATION
Source_Information:
Source_Citation:
Citation_Information:
   Originator: MD DNR WILDLIFE AND HERITAGE
Publication_Date: 2006
Title: PROTECTION ZONES FOR COLONIAL WATERBIRD COLONIES ACTIVE BETWEEN 1999-2003
Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
Other_Citation_Details: MD DNR NATURAL HERITAGE PROGRAM, ANNAPOLIS, MD
Type_of_Source_Media: EMAIL
Source_Time_Period_of_Content:
Time_Period_Information:
   Range_of_Dates/Times:
      Beginning_Date: 1999
      Ending_Date: 2003
Source_Currentness_Reference: DATE OF SURVEY
Source_Citation_Abbreviation: NONE
Source_Contribution: BIRDS INFORMATION
Source Information:
Source Citation:
Citation Information:
Originator: MD DNR, WILDLIFE AND HERITAGE
Publication Date: 2006
Title: QUARTER-MILE BUFFERS OF MARYLAND AMERICAN OYSTERCATCHER BREEDING SITES
Geospatial Data Presentation Form: VECTOR DIGITAL DATA
Other Citation Details: MD DNR, WILDLIFE AND HERITAGE SERVICE, ANNAPOLIS, MD
Type of Source Media: EMAIL
Source Time Period of Content:
Time Period Information:
Single Date/Time:
Calendar Date: 2003
Source Currentness Reference: DATE OF SURVEY
Source Citation Abbreviation: NONE
Source Contribution: BIRDS INFORMATION

Source Information:
Source Citation:
Citation Information:
Originator: NATIONAL PARK SERVICE (ASSATEAGUE ISLAND NS)
Publication Date: 2006
Title: ASSATEAGUE ISLAND NATIONAL SEASHORE SPECIES DISTRIBUTION AND SEASONALITY
Geospatial Data Presentation Form: EXPERT KNOWLEDGE
Other Citation Details: UNPUBLISHED
Type of Source Media: PERSONAL COMMUNICATION
Source Time Period of Content:
Time Period Information:
Range of Dates/Times:
Beginning Date: 2005
Ending Date: 2007
Source Currentness Reference: DATE OF COMMUNICATION
Source Citation Abbreviation: NONE
Source Contribution: BIRDS INFORMATION

Source Information:
Source Citation:
Citation Information:
Originator: STEWART, R.E.
Publication Date: 1962
Title: WATERFOWL POPULATIONS IN THE UPPER CHESAPEAKE REGION
Geospatial Data Presentation Form: HARDCOPY TEXT
Other Citation Details: US DOI FISH & WILDLIFE SERVICE, BUR OF SPORT FISHERIES & WILDLIFE, SPECIAL SCI. REP-WILDLIFE NO. 65, WASH. D.C.
Type of Source Media: PAPER
Source Time Period of Content:
Time_Period_Information:
Single_Date/Time:
    Calendar_Date: 1962
Source_Currentness_Reference: DATE OF PUBLICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: BIRDS INFORMATION
Source_Information:
Source_Citation:
Citation_Information:
    Originator: STONE, ROGER (USFWS)
    Publication_Date: 2007
    Title: CHESAPEAKE MARSHLANDS NWR COMPLEX INFORMATION
    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: 2007
    Source_Currentness_Reference: DATE OF COMMUNICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: BIRDS INFORMATION
Source_Information:
Source_Citation:
Citation_Information:
    Originator: USFWS
    Publication_Date: 2005
    Title: TIGER BEETLES, BIRDS
    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: 2005
    Source_Currentness_Reference: DATE OF COMMUNICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: BIRDS INFORMATION
Source_Information:
Source_Citation:
Citation_Information:
    Originator: USFWS
    Publication_Date: 2007
    Title: WATERFOWL CONCENTRATION DATABASE
    Geospatial_Data_Presentation_Form: VECTOR DIGITAL DATA
    Other_Citation_Details: UNPUBLISHED
Type_of_Source_Media: EMAIL
Source_Time_Period_of_Content:
Time_Period_Information:
    Single_Date/Time:
        Calendar_Date: 1995
BIRDS: 10 of 37
Three main sources of data were used to depict bird distribution and seasonality for this data layer: (1) personal interviews with U.S. Fish and Wildlife Service (USFWS), MD Department of Natural Resources (DNR), and National Park Service (NPS); (2) numerous published and unpublished reports; and (3) digital data sets for waterfowl distribution, bald eagle foraging, colonial waterbird nesting, American oystercatcher nesting, and threatened and endangered species locations.

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; and (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 BIRDS data layer are made based on the recommendations of the resource experts, and final hardcopy maps and digital data are created.

**Process_Date:** 200704  
**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_orProvince:** Washington  
**Postal_Code:** 98115-6349  
**Contact_Voice_Telephone:** (206) 526-6944  
**Contact_Facsimile_Telephone:** (206) 526-6329  
**Contact_Electronic_Mail_Address:** Jill.Petersen@noaa.gov  

**Spatial_Data_Organization_Information:**  
**Direct_Spatial_Reference_Method:** Vector  
**Point_and_Vector_Object_Information:**  
**SDTS_Terms_Description:**  
**SDTS_Point_and_Vector_Object_Type:** GT-polygon composed of chains  
**Point_and_Vector_Object_Count:** 7022  
**SDTS_Terms_Description:**  
**SDTS_Point_and_Vector_Object_Type:** Area point  
**Point_and_Vector_Object_Count:** 7022  
**SDTS_Terms_Description:**  
**SDTS_Point_and_Vector_Object_Type:** Complete chain  
**Point_and_Vector_Object_Count:** 18379  
**SDTS_Terms_Description:**  
**SDTS_Point_and_Vector_Object_Type:** Link  
**Point_and_Vector_Object_Count:** 2236471  
**SDTS_Terms_Description:**  
**SDTS_Point_and_Vector_Object_Type:** Node, planar graph  
**Point_and_Vector_Object_Count:** 13285  

**Spatial_Reference_Information:**  
**Horizontal_Coordinate_System_Definition:**  
**Geographic:**  
**Latitude_Resolution:** 0.0000001  
**Longitude_Resolution:** 0.0000001  
**Geographic_Coordinate_Units:** Decimal degrees  
**Geodetic_Model:**
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 Maryland atlas, the number is 47), 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.
**Entity_Type_Label:** BIRDS.PAT

**Entity_Type_Definition:**

The BIRDS.PAT table contains attribute information for the vector polygons in this data set representing bird nesting, 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 (47), 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:** 0470100002
  - **Range_Domain_Maximum:** 0470107240

**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:** 047000001
  - **Range_Domain_Maximum:** 047001335

**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:** 047000001
  - **Range_Domain_Maximum:** 047001335
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 (47), 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:** 0470100002
- **Range_Domain_Maximum:** 0470900381

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:** 047000001
- **Range_Domain_Maximum:** 047001335

Attribute:

**Attribute_Label:** SPECIES_ID

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

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**

**Range_Domain:**
- **Range_Domain_Minimum:** 1
- **Range_Domain_Maximum:** N

Attribute:

**Attribute_Label:** CONC

**Attribute_Definition:**
The field CONC refers to "concentration," abundance, or density values, and may contain counts of individuals for each species present at a particular nesting site, or a term that describes relative abundance of birds at a particular site. The field may contain counts of pairs or nests, such as XXX PAIRS, XXX-XXX PAIRS, or X NESTS. In cases where no quantitative count data were available, the field may either be blank; contain a descriptive term, such as "HIGH"; or a concentration
approximation, such as 1000S. Counts were derived from a variety of surveys, and may range in date (see Lineage).

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.
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 = 'B00001').


**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:**

- **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.

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: amphibian
    Enumerated_Domain_Value_Definition: Amphibian
    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: 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.
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: passerine
        Enumerated_Domain_Value_Definition: Passerine bird
        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: plant
        Enumerated_Domain_Value_Definition: Plant
        Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

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

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

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

Attribute_Domain_Values:
    Enumerated_Domain:
        Enumerated_Domain_Value: shrimp
        Enumerated_Domain_Value_Definition: Shrimps
        Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

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

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

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: upland
Enumerated_Domain_Value_Definition: Upland
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_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: wetland
Enumerated_Domain_Value_Definition: Wetland
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: whale
Enumerated_Domain_Value_Definition: Whale
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: date unspecified
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:
 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').
**Entity Type:**

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

**Attribute:**

- **Attribute Label:** EL_SPE_SEA
- **Attribute Definition:** Concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. This item links records in the BREED data table to records in the BIORES and SEASONAL data tables.
- **Attribute Definition Source:** Research Planning, Inc.
- **Attribute Domain Values:**
  - **Enumerated Domain:**
    - **Enumerated Domain Value:** E#######
      - **Enumerated Domain Value Definition:** Where E is the first character of ELEMENT, the next five characters are SPECIES_ID, and the last two characters are SEASON_ID (e.g. ELEMENT = 'BIRD', SPECIES_ID = 1 and SEASON_ID = 1; EL_SPE_SEA = 'B0000101').
      - **Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Attribute:**

- **Attribute Label:** MONTH
- **Attribute Definition:** Two-digit calendar month. Each life history stage or activity type for a particular species can have up to 12 records to account for each month of the year.
- **Attribute Definition Source:** Research Planning, Inc.
- **Attribute Domain Values:**
  - **Range Domain:**
    - **Range Domain Minimum:** 1
    - **Range Domain Maximum:** 12

**Attribute:**

- **Attribute Label:** BREED1
- **Attribute Definition:** Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED1 = nesting; if ELEMENT is "FISH" then BREED1 = spawning; if ELEMENT is "INVERT" then BREED1 = spawning; if ELEMENT is "REPTILE" then BREED1 = nesting; if ELEMENT is "M_MAMMAL" then BREED1 = mating. This attribute is not used for HABITAT or T_MAMMAL elements.
- **Attribute Definition Source:** Research Planning, Inc.
- **Attribute Domain Values:**
  - **Enumerated Domain:**
    - **Enumerated Domain Value:** Y
      - **Enumerated Domain Value Definition:** Life-history stage or activity present
        - **Enumerated Domain Value Definition Source:** Research Planning, Inc.
  - **Enumerated Domain Value:** N
Enumerated Domain Value Definition: Life-history stage or activity not present 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 = migrating; if ELEMENT is "FISH" then BREED2 = eggs; if ELEMENT is "INVERT" then BREED2 = eggs; if ELEMENT is "REPTILE" then BREED2 = hatching; if ELEMENT is "M_MAMMAL" then BREED2 = calving. This attribute is not used for HABITAT or T_MAMMAL elements.

Attribute Definition Source: Research Planning, Inc.

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

Attribute Domain Values:
  Enumerated Domain:
    Enumerated Domain Value: N
    Enumerated Domain Value Definition: Life-history stage or activity not present 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 = molting; if ELEMENT is "FISH" then BREED3 = larvae; if ELEMENT is "INVERT" then BREED3 = larvae; if ELEMENT is "REPTILE" then BREED3 = internesting; if ELEMENT is "M_MAMMAL" then BREED3 = pupping. This attribute is not used for HABITAT or T_MAMMAL elements.

Attribute Definition Source: Research Planning, Inc.

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

Attribute Domain Values:
  Enumerated Domain:
    Enumerated Domain Value: -
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 "FISH" then BREED4 = juveniles; if ELEMENT is "INVERT" then BREED4 = juveniles; if ELEMENT is "REPTILE" then BREED4 = juveniles; if ELEMENT is "M_MAMMAL" then BREED4 = molting. This attribute is not used for BIRD, HABITAT, or T_MAMMAL elements.
  Attribute_Definition_Source: Research Planning, Inc.

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

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: N
    Enumerated_Domain_Value_Definition: Life-history stage or activity not present 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: -
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 and HYDRO 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

Maryland ESI: BIRDS (Bird Polygons)
**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.

**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_Domain_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;
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 Maryland

Distribution Liability:

Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration (NOAA), 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 the widest community of GIS/mapping users. Distribution formats include 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 for use with the MARPLOT data are also included on the distribution DVDs 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: 200707

Metadata Review Date: 200707

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

BIRDS: 36 of 37
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 30 17:14:26 2007
Maryland ESI: NESTS (Nest Points)

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:** 200707

**Title:** Maryland ESI: NESTS (Nest Points)

**Edition:** First

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

**Series Information:**

- **Series Name:** None
- **Issue Identification:** Maryland

**Publication Information:**

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

**Other Citation Details:**


**Description:**

**Abstract:**

This data set contains sensitive biological resource data for raptors in Maryland. Vector points in this data set represent 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 Maryland. 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 Maryland 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:** 1991
  - **Ending_Date:** 2007

**Currentness_Reference:**
The biological data were compiled during 2005-2007. The currentness dates for the data range from 1991 to 2007 and are documented in the Lineage section.

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

**Spatial_Domain:**
**Bounding_Coordinates:**
  - **West_Bounding_Coordinate:** -77.37500
  - **East_Bounding_Coordinate:** -75.00000
  - **North_Bounding_Coordinate:** 39.75000
  - **South_Bounding_Coordinate:** 37.87500

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

**Place:**
  - **Place_Keyword_Thesaurus:** None
  - **Place_Keyword:** Maryland

**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 Maryland ESI data.

**Browse Graphic File Type:** JPEG

**Data Set Credit:**

This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Emergency Response Division (formerly Hazardous Materials Response Division), Seattle, Washington and NOAA Chesapeake Bay Office, Gloucester Point, Virginia.

**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 (NT4.0/2000).

The Spatial Data Organization Information section refers only to the source files in the ARC export format. The following files are included in that data set: birds.e00, esi.e00, fish.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mammal.e00, mgt.e00, nests.e00, reptiles.e00, soccon.e00, t_mammal.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biores, breed, breed_dt, 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® to ARC/INFO® consistencies. A final review is made by the GIS manager, where the data are written to CD-ROM and the metadata are written.

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

Completeness_Report:
These data represent a synthesis of expert knowledge, available hardcopy documents, and digital data on bird nesting sites. See also the BIRDS (Bird Polygons) data layer, part of the larger Maryland ESI database, for additional bird information. These data do not necessarily represent all nest occurrences in Maryland. The following species are included in this data set:
(Species_ID, Common Name, Scientific Name [n/a if not applicable]): 76, Bald eagle, Haliaeetus leucocephalus; 626, American peregrine falcon, Falco peregrinus anatum.

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. Most of the spatial components of the biological data layers are developed using regional experts who estimate concentration areas. It is difficult to estimate the positional accuracy of such data, except to state that they are compiled on hardcopy base maps with a scale of 1:24,000. Some of the spatial components of the biological data sets are developed from pre-existing digital 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: FUNDERBURK, S.L. ET AL. (EDS)
Publication_Date: 1991
Title: HABITAT REQUIREMENTS FOR CHESAPEAKE BAY LIVING RESOURCES
Geospatial_Data_Presentation_Form: HARDCOPY TEXT
Other_Citation_Details:
CHESAPEAKE BAY PROGRAM OFFICE, U.S. ENVIRONMENTAL PROTECTION AGENCY, ANNAPELIS, MD
Type_of_Source_Media: PAPER
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 1991
Source_Currentness_Reference: DATE OF PUBLICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: NESTS INFORMATION
Two main sources of data were used to depict nest distribution and seasonality for this data layer: (1) personal interviews with resource experts from U.S. Fish and Wildlife Service (USFWS) and (2) Chesapeake Marshlands National Wildlife Refuge Complex and U.S. Environmental Protection Agency (USEPA) reports and digital 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; and (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 NESTS data layer are made based on the recommendations of the resource experts, and final hardcopy maps and digital data are created.

Process_Date: 200704

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

Spatial_Data_Organization_Information: Direct_Spatial_Reference_Method: Vector
  Point_and_Vector_Object_Information:
    SDTS_Terms_Description:
      SDTS_Point_and_Vector_Object_Type: Entity Point
      Point_and_Vector_Object_Count: 35

Spatial_Reference_Information:
  Horizontal_Coordinate_System_Definition:
    Geographic:
      Latitude_Resolution: 0.0000001
      Longitude_Resolution: 0.0000001
**Geographic Coordinate Units:** Decimal degrees

**Geodetic Model:**

*Horizontal Datum Name:* North American Datum of 1927  
*Ellipsoid Name:* Clark 1866  
*Semi-major Axis:* 6378206.400000  
*Denominator of Flattening Ratio:* 294.978698

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**Entity and Attribute Information:**

**Overview Description:**

In addition to the geographic data layers, six relational attribute or data tables, BIORES, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, are used to store the complex biological data in the ESI data structure. The geographic data layer containing biological resource information (in this case, NESTS) is linked to the Biological Resources table (BIORES) using the unique ID and the lookup table BIO_LUT, or it can be linked directly using RARNUM. The ID is a unique combination of the atlas number (for the Maryland atlas, the number is 47), 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 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 (47), element number
(5), and record number.
  Attribute_Definition_Source: NOAA
  Attribute_Domain_Values:
    Range_Domain:
      Range_Domain_Minimum: 0470500001
      Range_Domain_Maximum: 0470500035

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: 0470000014
      Range_Domain_Maximum: 047000025

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: 0470000001
Range_Domain_Maximum: 047001335

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 (47), 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: 0470100002
    Range_Domain_Maximum: 0470900381

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: 047000001
    Range_Domain_Maximum: 047001335

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. The field may contain counts of nests (X NESTS) or pairs (X PAIRS), or ".-", implying that it is a single nest of the raptor species listed.
  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.
**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: amphibian
Enumerated_Domain_Value_Definition: Amphibian
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: 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: dolphin
Enumerated_Domain_Value_Definition: Dolphin
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

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

Enumerated_Domain:

Enumerated_Domain_Value: e_resident
Enumerated_Domain_Value_Definition: Estuarine resident
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: freshwater
Enumerated_Domain_Value_Definition: Freshwater fish
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:

Enumerated_Domain_Value: gastropod
Enumerated_Domain_Value_Definition: Gastropod
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:

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

Enumerated_Domain:

Enumerated_Domain_Value: insect
Enumerated_Domain_Value_Definition: Insect
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:

Enumerated_Domain_Value: invert
Enumerated_Domain_Value_Definition: Invert
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:

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

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: passerine
  Enumerated_Domain_Value_Definition: Passerine bird
  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: plant
    Enumerated_Domain_Value_Definition: Plant
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

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

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

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

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: shrimp
    Enumerated_Domain_Value_Definition: Shrimps
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

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

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: turtle
    Enumerated_Domain_Value_Definition: Turtle
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Enumerated Domain Value: upland
Enumerated Domain Value Definition: Upland
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 Domain Values:
- Enumerated Domain:
  - Enumerated Domain Value: wetland
  - Enumerated Domain Value Definition: Wetland
  - Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:
- Enumerated Domain:
  - Enumerated Domain Value: whale
  - Enumerated Domain Value Definition: Whale
  - 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
**Attribute: 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: 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: 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: 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: MAR**
*Attribute Definition:* March
*Attribute Definition Source:* Research Planning, Inc.

**Attribute Domain Values:**
- **Enumerated Domain:**
  - **Enumerated Domain Value:** X

*Enumerated Domain Value Definition Source:* Research Planning, Inc.
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: Attribute_Label: OCT
Attribute_Definition: October
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: X
Enumerated_Domain_Value_Definition: Present in October
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

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

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

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

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

**Entity_Type_Definition_Source:** Research Planning, Inc.

**Attribute:**
**Attribute_Label:** EL_SPE_SEA

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

**Attribute_Definition_Source:** Research Planning, Inc.

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

**Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute:**
**Attribute_Label:** MONTH

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

**Attribute_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**
**Range_Domain:**
- **Range_Domain_Minimum:** 1
- **Range_Domain_Maximum:** 12

**Attribute:**
**Attribute_Label:** BREED1

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

**Attribute_Definition_Source:** Research Planning, Inc.

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

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

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: Y
    Enumerated_Domain_Value_Definition: Life-history stage or activity present
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Enumerated_Domain:
    Enumerated_Domain_Value: N
    Enumerated_Domain_Value_Definition: Life-history stage or activity not present 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 = molting; if ELEMENT is "FISH" then BREED3 = larvae; if ELEMENT is "INVERT" then BREED3 = larvae; if ELEMENT is "REPTILE" then BREED3 = internesting; if ELEMENT is "M_MAMMAL" then BREED3 = pupping. This attribute is not used for HABITAT or T_MAMMAL elements.
  Attribute_Definition_Source: Research Planning, Inc.

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

**Attribute Domain Values:**

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

- **Enumerated Domain Values:**
  - **Enumerated Domain:**
    - **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 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.

- **Enumerated 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.
**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 and HYDRO 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.

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

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:
Enumerted_Domain:
    Enumerated_Domain_Value: E
    Enumerated_Domain_Value_Definition: Endangered on federal list
    Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines

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:
Enumerted_Domain:
    Enumerated_Domain_Value: E
    Enumerated_Domain_Value_Definition: Endangered on international list
    Enumerated_Domain_Value_Definition_Source: NOAA ESI Guidelines

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 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 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 Maryland

Distribution Liability:

Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration (NOAA), 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 the widest community of GIS/mapping users. Distribution formats include 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 for use with the MARPLOT data are also included on the distribution DVDs 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: 200707
  Metadata Review Date: 200707
  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
Maryland ESI: FISH (Fish Polygons)

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

Metadata:

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

**Identification Information:**

**Citation:**

**Originator:**

**Publication_Date:** 200707
**Title:** Maryland ESI: FISH (Fish Polygons)
**Edition:** First

**Geospatial_Data_Presentation_Form:** Vector digital data

**Series Information:**
- **Series_Name:** None
- **Issue_Identification:** Maryland

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

**Other_Citation_Details:**

**Description:**

**Abstract:**
This data set contains sensitive biological resource data for marine, estuarine, anadromous, and freshwater fish species in Maryland. Vector polygons in this data set represent fish distribution, concentration areas, and spawning areas. Species specific abundance, seasonality, status, life history, and source information are stored in relational data tables.
This data set comprises a portion of the Environmental Sensitivity Index (ESI) data for Maryland. 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:** 1963
  - **Ending_Date:** 2007

**Currentness_Reference:**
The biological data were compiled during 2005-2007. The currentness dates for the data range from 1963 to 2007 and are documented in the Lineage section.

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

**Spatial_Domain:**
- **Bounding_Coordinates:**
  - **West_BoundingCoordinate:** -77.3750
  - **East_BoundingCoordinate:** -75.0000
  - **North_BoundingCoordinate:** 39.7500
  - **South_BoundingCoordinate:** 37.8750

**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:** Maryland

**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 Maryland ESI data.  
*Browse_Graphic_File_Type*: JPEG

**Data_Set_Credit:**

This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Emergency Response Division (formerly Hazardous Materials Response Division), Seattle, Washington and NOAA Chesapeake Bay Office, Gloucester Point, Virginia.

**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 (NT4.0/2000).

The Spatial_Data_Organization Information section refers only to the source files in the ARC export format. The following files are included in that data set: birds.e00, esi.e00, fish.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mammal.e00, mgt.e00, nests.e00, reptiles.e00, socecon.e00, t_mammal.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biores, breed, breed_dt, 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® to ARC/INFO® consistencies. A final review is made by the GIS manager, where the data are written to CD-ROM and the metadata are written.

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

Completeness_Report:
These data represent a synthesis of expert knowledge, available hardcopy documents, and survey data for fish distribution, concentration areas, and spawning areas. These data do not necessarily represent all fish occurrences in Maryland. The following species are included in this data set: (Species_ID, Common Name, Scientific Name [n/a if not applicable]): 65, Bluefish, Pomatomus saltatrix; 74, Rainbow trout, Oncorhynchus mykiss; 81, Spiny dogfish, Squalus acanthias; 85, Alewife, Alosa pseudoharengus; 86, Blueback herring, Alosa aestivalis; 87, American shad, Alosa sapidissima; 88, Winter flounder, Pleuronectes americanus; 90, White hake, Urophycis tenuis; 94, Atlantic silverside, Menidia menidia; 95, Mummichog, Fundulus heteroclitus; 97, Tautog, Tautoga onitis; 98, American eel, Anguilla rostrata; 100, Brown trout, Salmo trutta; 101, Shortnose sturgeon, Acipenser brevoirostrum; 102, Atlantic sturgeon, Acipenser oxyrinchus; 103, Threadfin shad, Dorosoma petenense; 104, Striped bass, Morone saxatilis; 105, Hickory shad, Alosa mediocris; 107, Spotted seatrout, Cynoscion nebulosus; 108, Summer flounder, Paralichthys dentatus; 109, Red drum, Sciaenops ocellatus; 110, Black sea bass, Centropristis striata; 113, Bay anchovy, Anchoa mitchilli; 115, Atlantic menhaden, Brevoortia tyrannus; 116, Striped mullet, Mugil cephalus; 117, Pinfish, Lagodon rhomboides; 119, Silver perch, Bairdiella chrysoura; 120, Pigfish, Orthopristis chrysoptera; 121, Spot, Leioctomus xanthurus; 122, Black drum, Pogonias cromis; 123, Atlantic croaker, Micropogonias undulatus; 124, Southern kingfish (whiting), Menticirrhus americanus; 127, Spanish mackerel, Scomberomorus maculatus; 129, Atlantic thread herring, Opisthonema oglinum; 137, Sheephead, Archosargus probatocephalus; 138, Weakfish, Cynoscion regalis; 142, Crevalle jack, Caranx hippos; 145, White perch, Morone americana; 146, Atlantic herring, Clupea harengus; 147, Atlantic mackerel, Scomber scombrus; 148, Silver hake, Merluccius bilinearis; 150, Scup (porgy), Stenotomus chrysops; 151, Northern puffer, Sphoeroides maculatus; 152, Yellow perch, Perca flavescens; 153, Northern kingfish, Menticirrhus saxatilis; 154, Pollock, Pollachius virens; 155, Red hake, Urophycis chuss; 157, Monkfish, Lophius americanus; 158, Butterfish, Peprilus triacanthus; 160, Windowpane, Scophthalmus aquosus; 162, Common carp, Cyprinus carpio; 163, Gizzard shad, Dorosoma cepedianum; 166, Brook trout, Salvelinus fontinalis; 168, Spottail shiner, Notropis hudsonius; 173, White mullet, Mugil curema; 179, Largemouth bass, Micropterus salmoides; 180, Smallmouth bass, Micropterus dolomieu; 181, Black crappie, Pomoxis nigromaculatus; 182, Bluegill, Lepomis macrochirus; 188, Walleye, Stizostedion vitreum vitreum; 191, Shorthead redhorse, Moxostoma macrolepidotum; 200, Blue catfish, Ictalurus furcatus; 201, Channel catfish, Ictalurus punctatus; 202, White crappie, Pomoxis annularis; 204, Redear sunfish, Lepomis microlophus; 211, Brown bullhead, Ameius nebulosus; 212, Pumpkinseed, Lepomis gibbosus; 249, Logperch, Percina caprodes; 271, Inland silverside, Menidia beryllina; 283, Killifish, Fundulus spp.; 290, Striped anchovy, Anchoa mitchilli; 292, Chain pickerel, Esox niger; 294, Spotted hake, Urophycis regia; 301, Rough silverside, Menbras martinica; 309, Spotfin mojarra, Eucinostomus argenteus; 310, Atlantic spadefish, Chaetodipterus faber; 312, Harvestfish, Peprilus alepidotus; 325, Blackcheek tonguefish, Symphurus plagiusa; 335, Silversides, n/a; 353, Golden shiner, Notemigonus crysoleucas; 362, Southern stingray, Dasyatis americana; 363, Inshore lizardfish, Synodus foetens; 366, Hogchoker, Trinectes maculatus; 378, Atlantic needlefish, Strongylura marina; 464, Longnose gar, Lepisosteus osseus; 477, Cownose Maryland ESI: FISH (Fish Polygons)
ray, Rhinoptera bonasus; 482, Northern pipefish, Syngnathus fuscus; 483, Northern searobin, Prionotus carolinus; 485, Oyster toadfish, Opsanus tau; 500, Sea lamprey, Petromyzon marinus; 506, White catfish, Ameiurus catus; 865, Striped burrfish, Cyclichthys schoepfi; 966, Clearnose skate, Raja eglanteria; 967, Sandbar shark, Carcharhinus plumbeus; 984, Bluespotted sunfish, Enneacanthus gloriosus; 985, Redbreast sunfish, Lepomis auritus; 986, Tessellated darter, Etheostoma olmstedi; 1001, Blennies, n/a; 1029, Gobies, n/a; 1042, Needlefishes, Belonidae; 1088, Lined seahorse, Hippocampus erectus; 1089, Little skate, Leucoraja erinacea; 1090, Northern stargazer, Astroscopus guttatus; 1091, Smallmouth flounder, Etropus microstomus; 1092, Striped cusk-eel, Ophidion marginatum; 1093, Butterfly ray, Gymnura micrura; 1104, Atlantic angel shark, Squatina dumeril; 1105, Blackbanded sunfish, Enneacanthus chaetodon; 1106, Eastern silvery minnow, Hybognathus regius; 1107, Sand tiger, Carcharias taurus; 1108, Smooth dogfish, Mustelus canis; 1109, Striped searobin, Prionotus evolans.

Positional Accuracy:
Horizontal Positional Accuracy:

Spatial components for the biological data layers can come from expert interviews, hardcopy, or digital sources. Most of the spatial components of the biological data layers are developed using regional experts who estimate concentration areas. It is difficult to estimate the positional accuracy of such data, except to state that they are compiled on hardcopy base maps with a scale of 1:24,000. Some of the spatial components of the biological data sets are developed from pre-existing digital 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: DOCTOR, S., MD DEPARTMENT OF NATURAL RESOURCES (DNR)
Publication Date: 2006
Title:
PERSONAL COMMUNICATION LIVING MARINE RESOURCES WITHIN THE COASTAL BAYS OF MD

Geospatial Data Presentation Form: EXPERT KNOWLEDGE
Other Citation Details: UNPUBLISHED

Type of Source Media: PERSONAL COMMUNICATION
Source Time Period of Content:

Time Period Information:
Range of Dates/Times:
Beginning Date: 2006
Ending Date: 2007

Source Currentness Reference: DATE OF COMMUNICATION
Source Citation Abbreviation: NONE
Source Contribution: FISH INFORMATION

Source Information:
Source Citation:

Citation Information:
Originator:
DOTSON, J., INTERSTATE COMMISSION ON THE POTOMAC RIVER BASIN (ICPRB)

Publication_Date: 2007
Title: PERSONAL COMMUNICATION ON FISH IN THE POTOMAC RIVER
Geospatial_Data_Presentation_Form: EXPERT KNOWLEDGE
Other_Citation_Details: UNPUBLISHED

Type_of_Source_Media: EMAIL
Source_Time_Period_of_Content:
Time_Period_Information:
   Single_Date/Time:
      Calendar_Date: 2007
Source_Currentness_Reference: DATE OF COMMUNICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: FISH INFORMATION

Source_Information:
Source_Citation:
Citation_Information:
   Originator: DURELL, E., MD DNR
   Publication_Date: 2006
   Title: PERSONAL COMMUNICATION ON FINFISH OF CHESAPEAKE BAY
Geospatial_Data_Presentation_Form: EXPERT KNOWLEDGE
Other_Citation_Details: UNPUBLISHED

Type_of_Source_Media: PERSONAL COMMUNICATION
Source_Time_Period_of_Content:
Time_Period_Information:
   Range_of_Dates/Times:
      Beginning_Date: 2006
      Ending_Date: 2007
Source_Currentness_Reference: DATE OF COMMUNICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: FISH INFORMATION

Source_Information:
Source_Citation:
Citation_Information:
   Originator: EYLER, S., U.S. FISH & WILDLIFE SERVICE (USFWS)
   Publication_Date: 2005
   Title: PERSONAL COMMUNICATION ON DISTRIBUTION OF STURGEON AND HORSESHOE CRAB
Geospatial_Data_Presentation_Form: EXPERT KNOWLEDGE
Other_Citation_Details: UNPUBLISHED

Type_of_Source_Media: PERSONAL COMMUNICATION
Source_Time_Period_of_Content:
Time_Period_Information:
   Range_of_Dates/Times:
      Beginning_Date: 2005
      Ending_Date: 2007
Source_Currentness_Reference: DATE OF COMMUNICATION
Calendar_Date: 1963
Source_Currentness_Reference: DATE OF PUBLICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: FISH INFORMATION

Source_Information:
  Source_Citation:
    Citation_Information:
      Originator: MARYLAND DNR
      Publication_Date: 2005
      Title: SUSQUEHANNA STATE PARK
      Geospatial_Data_Presentation_Form: WEBSITE
    Other_Citation_Details:
      <http://www.dnr.state.md.us/publiclands/central/susquehanna.html>, ANnapolis, MD
  Type_of_Source_Media: ONLINE
  Source_Time_Period_of_Content:
    Time_Period_Information:
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    Source_Currentness_Reference: DATE OF PUBLICATION
  Source_Citation_Abbreviation: NONE
  Source_Contribution: FISH INFORMATION

Source_Information:
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    Citation_Information:
      Originator: MARYLAND DNR
      Publication_Date: 2003
      Title: FISHING THE UPPER CHESAPEAKE
      Geospatial_Data_Presentation_Form: WEBSITE
    Other_Citation_Details:
      <http://www.dnr.state.md.us/naturalresource/summer2003/fishing.html>, ANnapolis, MD DNR
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    Source_Currentness_Reference: DATE OF PUBLICATION
  Source_Citation_Abbreviation: NONE
  Source_Contribution: FISH INFORMATION

Source_Information:
  Source_Citation:
    Citation_Information:
      Originator: MCGINTY, M., MD DNR
      Publication_Date: 2007
      Title: PERSONAL COMMUNICATION ON FISH IN CHESAPEAKE BAY
      Geospatial_Data_Presentation_Form: EXPERT KNOWLEDGE
    Other_Citation_Details: UNPUBLISHED
  Type_of_Source_Media: PERSONAL COMMUNICATION
  Source_Time_Period_of_Content:
    Time_Period_Information:
Two main sources of data were used to depict fish distribution and seasonality for this data layer: (1) personal interviews with resource experts from the Maryland Department of Natural Resources (MD DNR), and U.S. Fish and Wildlife Service (USFWS); and (2) numerous published and unpublished reports.

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; and (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.

Process Date: 200704
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: 1823
SDTS_Terms_Description:
  SDTS_Point_and_Vector_Object_Type: Area point
  Point_and_Vector_Object_Count: 1823

SDTS_Terms_Description:
  SDTS_Point_and_Vector_Object_Type: Complete chain
  Point_and_Vector_Object_Count: 6329

SDTS_Terms_Description:
  SDTS_Point_and_Vector_Object_Type: Link
  Point_and_Vector_Object_Count: 1841072

SDTS_Terms_Description:
  SDTS_Point_and_Vector_Object_Type: Node, planar graph
  Point_and_Vector_Object_Count: 6094

Spatial_Reference_Information:
  Horizontal_Coordinate_System_Definition:
    Geographic:
      Latitude_Resolution: 0.0000001
      Longitude_Resolution: 0.0000001
      Geographic_Coordinate_Units: Decimal degrees

Geodetic_Model:
  Horizontal_Datum_Name: North American Datum of 1927
  Ellipsoid_Name: Clark 1866
  Semi-major_Axis: 6378206.40000
  Denominator_of_Flattening_Ratio: 294.978698

Entity_and_Attribute_Information:
  Overview_Description:
  Entity_and_Attribute_Overview:
    In addition to the geographic data layers, six relational attribute or data tables, BIORES, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, are used to store the complex biological data in the ESI data structure. The geographic data layer containing biological resource information (in this case, 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 Maryland atlas, the number is 47), 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, seasonality, 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 fish distribution, concentration areas, and spawning 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 (47), 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:**

<table>
<thead>
<tr>
<th>Range_Domain_Minimum</th>
<th>Range_Domain_Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>0470200002</td>
<td>0470201790</td>
</tr>
</tbody>
</table>

**Attribute:**

**Attribute_Label:** RARNUM

**Attribute_Definition:**

An identifier that links directly to the BIORES table or the flat format BIOFILE table. RARNUM values of 0 are holes in polygons and do not contain information.

**Attribute_Definition_Source:** NOAA

**Attribute_Domain_Values:**

**Range_Domain:**

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>047001084</td>
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</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:** 047000001  
  - **Range_Domain_Maximum:** 047001335

**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 (47), 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:** 0470100002  
  - **Range_Domain_Maximum:** 0470900381

**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: 047000001
    Range_Domain_Maximum: 047001335

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 fish, 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:**

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<th>Enumerated Domain Value Definition</th>
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</tr>
</thead>
<tbody>
<tr>
<td>BIRD</td>
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**Attribute Domain Values:**

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<th>Enumerated Domain Value</th>
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</thead>
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<tr>
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**Attribute Domain Values:**

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</thead>
<tbody>
<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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<th>Enumerated Domain</th>
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<th>Enumerated Domain Value Definition</th>
<th>Enumerated Domain Value Definition Source</th>
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**Attribute Domain Values:**

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<th>Enumerated Domain Value Definition Source</th>
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**Attribute Domain Values:**

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<th>Enumerated Domain Value Definition Source</th>
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</thead>
<tbody>
<tr>
<td>REPTILE</td>
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<td>Reptiles and Amphibians</td>
<td>Research Planning, Inc.</td>
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</table>

**Attribute Domain Values:**

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</thead>
<tbody>
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<td>T_MAMMAL</td>
<td>T_MAMMAL</td>
<td>Terrestrial Mammals</td>
<td>Research Planning, Inc.</td>
</tr>
</tbody>
</table>

**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:**

<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>E#####</td>
<td>E#####</td>
<td>Where E is the first character of ELEMENT and the next five characters</td>
<td></td>
</tr>
</tbody>
</table>
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: amphibian
  Enumerated_Domain_Value_Definition: Amphibian
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
  
  Enumerated_Domain_Value: bivalve
  Enumerated_Domain_Value_Definition: Bivalve
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: dolphin
    Enumerated_Domain_Value_Definition: Dolphin
    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: e_resident
    Enumerated_Domain_Value_Definition: Estuarine resident
    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: freshwater
    Enumerated_Domain_Value_Definition: Freshwater fish
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: gastropod
    Enumerated_Domain_Value_Definition: Gastropod
    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: insect
  Enumerated_Domain_Value_Definition: Insect
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: invert
  Enumerated_Domain_Value_Definition: Invert
  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: passerine
  Enumerated_Domain_Value_Definition: Passerine bird
  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: plant
  Enumerated_Domain_Value_Definition: Plant
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: raptor
  Enumerated_Domain_Value_Definition: Raptor
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: sav
  Enumerated_Domain_Value_Definition: Submerged aquatic vegetation
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: shorebird
  Enumerated_Domain_Value_Definition: Shorebird
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: shrimp
  Enumerated_Domain_Value_Definition: Shrimps
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

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

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

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: upland
  Enumerated_Domain_Value_Definition: Upland
  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_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: wetland
  Enumerated_Domain_Value_Definition: Wetland
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
  Enumerated_Domain_Value: whale
  Enumerated_Domain_Value_Definition: Whale
  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: **JUL**
- **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: **AUG**
- **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: **SEP**
- **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: **OCT**
- **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: **NOV**
- **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: **DEC**
- **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 = 'B000101').
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 = 'B000101').
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: BREED1
   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
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute: BREED2
   Attribute_Label: BREED2
   Attribute_Definition:
   Life history stage or activity type, where: if ELEMENT is "BIRD" then BREED2 = migrating; if ELEMENT is "FISH" then BREED2 = eggs; if ELEMENT is "INVERT" then BREED2 = eggs; if ELEMENT is "REPTILE" then BREED2 = hatching; if ELEMENT is "M_MAMMAL" then BREED2 = calving. This attribute is not used for HABITAT or T_MAMMAL elements.
   Attribute_Definition_Source: Research Planning, Inc.
   Attribute_Domain_Values:
   Enumerated_Domain:
      Enumerated_Domain_Value: Y
      Enumerated_Domain_Value_Definition: Life-history stage or activity present
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
   Enumerated_Domain:
      Enumerated_Domain_Value: N
      Enumerated_Domain_Value_Definition: Life-history stage or activity not present 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 = molting; if ELEMENT is "FISH" then BREED3 = larvae; if ELEMENT is "INVERT" then BREED3 = larvae; if ELEMENT is "REPTILE" then BREED3 = internesting; if ELEMENT is "M_MAMMAL" then BREED3 = pupping. This attribute is not used for HABITAT or T_MAMMAL elements.
  Attribute_Definition_Source: Research Planning, Inc.

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

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

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

Attribute_Domain_Values:
  Enumerated_Domain:
  Enumerated_Domain_Value: N
  Enumerated_Domain_Value_Definition: Life-history stage or activity not present 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.
  - **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:** 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 and HYDRO 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
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**: John Kaperick
- **Contact Person**: John Kaperick
- **Contact Organization**: NOAA, Office of Response and Restoration

Contact Address:

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

- **Contact Voice Telephone**: (206) 526-6400
- **Contact Facsimile Telephone**: (206) 526-6329

Resource Description: ESI Atlas for Maryland

Distribution Liability:

Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration (NOAA), 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 the widest community of GIS/mapping users. Distribution formats include 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 for use with the MARPLOT data are also included on the distribution DVDs 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.
Maryland ESI: INVERT (Invertebrate Polygons)

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

Metadata:

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

Identification Information:

Citation:

Publication Date: 200707
Title: Maryland ESI: INVERT (Invertebrate Polygons)
Edition: First
Geospatial Data Presentation Form: Vector digital data
Series Information:
- Series Name: None
- Issue Identification: Maryland
Publication Information:
- Publication Place: Seattle, Washington
- Publisher:

Other Citation Details:


Description:

Abstract:

This data set contains sensitive biological resource data for marine, estuarine, and rare coastal invertebrate species in Maryland. Vector polygons in this data set represent invertebrate distribution and concentration areas. Species specific abundance, seasonality, status, life history, and source information are stored in relational data tables (described
This data set comprises a portion of the Environmental Sensitivity Index (ESI) data for Maryland. 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:** 1966
  - **Ending_Date:** 2007

**Currentness_Reference:**
The biological data were compiled during 2005-2007. The currentness dates for the data range from 1966 to 2007 and are documented in the Lineage section.

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

**Spatial_Domain:**
**Bounding_Coordinates:**
- **West_BoundingCoordinate:** -77.37500
- **East_BoundingCoordinate:** -75.00000
- **North_BoundingCoordinate:** 39.75000
- **South_BoundingCoordinate:** 37.87500

**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:** Maryland

**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 Maryland ESI data.

**Browse_Graphic_File_Type:** JPEG

**Data_Set_Credit:**

This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Emergency Response Division (formerly Hazardous Materials Response Division), Seattle, Washington and NOAA Chesapeake Bay Office, Gloucester Point, Virginia.

**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 (NT4.0/2000).

The Spatial_Data_Organization Information section refers only to the source files in the ARC export format. The following files are included in that data set: birds.e00, esi.e00, fish.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mammal.e00, mgt.e00, nests.e00, reptiles.e00, socecon.e00, t_mammal.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biore, breed, breed_dt, 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® to ARC/INFO® consistencies. A final review is made by the GIS manager, where the data are written to CD-ROM and the metadata are written.

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

Completeness_Report:
These data represent a synthesis of expert knowledge, available hardcopy documents, survey data, maps, and digital data on invertebrate distribution and concentration areas. These data do not necessarily represent all invertebrate occurrences in Maryland. The following species are included in this data set: (Species_ID, Common Name, Scientific Name [n/a if not applicable]): 19, Blue mussel, Mytilus edulis; 25, Softshell clam, Mya arenaria; 34, Sea scallop, Placopecten magellanicus; 41, Bay scallop, Argopecten irradians; 42, Hard clam, Mercenaria mercenaria; 43, Eastern oyster, Crassostrea virginica; 44, Horseshoe crab, Limulus polyphemus; 46, Channeled whelk, Busycon canaliculatum; 47, Knobbed whelk, Busycon carica; 49, Blue crab, Callinectes sapidus; 80, Ribbed mussel, Geukensia demissa; 97, Grass shrimp, Palaemonetes spp.; 218, Hermit crab, Pagurus spp.; 276, Sand shrimp, Crangon septemspinosa; 285, Northeastern beach tiger beetle, Cicindela dorsalis dorsalis; 303, Atlantic rock crab, Cancer irroratus; 375, Puritan tiger beetle, Cicindela puritana; 397, Mantis shrimp, Gonadauctylus falcatus; 569, Lobed moon snail, Neverita duplicata; 571, Lady crab, Ovalipes ocellatus; 572, Stout razor clam, Tagelus plebeius; 573, Nine-spined spider crab, Libinia emarginata; 574, Six-spined spider crab, Libinia dubia; 575, Rare, LT, or LE invertebrate, n/a.

Positional_Accuracy:
Horizontal_Positional_Accuracy_Report:
Spatial components for the biological data layers can come from expert interviews, hardcopy, or digital sources. Most of the spatial components of the biological data layers are developed using regional experts who estimate concentration areas. It is difficult to estimate the positional accuracy of such data, except to state that they are compiled on hardcopy base maps with a scale of 1:24,000. Some of the spatial components of the biological data sets are developed from pre-existing digital 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: DOCTOR, S., MARYLAND (MD) DEPARTMENT OF NATURAL RESOURCES (DNR)
Publication_Date: 2005
Title: DELINEATION OF HORSESHOE CRAB SPAWNING AND NURSERY HABITAT IN MARYLAND
Geospatial_Data_Presentation_Form: HARDCOPY MAP
Other_Citation_Details: UNPUBLISHED
INVERT INFORMATION

Citation Information:
Originator: STONE, S.L. ET AL
Publication Date: 1994
Title: DISTRIBUTION AND ABUNDANCE OF FISHES AND INVERTEBRATES IN MID-ATLANTIC ESTUARIES
Geospatial Data Presentation Form: HARDCOPY TEXT
Other Citation Details: NOAA/NOS STRATEGIC ENVIRONMENTAL ASSESSMENTS DIVISION, SILVER SPRINGS, MD
Type of Source Media: PAPER
Source Time Period of Content:
Single Date/Time:
Calendar Date: 1994
Source Currentness Reference: DATE OF PUBLICATION
Source Citation Abbreviation: NONE
Source Contribution: INVERT INFORMATION

Citation Information:
Originator: TARNOWSKI, M., MD DNR
Publication Date: 2007
Title: PERSONAL COMMUNICATION ON INVERTS IN CHESAPEAKE BAY
Geospatial Data Presentation Form: EXPERT KNOWLEDGE
Other Citation Details: UNPUBLISHED
Type of Source Media: PERSONAL COMMUNICATION
Source Time Period of Content:
Single Date/Time:
Calendar Date: 2007
Source Currentness Reference: DATE OF COMMUNICATION
Source Citation Abbreviation: NONE
Source Contribution: INVERT INFORMATION

Citation Information:
Originator: USFWS
Publication Date: 2005
Title: TIGER BEETLES, BIRDS
Geospatial Data Presentation Form: EXPERT KNOWLEDGE
Other Citation Details: UNPUBLISHED
Type of Source Media: PERSONAL COMMUNICATION
Source Time Period of Content:
Single Date/Time:
Calendar Date: 2005
Three main sources of data were used to depict invertebrate distribution and seasonality for this data layer: (1) personal interviews with resource experts from Maryland Department of Natural Resources (MD DNR) and U.S. Fish and Wildlife Service (USFWS); (2) digital datasets of Eastern oyster habitat and rare species occurrences provided by MD DNR; and (3) numerous published and unpublished reports.

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; and (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 INVERT 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:** 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
- **SDTS Point and Vector Object Information:**
  - **SDTS Point and Vector Object Type:** GT-polygon composed of chains
  - **Point and Vector Object Count:** 4706
  - **SDTS Point and Vector Object Type:** Area point
  - **Point and Vector Object Count:** 4706
SDTS_Terms_Description:
  SDTS_Point_and_Vector_Object_Type: Complete chain
  Point_and_Vector_Object_Count: 11121
SDTS_Terms_Description:
  SDTS_Point_and_Vector_Object_Type: Link
  Point_and_Vector_Object_Count: 2005400
SDTS_Terms_Description:
  SDTS_Point_and_Vector_Object_Type: Node, planar graph
  Point_and_Vector_Object_Count: 9527

Spatial_Reference_Information:
  Horizontal_Coordinate_System_Definition:
    Geographic:
      Latitude_Resolution: 0.0000001
      Longitude_Resolution: 0.0000001
      Geographic_Coordinate_Units: Decimal degrees
  Geodetic_Model:
    Horizontal_Datum_Name: North American Datum of 1927
    Ellipsoid_Name: Clark 1866
    Semi-major_Axis: 6378206.400000
    Denominator_of_Flattening_Ratio: 294.978698

Entity_and_Attribute_Information:
  Overview_Description:
    In addition to the geographic data layers, six relational attribute or data tables, BIORES, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, are used to store the complex biological data in the ESI data structure. The geographic data layer containing biological resource information (in this case, 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 Maryland atlas, the number is 47), 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 invertebrate distribution and concentration areas. Note that all attribute information is stored in a series of relational files, described below. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the relationships between attribute tables in the ESI data structure.

**Entity_Type_Definition_Source:** Research Planning, Inc.

**Attribute:**

**Attribute_Label:** ID

**Attribute_Definition:**

An identifier that links vector objects in the biology data layers to records in the BIO_LUT data table. ID is a concatenation of atlas number (47), 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:** 0470700011
- **Range_Domain_Maximum:** 0470704957

**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:** 047001226
- **Range_Domain_Maximum:** 047001305

**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:** 047000001
  - **Range Domain Maximum:** 047001335

**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 (47), 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:** 0470100002
  - **Range Domain Maximum:** 0470900381

**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:** 047000001
  - **Range Domain Maximum:** 047001335
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 data were available for invertebrates, so the concentration field may contain a descriptive term, such as "LOW", "COMMON", or "RARE" to describe the relative abundance of particular invertebrate species at specific locations. If no concentration information was available from any source, 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;
\[ EL_{\text{SPE}} = 'B00001' \].

**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.

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: SUBELEMENT

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: amphibian
  Enumerated Domain Value Definition: Amphibian
  Enumerated Domain Value Definition Source: Research Planning, Inc.

Enumerated Domain:
- Enumerated Domain Value: bivalve
  Enumerated Domain Value Definition: Bivalve
  Enumerated Domain Value Definition Source: Research Planning, Inc.
Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: crab
    Enumerated_Domain_Value_Definition: Crab
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

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

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

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: dolphin
    Enumerated_Domain_Value_Definition: Dolphin
    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: e_resident
    Enumerated_Domain_Value_Definition: Estuarine resident
    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: freshwater
    Enumerated_Domain_Value_Definition: Freshwater fish
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: gastropod
    Enumerated_Domain_Value_Definition: Gastropod
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

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

Attribute_Domain_Values:
**Enumerated_Domain:**
- **Enumerated_Domain_Value:** insect
  - **Enumerated_Domain_Value_Definition:** Insect
  - **Enumerated_Domain_Value_Definition_Source:** Research Planning, Inc.

**Attribute_Domain_Values:**
- **Enumerated_Domain:**
  - **Enumerated_Domain_Value:** invert
    - **Enumerated_Domain_Value_Definition:** Invert
    - **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:** passerine
    - **Enumerated_Domain_Value_Definition:** Passerine bird
    - **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:** plant
    - **Enumerated_Domain_Value_Definition:** Plant
    - **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.
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: sm_mammal
    Enumerated_Domain_Value_Definition: Small mammal
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

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

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: upland
    Enumerated_Domain_Value_Definition: Upland
    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_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: wetland
    Enumerated_Domain_Value_Definition: Wetland
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: whale
    Enumerated_Domain_Value_Definition: Whale
    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
Attribute: **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: **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: **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
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  
      **Enumerated Domain Value Definition Source:** Research Planning, Inc.

**Attribute:**

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

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

**Attribute Domain Values:**
- **Enumerated Domain:**
  - **Enumerated Domain Value:** Y  
    **Enumerated Domain Value Definition:** Life-history stage or activity present  
    **Enumerated Domain Value Definition Source:** Research Planning, Inc.
  - **Enumerated Domain:**
    - **Enumerated Domain Value:** N  
      **Enumerated Domain Value Definition:** Life-history stage or activity not present 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 = molting; if ELEMENT is "FISH" then BREED3 = larvae; if ELEMENT is "INVERT" then BREED3 = larvae; if ELEMENT is "REPTILE" then BREED3 = internesting; if ELEMENT is "M_MAMMAL" then BREED3 = pupping. This attribute is not used for HABITAT or T_MAMMAL elements.

Attribute_Definition_Source: Research Planning, Inc.

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

Attribute_Domain_Values:  
Enumerated_Domain:  
Enumerated_Domain_Value: N  
Enumerated_Domain_Value_Definition: Life-history stage or activity not present 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 "FISH" then BREED4 = juveniles; if ELEMENT is "INVERT" then BREED4 = juveniles; if ELEMENT is "REPTILE" then BREED4 = juveniles; if ELEMENT is "M_MAMMAL" then BREED4 = molting. This attribute is not used for BIRD, HABITAT, or T_MAMMAL elements.

Attribute_Definition_Source: Research Planning, Inc.

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

Attribute_Domain_Values:  
Enumerated_Domain:  
Enumerated_Domain_Value: N  
Enumerated_Domain_Value_Definition: Life-history stage or activity not present 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
**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:** 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 and HYDRO 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: DATE_PUB
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:
Unrepresentable Domain: Acceptable values change from atlas to atlas.
Enumerated Domain: YYYYMM
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: TITLE
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: DATA_FORMAT
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: PUBLICATION
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: SCALE
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: TIME_PERIOD
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_Value: T
        Enumerated_Domain_Value_Definition: Threatened on state 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:
  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:
  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 Maryland

Distribution Liability:

Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration (NOAA), 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 the widest community of GIS/mapping users. Distribution formats include 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 for use with the MARPLOT data are also included on the distribution DVDs 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.
Maryland ESI: REPTILES (Reptile and Amphibian Polygons)

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

Metadata:

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

**Identification_Information:**

**Citation:**

**Originator:**


**Publication_Date:** 200707

**Title:** Maryland ESI: REPTILES (Reptile and Amphibian Polygons)

**Edition:** First

**Geospatial_Data_Presentation_Form:** Vector digital data

**Series_Information:**

**Series_Name:** None

**Issue_Identification:** Maryland

**Publication_Information:**

**Publication_PLACE:** Seattle, Washington

**Publisher:**


**Other_Citation_Details:**


**Description:**

**Abstract:**

This data set contains sensitive biological resource data for sea turtles, estuarine turtles, and rare reptiles and amphibians in Maryland. Vector polygons in this data set represent
turtle and other rare reptile/amphibian distribution and nesting 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 Maryland. 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:** 1966
  - **Ending_Date:** 2007

**Currentness_Reference:**
The biological data were compiled during 2005-2007. The currentness dates for the data range from 1966 to 2007 and are documented in the Lineage section.

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

**Spatial_Domain:**
**Bounding_Coordinates:**
  - **West_Bounding_Coordinate:** -77.37500
  - **East_Bounding_Coordinate:** -75.00000
  - **North_Bounding_Coordinate:** 39.75000
  - **South_Bounding_Coordinate:** 37.87500

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

**Place:**
  - **Place_Keyword_Thesaurus:** None
  - **Place_Keyword:** Maryland

**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 Maryland ESI data.  
*Browse_Graphic_File_Type:* JPEG

**Data_Set_Credit:**

This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Emergency Response Division (formerly Hazardous Materials Response Division), Seattle, Washington and NOAA Chesapeake Bay Office, Gloucester Point, Virginia.

**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 (NT4.0/2000).

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

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

Completeness Report:
These data represent a synthesis of expert knowledge, available hardcopy documents, and digital data on turtle and other rare reptile/amphibian distribution and nesting areas. These data do not necessarily represent all reptile occurrences in Maryland. The following species are included in this data set: (Species_ID, Common Name, Scientific Name [n/a if not applicable]): 2, Green sea turtle, Chelonia mydas; 4, Kemp's ridley sea turtle, Lepidochelys kempii; 5, Leatherback sea turtle, Dermochelys coriacea; 6, Loggerhead sea turtle, Caretta caretta; 112, Rare amphibian, n/a; 175, Northern diamondback terrapin, Malaclemys terrapin terrapin; 176, Eastern snapping turtle, Chelydra serpentina serpentina; 183, Rare reptile, 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. Most of the spatial components of the biological data layers are developed using regional experts who estimate concentration areas. It is difficult to estimate the positional accuracy of such data, except to state that they are compiled on hardcopy base maps with a scale of 1:24,000. Some of the spatial components of the biological data sets are developed from pre-existing digital 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:
DITTMAR, J., MARYLAND (MD) DEPARTMENT OF NATURAL RESOURCES (DNR)
Publication_Date: 2007
Title:
PERSONAL COMMUNICATION ON MARINE MAMMALS AND SEA TURTLES IN CHESAPEAKE BAY
Geospatial Data Presentation Form: EXPERT KNOWLEDGE
Other Citation Details: UNPUBLISHED
Type of Source Media: PERSONAL COMMUNICATION
Source Time Period of Content:
Type_of_Source_Media: EMAIL
Source_Time_Period_of_Content:
  Time_Period_Information:
    Range_of_Dates/Times:
      Beginning_Date: 1966
      Ending_Date: 2006
  Source_Currentness_Reference: DATE OF SURVEY
Source_Citation_Abbreviation: NONE
Source_Contribution: REPTILES INFORMATION
Source_Information:
Source_Citation:
  Citation_Information:
    Originator: NATIONAL PARK SERVICE (NPS) (ASSATEAGUE ISLAND NATIONAL SEASHORE)
    Publication_Date: 2006
    Title: ASSATEAGUE ISLAND NATIONAL SEASHORE SPECIES DISTRIBUTION AND SEASONALITY
    Geospatial_Data_Presentation_Form: EXPERT KNOWLEDGE
    Other_Citation_Details: UNPUBLISHED
Type_of_Source_Media: PERSONAL COMMUNICATION
Source_Time_Period_of_Content:
  Time_Period_Information:
    Range_of_Dates/Times:
      Beginning_Date: 2005
      Ending_Date: 2007
  Source_Currentness_Reference: DATE OF COMMUNICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: REPTILES INFORMATION
Source_Information:
Source_Citation:
  Citation_Information:
    Originator: STONE, ROGER, U.S. FISH & WILDLIFE SERVICE (USFWS)
    Publication_Date: 2007
    Title: CHESAPEAKE MARSHLANDS NWR COMPLEX INFORMATION
    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: 2007
  Source_Currentness_Reference: DATE OF COMMUNICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: REPTILES INFORMATION
Source_Information:
Source_Citation:
  Citation_Information:
    Originator: USGS PATUXENT WILDLIFE RESEARCH CENTER
    Publication_Date: 2002
Three main sources of data were used to depict reptile distribution and seasonality for this data layer: (1) personal interviews with resource experts from the Maryland Department of Natural Resources (DNR), the National Aquarium in Baltimore, and U.S. Geological Survey (USGS); (2) numerous published and unpublished reports; and (3) digital data provided by MD DNR.

The above digital and/or hardcopy sources were compiled by the project biologist to create the REPTILES 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; and (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 REPTILES 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: 14402

SDTS Terms Description:
- SDTS Point and Vector Object Type: Area point
  Point and Vector Object Count: 14402

SDTS Terms Description:
- SDTS Point and Vector Object Type: Complete chain
  Point and Vector Object Count: 36335

SDTS Terms Description:
- SDTS Point and Vector Object Type: Link
  Point and Vector Object Count: 2770677

SDTS Terms Description:
- SDTS Point and Vector Object Type: Node, planar graph
  Point and Vector Object Count: 26224

Spatial Reference Information:

Horizontal Coordinate System Definition:

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

Geodetic Model:

- Horizontal Datum Name: North American Datum of 1927
- Ellipsoid Name: Clark 1866
- Semi-major Axis: 6378206.400000
- Denominator of Flattening Ratio: 294.978698

Entity and Attribute Information:

Overview Description:

Entity and Attribute Overview:

In addition to the geographic data layers, six relational attribute or data tables, BIORES, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, are used to store the complex biological data in the ESI data structure. The geographic data layer containing biological resource information (in this case, REPTILES) is linked to the Biological Resources table (BIORES) using the unique ID and the lookup table BIO_LUT, or it can be linked directly using RARNUM. The ID is a unique combination of the atlas number (for the Maryland atlas, the number is 47), an element/layer specific number (BIRDS are layer 1, FISH are layer 2, etc.), and a unique record number. The RARNUM represents a unique combination of species, seasonalities, concentrations, and source information. For each of these groupings, a number is generated. That number is concatenated with the atlas number to create a "resource at risk" number that is unique across atlases. BIORES and the other relational data tables are described below in detail. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way these tables relate to the geographic data layers and other attribute tables in the ESI data structure.
Due to the complexity of the relational database model, the data items are also post-processed into a flat file format. This table, called BIOFILE, may be used in place of the relational files described below to ease simple data queries. The items in the flat file are ELEMENT, SUBELEMENT, NAME, GEN_SPEC, S, F, NHP, DATE_PUB, CONC, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC, BREED1, BREED2, BREED3, BREED4, BREED5, RARNUM, G_SOURCE, S_SOURCE, and BREED. All of these items are the same as their counterparts in the individual data tables described below, except the BREED1-BREED5 and BREED items. BREED is a newly generated variable used to link to the BREED_DT data table, a modified, more compact version of the relational BREED data table. BREED1-BREED5 give a text summary of when each life stage occurs within the associated map object. The life stages referred to are the same as those listed in the Detailed_Description of the BREED data table. The link to the BIOFILE may be made through the BIO_LUT, using ID to link to RARNUM, or BIOFILE may be linked directly to the RARNUM in each of the geographic layer's attribute data tables. As mentioned, BREED_DT is an auxiliary support data table to the flat file structure, which allows the user to do searches based on month for seasonal breeding activities. The link from the flat file to BREED_DT is the BREED item.

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

**Detailed_Description:**

**Entity_Type:**

*Entity_Type_Label:* REPTILES.PAT  
*Entity_Type_Definition:*  
The REPTILES.PAT table contains attribute information for the vector polygons in this data set representing turtle distribution and nesting 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 (47), element number (6), and record number. ID values of 9999 are holes in polygons and do not contain information.  
*Attribute_Definition_Source:* NOAA  
*Attribute_Domain_Values:*  
**Range_Domain:**  
*Range_Domain_Minimum:* 0470600002  
*Range_Domain_Maximum:* 0470614532

**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: 047000001
Range Domain Maximum: 047001335

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: 047000001
Range Domain Maximum: 047001335

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 (47), element number (6), and record number. ID values of 9999 are holes in polygons and do not contain information.

Attribute Definition Source: NOAA

Attribute Domain Values:
Range Domain:
Range Domain Minimum: 0470100002
Range Domain Maximum: 0470900381

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 **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: 047000001  
  - Range Domain Maximum: 047001335

Attribute:  
**Attribute Label:** SPECIES_ID  
**Attribute Definition:**  
Numeric identifier for each species that is unique within each element and refers to a nationwide master ESI species list maintained at NOAA.  
**Attribute Definition Source:** Research Planning, Inc.  
**Attribute Domain Values:**  
- Range Domain:  
  - Range Domain Minimum: 1  
  - Range Domain Maximum: N

Attribute:  
**Attribute Label:** CONC  
**Attribute Definition:**  
The field CONC refers to "concentration," abundance, or density values of a species at a particular location. No quantitative data were available for reptiles and amphibians, so the concentration field may contain a descriptive term, such as "HIGH". If no concentration information was available from any source, 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 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 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:
  Enumerated Domain Value: FISH
  Enumerated Domain Value Definition: Fish
  Enumerated Domain Value Definition Source: Research Planning, Inc.
  Enumerated Domain Value:
  Enumerated Domain Value: HABITAT
  Enumerated Domain Value Definition: Habitats and Plants
  Enumerated Domain Value Definition Source: Research Planning, Inc.
  Enumerated Domain Value:
  Enumerated Domain Value: INVERT
  Enumerated Domain Value Definition: Invertebrates
  Enumerated Domain Value Definition Source: Research Planning, Inc.
  Enumerated Domain Value:
  Enumerated Domain Value: M_MAMMAL
  Enumerated Domain Value Definition: Marine Mammals
  Enumerated Domain Value Definition Source: Research Planning, Inc.
  Enumerated Domain Value:
  Enumerated Domain Value: REPTILE
  Enumerated Domain Value Definition: Reptiles and Amphibians
  Enumerated Domain Value Definition Source: Research Planning, Inc.
  Enumerated Domain Value:
  Enumerated Domain Value: T_MAMMAL
  Enumerated Domain Value Definition: Terrestrial Mammals
  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 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.
Enumerated_Domain:
  Enumerated_Domain_Value: amphibian
  Enumerated_Domain_Value_Definition: Amphibian
  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: 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: dolphin
    Enumerated_Domain_Value_Definition: Dolphin
    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: e_resident
    Enumerated_Domain_Value_Definition: Estuarine resident
    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: freshwater
    Enumerated_Domain_Value_Definition: Freshwater fish
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Enumerated Domain Value: gastropod
Enumerated Domain Value Definition: Gastropod
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: insect
Enumerated Domain Value Definition: Insect
Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:
Enumerated Domain:
Enumerated Domain Value: invert
Enumerated Domain Value Definition: Invert
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: passerine
Enumerated Domain Value Definition: Passerine bird
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: plant
Enumerated Domain Value Definition: Plant
Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:
Enumerated Domain:
Enumerated Domain Value: raptor
Enumerated_Domain_Value_Definition: Raptor
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Attribute Domain Values:**
- Enumerated_Domain:
  - Enumerated_Domain_Value: sav
  - Enumerated_Domain_Value_Definition: Submerged aquatic vegetation
  - Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Attribute Domain Values:**
- Enumerated_Domain:
  - Enumerated_Domain_Value: shorebird
  - Enumerated_Domain_Value_Definition: Shorebird
  - Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Attribute Domain Values:**
- Enumerated_Domain:
  - Enumerated_Domain_Value: shrimp
  - Enumerated_Domain_Value_Definition: Shrimps
  - Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Attribute Domain Values:**
- Enumerated_Domain:
  - Enumerated_Domain_Value: sm_mammal
  - Enumerated_Domain_Value_Definition: Small mammal
  - Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Attribute Domain Values:**
- Enumerated_Domain:
  - Enumerated_Domain_Value: turtle
  - Enumerated_Domain_Value_Definition: Turtle
  - Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Attribute Domain Values:**
- Enumerated_Domain:
  - Enumerated_Domain_Value: upland
  - Enumerated_Domain_Value_Definition: Upland
  - 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 Domain Values:**
- Enumerated_Domain:
  - Enumerated_Domain_Value: wetland
  - Enumerated_Domain_Value_Definition: Wetland
  - Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Attribute Domain Values:**
- Enumerated_Domain:
  - Enumerated_Domain_Value: whale
  - Enumerated_Domain_Value_Definition: Whale
**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:**
    - **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 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 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
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 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 = migrating; if ELEMENT is "FISH" then BREED2 = eggs; if ELEMENT is "INVERT" then BREED2 = eggs; if ELEMENT is "REPTILE" then BREED2 = hatching; if ELEMENT is "M_MAMMAL" then BREED2 = calving. This attribute is not used for HABITAT or T_MAMMAL elements.

Attribute Definition Source: Research Planning, Inc.

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

Attribute Domain Values:
Enumerated Domain:
Enumerated Domain Value: N
Enumerated_Domain_Value_Definition: Life-history stage or activity not present 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 = molting; if ELEMENT is "FISH" then BREED3 = larvae; if ELEMENT is "INVERT" then BREED3 = larvae; if ELEMENT is "REPTILE" then BREED3 = internesting; if ELEMENT is "M_MAMMAL" then BREED3 = pupping. This attribute is not used for HABITAT or T_MAMMAL elements.
  Attribute_Definition_Source: Research Planning, Inc.

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

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

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

Attribute_Domain_Values:
**Enumerated_Domain_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**: 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**: 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.

**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 and HYDRO data layers.
Attribute: Originator
Definition: Author or developer of source material or data set.
Definition Source: Research Planning, Inc.
Domain Values: Unrepresentable Domain: Acceptable values change from atlas to atlas.

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

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

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

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

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

Attribute: Time Period
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

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
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 Maryland

**Distribution Liability:**

Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration (NOAA), 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...
Custom Order Process:
Contact NOAA for distribution options (see Distributor). ESI data are processed into multiple formats to make them useful to the widest community of GIS/mapping users. Distribution formats include 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 for use with the MARPLOT data are also included on the distribution DVDs 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: 200707
Metadata Review Date: 200707
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 30 17:53:06 2007
Maryland ESI: M_MAMMAL (Marine Mammal Polygons)

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

Metadata:

- Identification_Information
- Data_Quality_Information
- Spatial_Data_Organization_Information
- Spatial_Referene_Information
- Entity_and_Attribute_Information
- Distribution_Information
- Metadata_Reference_Information

Identification_Information:

Citation:

Title: Maryland ESI: M_MAMMAL (Marine Mammal Polygons)
Edition: First
Geospatial_Data_Presentation_Form: Vector digital data

Series_Information:

Series_Name: None
Issue_Identification: Maryland

Publication_Information:

Publication_Date: 200707
Publication_Place: Seattle, Washington
Publisher:


Other_Citation_Details:


Description:

Abstract:

This data set contains sensitive biological resource data for seals, whales, porpoise, and dolphin in Maryland. Vector polygons in this data set represent marine mammal...
distribution, concentration areas, and haul-out sites. Species-specific abundance, seasonality, status, life history, and source information are stored in relational data tables (described below) designed to be used in conjunction with this spatial data layer.

This data set comprises a portion of the Environmental Sensitivity Index (ESI) data for Maryland. 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:** 2005
  - **Ending_Date:** 2007

**Currentness Reference:**
The biological data were compiled during 2005-2007. The currentness dates for the data range from 2005 to 2007 and are documented in the Lineage section.

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

**Spatial_Domain:**
- **Bounding_Coordinates:**
  - **West_Bounding_COORDINATE:** -77.37500
  - **East_Bounding_COORDINATE:** -75.00000
  - **North_Bounding_COORDINATE:** 39.75000
  - **South_Bounding_COORDINATE:** 37.87500

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

- **Place:**
  - **Place_Keyword_Thesaurus:** None
  - **Place_Keyword:** Maryland

**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 Maryland ESI data.

*Browse Graphic File Type: JPEG*

**Data Set Credit:**

This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Emergency Response Division (formerly Hazardous Materials Response Division), Seattle, Washington and NOAA Chesapeake Bay Office, Gloucester Point, Virginia.

**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 (NT4.0/2000).

The Spatial Data Organization Information section refers only to the source files in the ARC export format. The following files are included in that data set: birds.e00, esi.e00, fish.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mammal.e00, mgt.e00, nests.e00, reptiles.e00, soccocon.e00, t_mammal.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, biores, breed, breed_dt, 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® to ARC/INFO® consistencies. A final review is made by the GIS manager, where the data are written to CD-ROM and the metadata are written.

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

Completeness_Report:
These data represent a synthesis of expert knowledge of marine mammal distribution, concentration areas, and haul-out sites. These data do not necessarily represent all marine mammal occurrences in Maryland. The following species are included in this data set: (Species_ID, Common Name, Scientific Name [n/a if not applicable]): 2, Harbor seal, Phoca vitulina; 6, Harbor porpoise, Phocoena phocoena; 13, Humpback whale, Megaptera novaeangliae; 14, Gray seal, Halichoerus grypus; 17, Bottlenose dolphin, Tursiops truncatus; 46, Risso's dolphin, Grampus griseus; 60, Common dolphin, Delphinus delphis; 81, Northern right whale, Eubalaena glacialis; 83, Long-finned pilot whale, Globicephala melaena; 84, Hooded seal, Cystophora cristata; 85, Harp seal, Pagophilus groenlandicus.

Positional_Accuracy:
Horizontal_Positional_Accuracy_Report:
Spatial components for the biological data layers can come from expert interviews, hardcopy, or digital sources. Most of the spatial components of the biological data layers are developed using regional experts who estimate concentration areas. It is difficult to estimate the positional accuracy of such data, except to state that they are compiled on hardcopy base maps with a scale of 1:24,000. Some of the spatial components of the biological data sets are developed from pre-existing digital 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: DITTMAR, J., MARYLAND (MD) DEPARTMENT OF NATURAL RESOURCES (DNR)
Publication_Date: 2007
Title: PERSONAL COMMUNICATION ON MARINE MAMMALS AND SEA TURTLES IN CHESAPEAKE BAY
Geospatial_Data_Presentation_Form: EXPERT KNOWLEDGE
Other_Citation_Details: UNPUBLISHED
Type_of_Source_Media: PERSONAL COMMUNICATION
Source_Time_Period_of_Content:
Time_Period_Information:
PERSONAL COMMUNICATION ON LIVING MARINE RESOURCES WITHIN THE COASTAL BAYS OF MD

PERSONAL COMMUNICATION ON DISTR. AND ABUNDANCE OF MARINE MAMMALS AND SEA TURTLES

PERSONAL COMMUNICATION ON MARINE MAMMALS OF ASSATEAGUE NATIONAL SEASHORE
The main data source used to depict marine mammals distribution and seasonality for this data layer was expert knowledge from local resource experts at the Maryland Department of Natural Resources, the National Aquarium in Baltimore, and the National Park Service.

The above digital and/or hardcopy sources were compiled by the project biologist to create the M_MAMMAL 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; and (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 M_MAMMAL data layer are made based on the recommendations of the resource experts, and final hardcopy maps and digital data are created.

Process_Date: 200704
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: 1259

SDTS Terms Description:
SDTS Point and Vector Object Type: Area point
Point and Vector Object Count: 1259

SDTS Terms Description:
SDTS Point and Vector Object Type: Complete chain
Point and Vector Object Count: 4120

SDTS Terms Description:
SDTS Point and Vector Object Type: Link
Point and Vector Object Count: 1211629

SDTS Terms Description:
SDTS Point and Vector Object Type: Node, planar graph
Point and Vector Object Count: 4088

Spatial Reference Information:
Horizontal Coordinate System Definition:
Geographic:
Latitude Resolution: 0.0000001
Longitude Resolution: 0.0000001
Geographic Coordinate Units: Decimal degrees
Geodetic Model:
Horizontal Datum Name: North American Datum of 1927
Ellipsoid Name: Clark 1866
Semi-major Axis: 6378206.40000
Denominator of Flattening Ratio: 294.978698

Entity and Attribute Information:
Overview Description:
Entity and Attribute Overview:
In addition to the geographic data layers, six relational attribute or data tables, BIORES, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, are used to store the complex biological data in the ESI data structure. The geographic data layer containing biological resource information (in this case, M_MAMMAL) is linked to the Biological Resources table (BIORES) using the unique ID and the lookup table BIO_LUT, or it can be linked directly using RARNUM. The ID is a unique combination of the atlas number (for the Maryland atlas, the number is 47), 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_MAMMAL.PAT
- **Entity_Type_Definition:** The M_MAMMAL.PAT table contains attribute information for the vector polygons in this data set representing marine mammal distribution, concentration areas, and haul-out sites. Note that all attribute information is stored in a series of relational files, described below. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the relationships between attribute tables in the ESI data structure.
- **Entity_Type_Definition_Source:** Research Planning, Inc.

**Attribute:**
- **Attribute_Label:** ID
- **Attribute_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 (47), element number (4), and record number. ID values of 9999 are holes in polygons and do not contain information.
- **Attribute_Definition_Source:** NOAA
- **Attribute_Domain_Values:**
  - **Range_Domain:**
    - **Range_Domain_Minimum:** 0470400025
    - **Range_Domain_Maximum:** 0470401237

- **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: 047001306
Range_Domain_Maximum: 047001309

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: 047000001
    Range_Domain_Maximum: 047001335

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 (47), element number (4), and record number. ID values of 9999 are holes in polygons and do not contain information.
  Attribute_Definition_Source: NOAA
  Attribute_Domain_Values:
  Range_Domain:
    Range_Domain_Minimum: 0470100002
    Range_Domain_Maximum: 0470900381

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: 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: CONC
Attribute_Definition: The field CONC refers to "concentration," abundance, or density values. No concentration data were available for marine mammals, so the CONC field is populated with "-".
Attribute_Definition_Source: Research Planning, Inc.

Attribute: 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: 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: 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.
Range_Domain_Minimum: 1
Range_Domain_Maximum: N

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

Attribute:
Attribute_Label: EL_SPE
Attribute_Definition:
   Concatenation of ELEMENT and SPECIES_ID. This item links records in the
   BIORES data table to records in the SPECIES and STATUS data tables.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
   Enumerated_Domain:
      Enumerated_Domain_Value: E#####
      Enumerated_Domain_Value_Definition: Maryland ESI:  M_MAMMAL
      Enumerated_Domain_Value_Definition_Source: Maryland ESI:  M_MAMMAL
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: amphibian
        Enumerated_Domain_Value_Definition: Amphibian
        Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:
      Enumerated_Domain:
        Enumerated_Domain_Value: bivalve

Maryland ESI: M_MAMMAL
(Marine Mammal Polygons)
Enumerated Domain Value Definition: Bivalve
Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:
Enumerated Domain:
Enumerated Domain Value: crab
Enumerated Domain Value Definition: Crab
Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:
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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: dolphin
Enumerated Domain Value Definition: Dolphin
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: e_resident
Enumerated Domain Value Definition: Estuarine resident
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:
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Enumerated Domain Value: freshwater
Enumerated Domain Value Definition: Freshwater fish
Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:
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Enumerated Domain Value Definition: Gastropod
Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:
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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:
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    Enumerated_Domain_Value_Definition: Insect
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

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

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

Attribute_Domain_Values:
  Enumerated_Domain:
    Enumerated_Domain_Value: 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: plant
    Enumerated_Domain_Value_Definition: Plant
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

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

Attribute_Domain_Values:
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    Enumerated_Domain_Value: sav
    Enumerated_Domain_Value_Definition: Submerged aquatic vegetation
    Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
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</table>

Attribute: NHP

Definition: Natural Heritage Program global ranking.

Definition Source: Network of Natural Heritage Program

Domain Values:
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_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: FEB
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 January
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute: MAR
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: APR
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: MAY
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: JUN
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:
Attribute:

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

Detailed_Description:

Entity_Type:

Entity_Type_Label: BREED
Entity_Type_Definition:  
The data table BREED identifies the monthly presence of certain life-history stages or activities for each species at a given location.
Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:

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

Attribute:

Attribute_Label: MONTH
Attribute_Definition:  
Two-digit calendar month. Each life history stage or activity type for a particular species can have up to 12 records to account for each month of the year.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:
Range_Domain:
Range_Domain_Minimum: 1
Range_Domain_Maximum: 12

Attribute:

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

Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

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

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

Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

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

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

Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

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

Attribute_Definition_Source: Research Planning, Inc.

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

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

Attribute_Definition_Source: Research Planning, Inc.

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

Enumerated_Domain_Value: N
Enumerated_Domain_Value_Definition: Life-history stage or activity not present 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.
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.

Enumerated_Domain_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.

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 and HYDRO 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:

Attribute:
  Attribute_Label: DATA_FORMAT
  Attribute_Definition: The format of the source material.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:

Attribute:
  Attribute_Label: PUBLICATION
  Attribute_Definition: Additional citation information.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:

Attribute:
  Attribute_Label: SCALE
  Attribute_Definition: Description of the source scale.
  Attribute_Definition_Source: Research Planning, Inc.
  Attribute_Domain_Values:

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:

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.

**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.
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
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 or Province: Washington
Postal Code: 98115-6349
Contact Voice Telephone: (206) 526-6400
Contact Facsimile Telephone: (206) 526-6329

Resource Description: ESI Atlas for Maryland

Distribution Liability:

Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration (NOAA), 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 the widest community of GIS/mapping users. Distribution formats include 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 for use with the MARPLOT data are also included on the distribution DVDs 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:** 200707
- **Metadata Review Date:** 200707
- **Metadata Contact:**
  - **Contact Person Primary:** Jill Petersen
  - **Contact Organization:** NOAA, Office of Response and Restoration
  - **Contact Position:** GIS Manager
- **Contact Address:**
  - **Address Type:** Physical Address
  - **Address:** 7600 Sand Point Way, N.E.
  - **City:** Seattle
  - **State or Province:** Washington
  - **Postal Code:** 98115-6349
- **Contact Voice Telephone:** (206) 526-6944
- **Contact Facsimile Telephone:** (206) 526-6329
- **Contact Electronic Mail Address:** Jill.Petersen@noaa.gov

**Metadata Standard Name:** Content Standards for Digital Geospatial Metadata

**Metadata Standard Version:** FGDC-STD-001-1998

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Generated by `mp` version 2.8.21 on Mon Jul 30 17:58:31 2007
Maryland ESI: T_MAMMAL (Terrestrial Mammal Polygons)

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

Metadata:

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

**Identification Information:**

**Citation:**

**Originator:**

**Publication Date:** 200707

**Title:** Maryland ESI: T_MAMMAL (Terrestrial Mammal Polygons)

**Edition:** First

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

**Series Information:**

**Series Name:** None

**Issue Identification:** Maryland

**Publication Information:**

**Publication Place:** Seattle, Washington

**Publisher:**

**Other Citation Details:**

**Description:**

**Abstract:**
This data set contains sensitive biological resource data for river otters in Maryland. Vector polygons in this data set represent the terrestrial mammal distribution.
Species-specific abundance, seasonality, status, life history, and source information are stored in relational data tables (described below) designed to be used in conjunction with this spatial data layer. This data set comprises a portion of the Environmental Sensitivity Index (ESI) data for Maryland. 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:** 2005
- **Ending_Date:** 2007
**Currentness_Reference:**
The biological data were compiled during 2005-2007. The currentness dates for the data range from 2005 to 2007 and are documented in the Lineage section.

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

**Spatial_Domain:**
- **Bounding_Coordinates:**
  - **West_BoundingCoordinate:** -77.37500
  - **East_BoundingCoordinate:** -75.00000
  - **North_BoundingCoordinate:** 39.75000
  - **South_BoundingCoordinate:** 37.87500

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

- **Place:**
  - **Place_Keyword_Thesaurus:** None
  - **Place_Keyword:** Maryland

**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 Maryland ESI data.
- **Browse_Graphic_File_Type:** JPEG

**Data_Set_Credit:**
This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Emergency Response Division (formerly Hazardous Materials Response Division), Seattle, Washington and NOAA Chesapeake Bay Office, Gloucester Point, Virginia.

**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 (NT4.0/2000).

The Spatial_Data_Organization Information section refers only to the source files in the ARC export format. The following files are included in that data set: birds.e00, esi.e00, fish.e00, habitats.e00, hydro.e00, index.e00, invert.e00, m_mammal.e00, mgt.e00, nests.e00, reptiles.e00, socecon.e00, t_mammal.e00. Associated relational and desktop data tables provided in Arc export and text format are bio_lut, biofile, 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® to ARC/INFO® consistencies. A final review is made by the GIS manager, where the data are written to CD-ROM and the metadata are written.

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

Completeness_Report:
These data represent a synthesis of expert knowledge on terrestrial mammal distribution. These
data do not necessarily represent all terrestrial mammal occurrences in Maryland. The following
species are included in this data set: (Species_ID, Common Name, Scientific Name [n/a if not
applicable]): 8, Northern river otter, Lontra canadensis.

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. Most of the spatial components of the biological data
layers are developed using regional experts who estimate concentration areas. It is
difficult to estimate the positional accuracy of such data, except to state that they are
compiled on hardcopy base maps with a scale of 1:24,000. Some of the spatial
components of the biological data sets are developed from pre-existing digital 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:
NATIONAL PARK SERVICE (NPS) (ASSATEAGUE ISLAND
NATIONAL SEASHORE)
Publication_Date: 2006
Title:
ASSATEAGUE ISLAND NATIONAL SEASHORE SPECIES
DISTRIBUTION AND SEASONALITY
Geospatial_Data_Presentation_Form: EXPERT KNOWLEDGE
Other_Citation_Details: UNPUBLISHED
Type_of_Source_Media: PERSONAL COMMUNICATION
Source_Time_Period_of_Content:
Time_Period_Information:
Range_of_Dates/Times:
Beginning_Date: 2005
Ending_Date: 2007
Source_Currentness_Reference: DATE OF COMMUNICATION
Source_Citation_Abbreviation: NONE
Source_Contribution: T_MAMMAL INFORMATION
**Process Step:**

**Process Description:**

The main data source used to depict terrestrial mammal distribution and seasonality for this data layer was personal interviews with resource experts from Assateague Island National Seashore.

The above digital and/or hardcopy sources were compiled by the project biologist to create the T_MAMMAL 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; and (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 T_MAMMAL data layer are made based on the recommendations of the resource experts, and final hardcopy maps and digital data are created.

**Process Date:** 200704

**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:** 380
  - **SDTS Terms Description:**
    - **SDTS Point and Vector Object Type:** Area point
    - **Point and Vector Object Count:** 380
  - **SDTS Terms Description:**
    - **SDTS Point and Vector Object Type:** Complete chain
    - **Point and Vector Object Count:** 571
  - **SDTS Terms Description:**
    - **SDTS Point and Vector Object Type:** Link
Spatial_REFERENCE_Information:

Horizontal_Coordinate_System_Definition:

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

Geodetic_Model:
- Horizontal_Datum_Name: North American Datum of 1927
- Ellipsoid_Name: Clark 1866
- Semi-major_Axis: 6378206.400000
- Denominator_of_Flattening_Ratio: 294.978698

Entity_and_Attribute_Information:

Overview_Description:

In addition to the geographic data layers, six relational attribute or data tables, BIORES, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, are used to store the complex biological data in the ESI data structure. The geographic data layer containing biological resource information (in this case, T_MAMMAL) is linked to the Biological Resources table (BIORES) using the unique ID and the lookup table BIO_LUT, or it can be linked directly using RARNUM. The ID is a unique combination of the atlas number (for the Maryland atlas, the number is 47), an element/layer specific number (BIRDS are layer 1, FISH are layer 2, etc.), and a unique record number. The RARNUM represents a unique combination of species, seasonalities, concentrations, and source information. For each of these groupings, a number is generated. That number is concatenated with the atlas number to create a "resource at risk" number that is unique across atlases. BIORES and the other relational data tables are described below in detail. See the Browse_Graphic section for a link to the entity-relationship diagram, which describes the way these tables relate to the geographic data layers and other attribute tables in the ESI data structure.

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

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

**Detailed_Description:**

**Entity_Type:**

*Entity_Type_Label*: T_MAMMAL.PAT

*Entity_Type_Definition:*

The T_MAMMAL.PAT table contains attribute information for the vector polygons in this data set representing terrestrial mammal distribution. 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 (47), element number (9), and record number. ID values of 9999 are holes in polygons and do not contain information.

*Attribute_Definition_Source*: NOAA

*Attribute_Domain_Values:*

*Range_Domain:

  Range_Domain_Minimum: 0470900002
  Range_Domain_Maximum: 0470900381

**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: 047001335
  Range_Domain_Maximum: 047001335

**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: 047000001
  Range_Domain_Maximum: 047001335

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 (47), element number (9), and record number. ID values of 9999 are holes in polygons and do not contain information.
Attribute_Definition_Source: NOAA
Attribute_Domain_Values:
Range_Domain:
  Range_Domain_Minimum: 0470100002
  Range_Domain_Maximum: 0470900381

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: 047000001
  Range_Domain_Maximum: 047001335

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 terrestrial mammals, 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:
  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:** amphibian
  - **Enumerated Domain Value Definition:** Amphibian
  - **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:** crab
  - **Enumerated Domain Value Definition:** Crab
  - **Enumerated Domain Value Definition Source:** Research Planning, Inc.
<table>
<thead>
<tr>
<th>Enumerated_Domain_Value</th>
<th>Definition</th>
<th>Definition_Source</th>
</tr>
</thead>
<tbody>
<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>dolphin</td>
<td>Dolphin</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>e_nursery</td>
<td>Estuarine nursery fish</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>e_resident</td>
<td>Estuarine resident</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>fish</td>
<td>Fish</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>freshwater</td>
<td>Freshwater fish</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>gastropod</td>
<td>Gastropod</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>gull_tern</td>
<td>Gull or tern</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>insect</td>
<td>Insect</td>
<td>Research Planning, Inc.</td>
</tr>
<tr>
<td>invert</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Enumerated Domain Value Definition: Invert
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: passerine
  Enumerated Domain Value Definition: Passerine bird
  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: plant
  Enumerated Domain Value Definition: Plant
  Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:
Enumerated Domain:
  Enumerated Domain Value: raptor
  Enumerated Domain Value Definition: Raptor
  Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:
Enumerated Domain:
  Enumerated Domain Value: sav
  Enumerated Domain Value Definition: Submerged aquatic vegetation
  Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:
Enumerated Domain:
  Enumerated Domain Value: shorebird
  Enumerated Domain Value Definition: Shorebird
  Enumerated Domain Value Definition Source: Research Planning, Inc.

Attribute Domain Values:
Enumerated Domain:
  Enumerated Domain Value: shrimp
  Enumerated Domain Value Definition: Shrimps
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

**Attribute**
**Label:** NHP
**Definition:** Natural Heritage Program global ranking.
**Definition Source:** Network of Natural Heritage Program
**Domain Values:**
- **Domain:**
  - **Value:** sm_mammal
    - **Definition:** Small mammal
    - **Definition Source:** Research Planning, Inc.
- **Domain:**
  - **Value:** turtle
    - **Definition:** Turtle
    - **Definition Source:** Research Planning, Inc.
- **Domain:**
  - **Value:** upland
    - **Definition:** Upland
    - **Definition Source:** Research Planning, Inc.
- **Domain:**
  - **Value:** wading
    - **Definition:** Wading bird
    - **Definition Source:** Research Planning, Inc.
- **Domain:**
  - **Value:** waterfowl
    - **Definition:** Waterfowl
    - **Definition Source:** Research Planning, Inc.
- **Domain:**
  - **Value:** wetland
    - **Definition:** Wetland
    - **Definition Source:** Research Planning, Inc.
- **Domain:**
  - **Value:** whale
    - **Definition:** Whale
    - **Definition Source:** Research Planning, Inc.

**Attribute**
**Label:** DATE_PUB
**Definition:** Date of NHP listing.
**Definition Source:** Research Planning, Inc.
**Domain Values:**
- **Domain:**
  - **Value:** YYYYMM
Enumerated_Domain_Value_Definition: YYY for year and optionally MM for month
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: 0
Enumerated_Domain_Value_Definition: 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
Title: Maryland ESI: T_MAMMAL
(Terrestrial Mammal Polygons)

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 = migrating; if ELEMENT is "FISH" then BREED2 = eggs; if ELEMENT is "INVERT" then BREED2 = eggs; if ELEMENT is "REPTILE" then BREED2 = hatching; if ELEMENT is "M_MAMMAL" then BREED2 = calving. This attribute is not used for HABITAT or T_MAMMAL elements.

Attribute Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

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

Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: N
Enumerated Domain Value Definition: Life-history stage or activity not present 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 = molting; if ELEMENT is "FISH" then BREED3 = larvae; if ELEMENT is "INVERT" then BREED3 = larvae; if ELEMENT is "REPTILE" then BREED3 = internesting; if ELEMENT is "M_MAMMAL" then BREED3 = pupping. This
attribute is not used for HABITAT or T_MAMMAL elements.

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

**Attribute Domain Values:**

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

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

*Attribute Definition Source:* Research Planning, Inc.

**Attribute Domain Values:**

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

- **Enumerated Domain:**
  - **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:** 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:** 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 and HYDRO 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.

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Maryland ESI:  T_MAMMAL
(Terrestrial Mammal Polygons)
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.

**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
Enumerrated_Domain_Value_Definition: Endangered on international list
Enumerrated_Domain_Value_Definition_Source: NOAA ESI Guidelines

Attribute_Domain_Values:
  Enumerrated_Domain:
   Enumerrated_Domain_Value: T
   Enumerrated_Domain_Value_Definition: Threatened on international list
   Enumerrated_Domain_Value_Definition_Source: NOAA ESI Guidelines

Enumerrated_Domain_Value_Definition: Species of Special Concern
Enumerrated_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.
  Enumerate_Domain_Values:
    Enumerrated_Domain:
     Enumerrated_Domain_Value: YYYYMM
     Enumerrated_Domain_Value_Definition: YYYY for year and optionally MM
     for month
     Enumerrated_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.
  Enumerate_Domain_Values:
    Enumerrated_Domain:
     Enumerrated_Domain_Value: YYYYMM
     Enumerrated_Domain_Value_Definition: YYYY for year and optionally MM
     for month
     Enumerrated_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.
  Enumerate_Domain_Values:
    Enumerrated_Domain:
     Enumerrated_Domain_Value: YYYYMM
     Enumerrated_Domain_Value_Definition: YYYY for year and optionally MM
     for month
     Enumerrated_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.

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**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 Maryland

**Distribution Liability:**

Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration (NOAA), 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 the widest community of GIS/mapping users. Distribution formats include 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 for use with the MARPLOT data are also included on the distribution DVDs 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.
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 30 18:01:00 2007
Maryland ESI: HABITATS (Habitat 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 Information:

Originator:

Publication_Date: 200707

Title: Maryland ESI: HABITATS (Habitat Polygons)

Edition: First

Geospatial_Data_Presentation_Form: Vector digital data

Series Information:

Series_Name: None

Issue_Identification: Maryland

Publication Information:

Publication Place: Seattle, Washington

Publisher:

Other Citation Details:

Description:

Abstract:
This data set contains sensitive biological resource data for submerged aquatic vegetation (SAV) and rare plants in Maryland. Vector polygons in this data set represent the SAV and rare plant locations. 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 Maryland. 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:** 1966
- **Ending_Date:** 2006

**Currentness_Reference:**

The biological data were compiled during 2005-2007. The currentness dates for the data range from 1966 to 2006 and are documented in the Lineage section.

**Status:**

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

**Spatial_Domain:**

**Bounding_Coordinates:**

- **West_BoundingCoordinate:** -77.37500
- **East_BoundingCoordinate:** -75.00000
- **North_BoundingCoordinate:** 39.75000
- **South_BoundingCoordinate:** 37.87500

**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:** Maryland

**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 Maryland ESI data.  
**Browse_Graphic_File_Type:** JPEG

**Data_Set_Credit:**

This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Emergency Response Division (formerly Hazardous Materials Response Division), Seattle, Washington and NOAA Chesapeake Bay Office, Gloucester Point, Virginia.

**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 (NT4.0/2000).

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

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**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® to ARC/INFO® 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 available digital data on submerged aquatic vegetation (SAV)
distribution and rare plant locations. These data do not necessarily represent all habitats
occurrences in Maryland. The following species are included in this data set: (Species_ID,
Common Name, Scientific Name [n/a if not applicable]): 145, Seabeach amaranth, Amaranthus
pumilus; 152, Sacciolepis, Sacciolepis striata; 171, Koehne's ammannia, Ammannia latifolia;
187, Seaside knotweed, Polygonum glaucum; 203, Whorled nutrush, Scleria verticillata; 206,
Saltmarsh spikerush, Eleocharis halophila; 275, Red bay, Persea borbonia; 609, Submerged
aquatic vegetation, n/a; 628, Salt marsh straw sedge hill, Carex hormathodes; 662, Beach plum,
Prunus maritima; 663, Beaked spikerush, Eleocharis rostellata; 668, Broad-leaved beardgrass,
Gymnopogon brevifolius; 672, Carolina fimbry, Fimbristylis caroliniana; 674, Coast bedstraw,
Galium hispidulum; 680, Dwarf glasswort, Salicornia bigelovii; 707, Long-awned diplachne,
Leptochloa fusca ssp. Fascicularis; 711, Meadow lovegrass, Eragrostis refracta; 715,
Narrow-leaved wild crabapple, Malus angustifolia; 730, Rose pogonia, Pogonia ophioglossoides;
737, Sea-beach three-awn, Aristida tuberculosa; 738, Sea-beach orach, Atriplex cristata; 739,
Sea-beach sedge, Carex silacea; 740, Sea-purslane, Sesuvium maritimum; 752, Smooth fuirena,
Fuirena pumila; 754, Smooth tick-trefoil, Desmodium glabellum; 781, White spikerush,
Eleocharis albida; 852, Rare, LT (Listed Threatened), or LE (Listed Threatened) plant, 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. Most of the spatial components of the biological data
layers are developed using regional experts who estimate concentration areas. It is
difficult to estimate the positional accuracy of such data, except to state that they are
compiled on hardcopy base maps with a scale of 1:24,000. Some of the spatial
components of the biological data sets are developed from pre-existing digital 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: LEA, HAMILTON, HUDSON, ROEDER
Publication_Date: 2000
Title:

ASSATEAGUE ISLAND NS ADDITIONS TO FLORA & RARE
PLANT SURVEYS & STATUS, 1996-1999
Source_Contribution: HABITATS INFORMATION

Process_Description:

Three main sources of data were used to depict habitat distribution for this data layer: 1) a digital coverage of SAV distribution provided by Virginia Institute of Marine Science (VIMS), (2) a digital coverage of rare plant occurrences provided by Maryland Department of Natural Resources (MD DNR), and (3) interviews with National Park Service (NPS) staff at Assateague Island National Seashore.

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; and (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.

Process_Date: 200704

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_orProvince: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: Jill.Petersen@noaa.gov

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
  SDTS_Point_and_Vector_Object_Type: GT-polygon composed of chains
  Point_and_Vector_Object_Count: 2561

SDTS_Terms_Description:
  SDTS_Point_and_Vector_Object_Type: Area point
  Point_and_Vector_Object_Count: 2561

SDTS_Terms_Description:
  SDTS_Point_and_Vector_Object_Type: Complete chain
Point and Vector Object Count: 4919

SDTS Terms Description:
SDTS Point and Vector Object Type: Link
Point and Vector Object Count: 490302

SDTS Terms Description:
SDTS Point and Vector Object Type: Node, planar graph
Point and Vector Object Count: 4179

Spatial Reference Information:
Horizontal Coordinate System Definition:
Geographic:
  Latitude Resolution: 0.0000001
  Longitude Resolution: 0.0000001
  Geographic Coordinate Units: Decimal degrees
Geodetic Model:
  Horizontal Datum Name: North American Datum of 1927
  Ellipsoid Name: Clark 1866
  Semi-major Axis: 6378206.40000
  Denominator of Flattening Ratio: 294.978698

Entity and Attribute Information:
Overview Description:
Entity and Attribute Overview:
In addition to the geographic data layers, six relational attribute or data tables, BIORES, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, are used to store the complex biological data in the ESI data structure. The geographic data layer containing biological resource information (in this case, 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 Maryland atlas, the number is 47), 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 items. BREED is a newly generated variable used to link to the BREED_DT data table, a modified, more compact version of the relational BREED data table. BREED1-BREED5 give a text summary of when each life stage occurs within the associated map object. The life stages referred to...
are the same as those listed in the Detailed_Description of the BREED data table. The link to the BIOFILE may be made through the BIO_LUT, using ID to link to RARNUM, or BIOFILE may be linked directly to the RARNUM in each of the geographic layer's attribute data tables. As mentioned, BREED_DT is an auxiliary support data table to the flat file structure, which allows the user to do searches based on month for seasonal breeding activities. The link from the flat file to BREED_DT is the BREED item.

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

**Detailed_Description:**

**Entity_Type:**

**Entity_Type_Label:** HABITATS.PAT

**Entity_Type_Definition:**

The HABITATS.PAT table contains attribute information for the vector polygons in this data set representing SAV and rare plant locations. 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 (47), 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:** 0470300002
- **Range_Domain_Maximum:** 0470303036

**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:** 047001222
- **Range_Domain_Maximum:** 047001225

**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:** 047000001
    - **Range_Domain_Maximum:** 047001335

**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 (47), 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:** 0470100002
    - **Range_Domain_Maximum:** 0470900381

**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:** 047000001
    - **Range_Domain_Maximum:** 047001335

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

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

**Attribute Domain Values:**

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

**Attribute:**

**Attribute Label:** CONC

**Attribute Definition:**
The field CONC refers to "concentration," abundance, or density value of a habitat at a particular location. No quantitative or qualitative information on concentrations of rare plants was available so the CONC field for rare plants is populated with ".". Submerged aquatic vegetation (SAV) was split into two concentration categories: <40% cover and >40% cover.

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

**Attribute Domain Values:**

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

**Attribute:**

**Attribute Label:** SEASON_ID

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

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

**Attribute Domain Values:**

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

**Attribute:**

**Attribute Label:** G_SOURCE

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

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

**Attribute Domain Values:**

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

**Attribute:**

**Attribute Label:** S_SOURCE

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

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

**Attribute Domain Values:**

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

**Attribute:**

**Attribute Label:** ELEMENT
**Attribute Definition**: Major categories of biological data.

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

**Attribute Domain Values**:

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

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

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

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

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

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

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

**Attribute**

**Attribute Label**: EL_SPE

**Attribute Definition**:

Concatenation of ELEMENT and SPECIES_ID. This item links records in the BIORES data table to records in the SPECIES and STATUS data tables.

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

**Attribute Domain Values**:

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

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

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

**Attribute Domain Values:**

**Enumerated Domain:**

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

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

**Detailed Description:**

**Entity Type:**

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

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

**Attribute:**

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

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

**Attribute Domain Values:**

**Range Domain:**

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

**Attribute:**

**Attribute Label:** NAME  
**Attribute Definition:** Species common name for the entire ESI data set.

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

**Attribute Domain Values:**

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

**Attribute:**

**Attribute Label:** GEN_SPEC  
**Attribute Definition:** Species scientific name for the entire ESI data set.

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

**Attribute Domain Values:**

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

**Attribute:**

**Attribute Label:** ELEMENT  
**Attribute Definition:** Major categories of biological data.

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

Enumerated_Domain:

- Enumerated_Domain_Value: BIRD
  Enumerated_Domain_Value_Definition: Birds
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:

- Enumerated_Domain_Value: FISH
  Enumerated_Domain_Value_Definition: Fish
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:

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

Enumerated_Domain:

- Enumerated_Domain_Value: INVERT
  Enumerated_Domain_Value_Definition: Invertebrates
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:

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

Enumerated_Domain:

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

Enumerated_Domain:

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

Attribute:

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

Enumerated_Domain:

- Enumerated_Domain_Value: amphibian
  Enumerated_Domain_Value_Definition: Amphibian
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:

- Enumerated_Domain_Value: bivalve
  Enumerated_Domain_Value_Definition: Bivalve
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Enumerated_Domain_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: dolphin
Enumerated_Domain_Value_Definition: Dolphin
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: e_resident
Enumerated_Domain_Value_Definition: Estuarine resident
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: freshwater
Enumerated_Domain_Value_Definition: Freshwater fish
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: gastropod
Enumerated_Domain_Value_Definition: Gastropod
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: insect
Enumerated_Domain_Value_Definition: Insect
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:
   Enumerated_Domain:
      Enumerated_Domain_Value: invert
      Enumerated_Domain_Value_Definition: Invert
      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: passerine
      Enumerated_Domain_Value_Definition: Passerine bird
      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: plant
      Enumerated_Domain_Value_Definition: Plant
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

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

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

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

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: shrimp
Enumerated_Domain_Value_Definition: Shrimps
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:

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

Enumerated_Domain:

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

Enumerated_Domain:

Enumerated_Domain_Value: upland
Enumerated_Domain_Value_Definition: Upland
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.

Enumerated_Domain:

Enumerated_Domain_Value: wetland
Enumerated_Domain_Value_Definition: Wetland
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Enumerated_Domain:

Enumerated_Domain_Value: whale
Enumerated_Domain_Value_Definition: Whale
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:**
**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.
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 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 = migrating; if ELEMENT is "FISH" then BREED2 = eggs; if ELEMENT is "INVERT" then BREED2 = eggs; if ELEMENT is "REPTILE" then BREED2 = hatching; if ELEMENT is "M_MAMMAL" then BREED2 = calving. This attribute is not used for HABITAT or T_MAMMAL elements.

Attribute Definition Source: Research Planning, Inc.

Attribute Domain Values:

Enumerated Domain:

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

Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: N
Enumerated Domain Value Definition: Life-history stage or activity not present 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 = molting; if ELEMENT is "FISH" then BREED3 = larvae; if ELEMENT is "INVERT" then BREED3 = larvae; if ELEMENT is "REPTILE" then BREED3 = internesting; if ELEMENT is "M_MAMMAL" then BREED3 = pupping. This attribute is not used for HABITAT or T_MAMMAL elements.

Attribute Definition Source: Research Planning, Inc.

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

Attribute Domain Values:
Enumerated Domain:
Enumerated Domain Value: N
Enumerated Domain Value Definition: Life-history stage or activity not present 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 "FISH" then BREED4 = juveniles; if ELEMENT is "INVERT" then BREED4 = juveniles; if ELEMENT is "REPTILE" then BREED4 = juveniles; if ELEMENT is "M_MAMMAL" then BREED4 = molting. This attribute is not used for BIRD, HABITAT, or T_MAMMAL elements.

Attribute Definition Source: Research Planning, Inc.

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

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

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 and HYDRO 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**: ELEMENT

**Attribute Label**: Major categories of biological data.

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

**Attribute Domain Values**:  
- **Enumerated Domain**:鸟类
  - **Enumerated Domain Value**: BIRD
  - **Enumerated Domain Value Definition**: 鸟类
  - **Enumerated Domain Value Definition Source**: Research Planning, Inc.

**Attribute Domain Values**:  
- **Enumerated Domain**:鱼类
  - **Enumerated Domain Value**: FISH
  - **Enumerated Domain Value Definition**: 鱼类
  - **Enumerated Domain Value Definition Source**: Research Planning, Inc.

**Attribute Domain Values**:  
- **Enumerated Domain**:栖息地
  - **Enumerated Domain Value**: HABITAT
  - **Enumerated Domain Value Definition**: 栖息地和植物
  - **Enumerated Domain Value Definition Source**: Research Planning, Inc.

**Attribute Domain Values**:  
- **Enumerated Domain**:无脊椎动物
  - **Enumerated Domain Value**: INVERT
  - **Enumerated Domain Value Definition**: 无脊椎动物
  - **Enumerated Domain Value Definition Source**: Research Planning, Inc.

**Attribute Domain Values**:  
- **Enumerated Domain**:海洋哺乳动物
  - **Enumerated Domain Value**: M_MAMMAL
  - **Enumerated Domain Value Definition**: 海洋哺乳动物
  - **Enumerated Domain Value Definition Source**: Research Planning, Inc.

**Attribute Domain Values**:  
- **Enumerated Domain**:爬行动物
  - **Enumerated Domain Value**: REPTILE
  - **Enumerated Domain Value Definition**: 爬行动物
  - **Enumerated Domain Value Definition Source**: Research Planning, Inc.

**Attribute Domain Values**:  
- **Enumerated Domain**:陆生哺乳动物
  - **Enumerated Domain Value**: T_MAMMAL
  - **Enumerated Domain Value Definition**: 陆生哺乳动物
  - **Enumerated Domain Value Definition Source**: Research Planning, Inc.

**Attribute**: SPECIES_ID

**Attribute Label**: 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: **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: **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: **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: **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: **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_or_Province: Washington
Postal_Code: 98115-6349

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

Resource_Description: ESI Atlas for Maryland

Distribution_Liability:

Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration (NOAA), 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 the widest community of GIS/mapping users. Distribution formats include 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 for use with the MARPLOT data are also included on the distribution DVDs 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.
(The BIO_LUT table can be bypassed by linking the biology tables to BIORES using RARNUM.)

SOURCES
SOURCE_ID (6, 6, I)
ORIGINATOR (35, 35, C)
DATE_PUB (10, 10, I)
TITLE (80, 80, C)
DATA_FORMAT (80, 80, C)
PUBLICATION (120, 120, C)
SCALE (20, 20, C)
TIME_PERIOD (22, 22, C)

SOC_DAT
HUNUM (9, 9, I)
TYPE (20, 20, C)
NAME (40, 40, C)
CONTACT (80, 80, C)
PHONE (20, 20, C)
G_SOURCE (6, 6, I)
A_SOURCE (6, 6, I)

BIORES
RARNUM (9, 9, I)
SPECIES_ID (5, 5, I)
CONC (20, 20, C)
SEASON_ID (2, 2, I)
G_SOURCE (6, 6, I)
S_SOURCE (6, 6, I)
ELEMENT (10, 10, C)
EL_SPE (6, 6, C)
EL_SPE_SEA (8, 8, C)

SPECIES
SPECIES_ID (5, 5, I)
NAME (35, 35, C)
GEN_SPEC (45, 45, C)
ELEMENT (10, 10, C)
SUBELEMENT (10, 10, C)
NHP (10, 10, C)
DATE_PUB (10, 10, I)
EL_SPE (6, 6, C)

SEASONAL
ELEMENT (10, 10, C)
SPECIES_ID (5, 5, I)
SEASON_ID (2, 2, I)
JAN (1, 1, C)
FEB (1, 1, C)
MAR (1, 1, C)
APR (1, 1, C)
MAY (1, 1, C)
JUN (1, 1, C)
JUL (1, 1, C)
AUG (1, 1, C)
SEP (1, 1, C)
OCT (1, 1, C)
NOV (1, 1, C)
DEC (1, 1, C)
EL_SPE_SEA (8, 8, 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)
EL_SPE (6, 6, C)

BREED
EL_SPE_SEA (8, 8, C)
MONTH (2, 2, I)
BREED1 (1, 1, C)
BREED2 (1, 1, C)
BREED3 (1, 1, C)
BREED4 (1, 1, C)
BREED5 (1, 1, C)