

# **NORTH CAROLINA ENVIRONMENTAL SENSITIVITY INDEX METADATA**

**July 2000**

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**FILE DESCRIBES:** Digital data for 1996 North Carolina Environmental Sensitivity Index.

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**FILE CREATED ON:** 20000713

**COMMENTS:** Information was developed using the U.S. Federal Geographic Data Committee's Content Standards for Digital Geospatial Metadata, June 8, 1994. The numbering scheme matches the Metadata Standard in order to facilitate referencing definitions of the elements. The items in **bold** are required elements and the others are optional elements. The Spatial Data Transfer Standard (SDTS), ver. 03/92, was referenced to properly identify the geographic entities.

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**1.0. IDENTIFICATION INFORMATION**

**1.1. CITATION**

**1.1.1. ORIGINATOR:**

National Oceanic and Atmospheric Administration (NOAA),  
National Ocean Service, Office of Response and Restoration,  
Hazardous Materials Response Division, Seattle, Washington;  
Coastal Services Center, Charleston, South Carolina; and Strategic  
Environmental Assessments Division, Silver Spring, Maryland

**1.1.2. PUBLICATION DATE:**

200007

**1.1.4. TITLE:**

Sensitivity of Coastal Environments and Wildlife to Spilled Oil:  
North Carolina

**1.1.5. EDITION:**

First

**1.1.6. GEOSPATIAL DATA PRESENTATION FORM:**

Atlas

**1.1.7. SERIES INFORMATION**

**1.1.7.1. SERIES NAME:**

None

**1.1.7.2. ISSUE IDENTIFICATION:**

North Carolina

**1.1.8. PUBLICATION INFORMATION**

**1.1.8.1. PUBLICATION PLACE:**

Seattle, Washington

**1.1.8.2. PUBLISHER:**

National Oceanic and Atmospheric Administration (NOAA),  
National Ocean Service, Office of Response and Restoration,  
Hazardous Materials Response Division, Seattle, Washington

**1.1.9. OTHER CITATION DETAILS:**

Prepared by Research Planning, Inc., Columbia, South Carolina for  
the National Oceanic and Atmospheric Administration (NOAA),  
National Ocean Service, Office of Response and Restoration,  
Hazardous Materials Response Division, Seattle, Washington;

Coastal Services Center, Charleston, South Carolina; and Strategic Environmental Assessments Division, Silver Spring, Maryland

**1.1.11. LARGER WORK CITATION:**

None

**1.2. DESCRIPTION**

**1.2.1. ABSTRACT:**

This data set comprises the Environmental Sensitivity Index (ESI) maps for the shoreline of North Carolina. ESI data characterize 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

**1.2.2. 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

**1.3. TIME PERIOD OF CONTENT**

**1.3.1. TIME PERIOD INFORMATION**

**1.3.1.3. RANGE OF DATES/TIMES:**

The intertidal habitats were originally mapped during overflights conducted in July 1981. They were updated onto 1:24,000 U.S. Geological Survey (USGS) topographic maps by an experienced coastal geologist in January 1996 using a set of 1:800 color vertical aerial photographs from late 1989. Portions of the coast were flown in February 1996 to verify the photo-interpretation. The biological and human-use resources data were compiled by regional biologists in 1996.

**1.4. STATUS**

**1.4.1. PROGRESS:**

Complete

**1.4.2. MAINTENANCE AND UPDATE FREQUENCY:**

None planned



**1.5. SPATIAL DOMAIN**

**1.5.1. BOUNDING COORDINATES**

**1.5.1.1. WEST BOUNDING COORDINATE:**

-78.75°

**1.5.1.2. EAST BOUNDING COORDINATE:**

-75.25°

**1.5.1.3. NORTH BOUNDING COORDINATE:**

36.625°

**1.5.1.4. SOUTH BOUNDING COORDINATE:**

33.75°

**1.6. KEYWORDS**

**1.6.1. THEME**

**1.6.1.1. THEME KEYWORD THESAURUS:**

None

**1.6.1.2. THEME KEYWORD:**

Sensitivity maps; ESI; coastal resources; oil spill planning;  
and coastal zone management

**1.6.2. PLACE**

**1.6.2.1. THESAURUS:**

None

**1.6.2.2. PLACE KEYWORD:**

North Carolina

**1.7. ACCESS CONSTRAINTS:**

None

**1.8. USE CONSTRAINTS:**

**DO NOT USE ESI MAPS FOR NAVIGATIONAL PURPOSES.**

Besides the above warning, there are no use constraints on these data.

Acknowledgment of the publishers and contributing sources listed in 1.11.  
would be appreciated in products derived from these data

**1.11. DATA SET CREDIT:**

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

Coastal Services Center, Charleston, South Carolina; and Strategic Environmental Assessments Division, Silver Spring, Maryland

**1.13. NATIVE DATA SET ENVIRONMENT:**

The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO® (version 7.0.3) and ORACLE RDBMS (version 6.0.36.1.1). The hardware configuration is Hewlett Packard workstations (models 715/50 and 712/80i with 4 X-terminals) with UNIX operating system (HP-UX Release A.09.01). The following files are included in the data set:

bio_lut.e00	biofile.e00	biores.e00
birds.e00	breed.e00	breed_dt.e00
esi.e00	fish.e00	habitats.e00
hab_pt.e00	hydro.e00	index.e00
index2.e00	invert.e00	mgt.e00
m_mammal.e00	nests.e00	reptile.e00
seasonal.e00	soc_dat.e00	soc_lut.e00
socecon.e00	sources.e00	species.e00
status.e00		

The entire data set is approximately 316 megabytes.

## **2.0. DATA QUALITY INFORMATION**

### **2.1. ATTRIBUTE ACCURACY**

#### **2.1.1. ATTRIBUTE ACCURACY REPORT:**

The attribute accuracy is estimated to be “good” given the years of ESI experience, the data input methodology, the quality control review sessions, and the digital logical consistency checks.

### **2.2. LOGICAL CONSISTENCY REPORT:**

The digitization of shoreline types, biological resources, and human-use resources is a complex and highly quality-controlled process. The first layer of information digitized is the ESI shoreline. Any errors in the shoreline classification are updated prior to digitization of the biological and socioeconomic layers. All layers use the shoreline as the geographic reference so that there are no slivers in the geographic coordinates. The biological data are digitized, checked using both digital and on-screen procedures, plotted, and sent out for review by the regional specialists. The edited maps are updated, checked once again, and the final product plotted (at approximately 1:50,000 scale). A team of specialists reviews the entire series of maps, checks all data, and makes final edits. The data are then merged to form the study-wide layers. The data merging includes a final quality control check where labels, chains, and polygons are checked for attribute accuracy.

To finalize the data checking process, each coverage is checked using a standardized form by two GIS personnel (a technician and the GIS manager), and each attribute database is checked using several programs that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and ORACLE to ARC/INFO<sup>®</sup> consistencies. A final review is made by the GIS manager, where data are written to tape and 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 IDs and RARNUMs or HUNUMs are also generated. The new IDs 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 RARNUMs are also modified to include the atlas number, so multiple atlases can be combined and RARNUMs remain unique. RARNUMs are redefined on an element basis, so "resource at risk" groupings will contain only a single element. HUNUMs are also modified to include the atlas number.

ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI\_Viewer product are also included on the CDs for ease of use of the ESI data. The database files are also 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. Section 3.0, outlining Spatial Data Organization, refers to the source files in ARC export format only.

### **2.3. COMPLETENESS REPORT:**

#### **Shoreline Habitat Mapping:**

The shoreline habitats of North Carolina were characterized as to their sensitivity to oil spills using a shoreline classification system that has been used by NOAA for all ESI maps nationwide. Prediction of the behavior and persistence of oil on intertidal habitats is based on an understanding of the dynamics of the coastal environments, not just the substrate type and grain size. The vulnerability of a particular habitat is an integration of the following factors:

- 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

All of these factors are used to determine the relative sensitivity of intertidal habitats. Key to the sensitivity ranking is an understanding of the relationships between: physical processes, substrate, shoreline type, product type, fate and effect, and sediment transport patterns. 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.

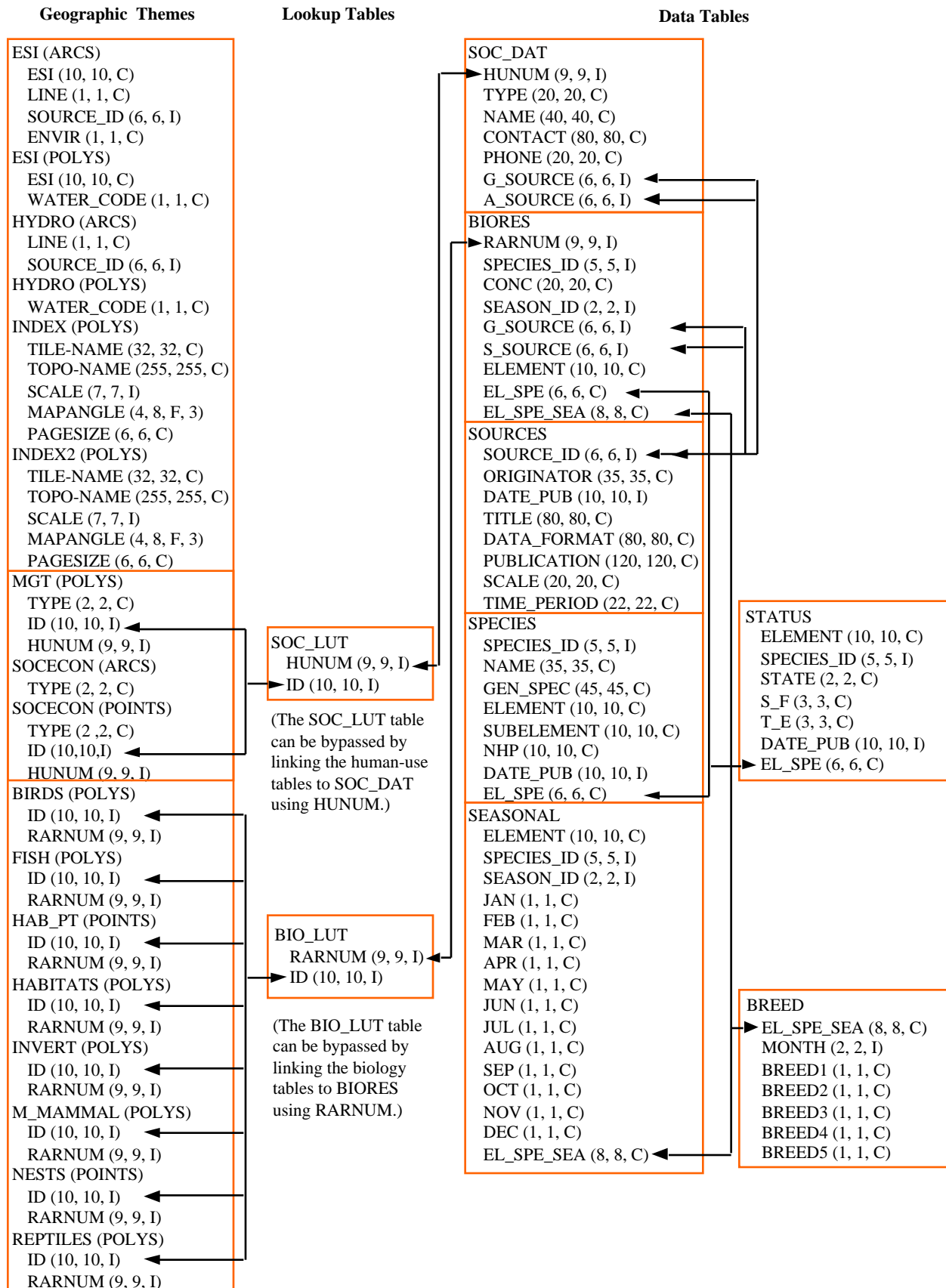
These concepts have been used in the development of the ESI, which ranks shoreline environments as to their relative sensitivity to oil spills, potential biological injury, and ease of cleanup. Generally speaking, areas exposed to high levels of physical energy, such as wave action and tidal currents, and low biological activity rank low on the scale, whereas sheltered areas with associated high biological activity have the highest ranking.

#### Sensitive Biological Resources:

Regional biologists contributed the biological data. These data denote the key biological resources that are most likely at risk in the event of an oil spill. Six major categories, or ELEMENTS, of biological resources were considered during data compilation: birds, fish, habitats/rare plants, invertebrates, marine mammals, and reptiles/amphibians.

The ELEMENTS generally correspond to the coverage or geographic data layer names. There are also six attribute, or data tables, BIORES, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, that are used to store the complex biological data (Fig. 1). Each biological coverage 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 North Carolina this is 35), an element 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.] The items in BIORES include: RARNUM, SPECIES\_ID, CONC, SEASON\_ID, G\_SOURCE, S\_SOURCE, ELEMENT, EL\_SPE, and EL\_SPE\_SEA. SPECIES\_ID is the numeric identifier of each species and is unique within each ELEMENT. CONC is the concentration of the species and can be descriptive (LOW, MEDIUM, HIGH, etc.) or an actual count of the number of individuals or nests associated with a polygon or point.

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**FIGURE 1. Relationships between biology data layers and attribute files.**

SEASON\_ID contains a numeric identifier for the unique monthly presence and life history characteristics of each species at a given location. There can be one seasonality record per species, or the same species can have different monthly presence or breeding activities at different sites. When this occurs, a new record with a different SEASON\_ID is referenced.

The SEASONAL table stores the monthly presence of each species and the characteristics and the BREED table contains the life stage information. The BIORES table is linked to the SEASONAL table using the SPECIES\_ID, ELEMENT, and SEASON\_ID items. BREED is linked to SEASON using the EL\_SPE\_SEA item. The categories of the variables BREED1 through BREED5 for each ELEMENT are:

ELEMENT	BREED 1	BREED 2	BREED 3	BREED 4	BREED 5
BIRD	nesting	laying	hatching	fledging	
FISH	spawning	outmigration	larvae	juveniles	adults
INVERT	spawning	larvae	mating	juveniles	adults
M_MAMMAL	mating	calving	pupping	molting	
REPTILE	nesting	hatching	internesting	juveniles	adults

NOTE: There are no BREED variables for HABITATS or HAB\_PT.

The SPECIES table contains the species identification number (SPECIES\_ID), common name (NAME), scientific name (GEN\_SPEC), two-letter state abbreviation for listed species (STATE), state and federal status (S\_F), threatened and/or endangered status (T\_E), date of the list (DATE\_PUB), species element (ELEMENT), species sub-group (SUBELEMENT), and the global ranking according to the Natural Heritage Program (NHP). The NHP item was unavailable when the atlas was under production. The item SUBELEMENT refers to the grouping of the species. The SUBELEMENTS, by ELEMENT, included in this atlas include the following:

ELEMENT	SUBELEMENT
BIRD	diving
	gull_tern
	passerine
	pelagic
	raptor
	shorebird

ELEMENT	SUBELEMENT
BIRD <i>(continued)</i>	wading
	waterfowl
FISH	anadromous
	special
HABITAT	sav
	shrub
INVERT	clam
	crab
	mussel
	oyster
	scallop
	shrimp
MARINE MAMMAL	dolphin
REPTILE	alligator
	turtle

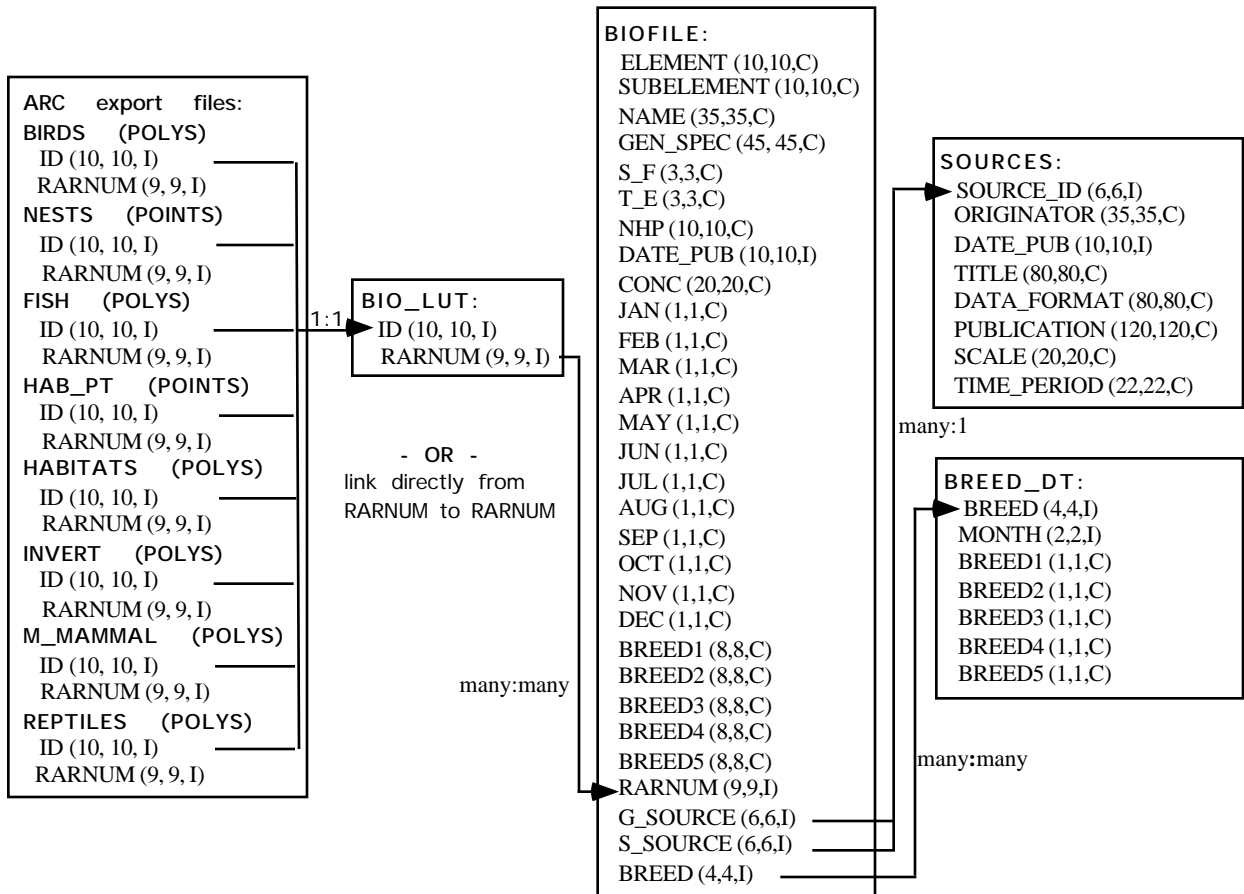
The BIORES items G\_SOURCE and S\_SOURCE refer to the geographic and seasonality sources and link to the SOURCES table.

Due to the complexity of the relational database model, the biological data items are post processed into a flat file format. This file is entitled BIOFILE and it may be used in place of the relational files to ease simple data queries. The items in the flat file are ELEMENT, SUBELEMENT, NAME, GEN\_SPEC, S\_F, T\_E, 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 files described above, except the BREED1–BREED5 items. BREED is a newly generated variable used to link to the BREED\_DT file, a modified, more compact version of the aforementioned BREED file. Breed1–Breed5 give a text summary of when each life stage occurs within that polygon. The life stages referred to are the same as those listed in the previous table. The link to the BIOFILE may be made through BIO\_LUT using ID to link to RARNUM, or it may be linked directly to the RARNUM in each of the biology cover's attribute files. As mentioned, BREED\_DT is an auxiliary support file 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 file is SOURCES. This is the same as the SOURCES 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 files.



**FIGURE 2.** Relationship of the BIOFILE to the biological covers and the supplementary BREED\_DT and SOURCES data tables.

Human-Use Resources:

Several human-use, or socioeconomic, features are included in ESI atlases. Entity points and complete chains (arcs) are digitized into the data layer SOCECON and managed area polygonal data are stored in the MGT data layer. Both data sets are linked to the data table SOC\_DAT using the SOC\_LUT lookup table and the items HUNUM and ID. HUNUM is a unique reference number concatenated with the atlas number (35). ID is a concatenation of

atlas number (35), element number (SOCECON = 10 and MGT = 11), and unique record number.

All features are attributed using the item TYPE and identify the type of feature:

Entity Points		Polygons	
Feature	TYPE	Feature	TYPE
Access	A2	Marine Sanctuary	MS
Airport	A	National Park	NP
Archaeological Site	AS	Park	P
Boat Ramp	BR	Wildlife Refuge	WR
Coast Guard	CG		
Commercial Fishing	CF		
Ferry	F		
Historical Site	HS		
Marina	M		
Recreational Beach	B		
Recreational Fishing	RF		
Special Management Area	SM		
Water Intake	WI		
<b>Complete Chains</b>			
Feature	TYPE		
State Border	SB		

The table SOC\_DAT contains the human-use number (HUNUM), feature type (TYPE), name of the facility (NAME), contact person (CONTACT), telephone number (PHONE), geographic source (G\_SOURCE), and attribute source (A\_SOURCE).

## 2.4. POSITIONAL ACCURACY

### 2.4.1. HORIZONTAL POSITIONAL ACCURACY

#### 2.4.1.1. HORIZONTAL POSITIONAL ACCURACY REPORT:

The ESI data uses USGS 1:24,000 topographic quadrangles as the base map. It is estimated that the ESI has a minimum mapping unit of 50 feet. The biological data sets are developed primarily using regional experts who estimate concentration areas. Unlike shorelines, which maintain relative spatial stability through time, the biological data by nature migrate across the landscape. Therefore, the 1:24,000 USGS quadrangles and 1:40,000 and 1:80,000 NOAA navigational charts are used as a base map in gathering the

data but the data have “fuzzy” boundaries that must be understood when utilizing this information.

## 2.5. LINEAGE

### 2.5.1. SOURCE INFORMATION:

Coverage or theme name: BIRDS

#### 2.5.1.1. SOURCE CITATION

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denominator	2.5.1.4 Source Time Period
NC Natural Heritage Program NCDEHNR - DPR	N/A	Natural Heritage Element Occurrence Sites	Hardcopy maps	N/A	24000	1996
Fussell, J.O.	N/A	N/A	Expert knowledge	N/A	N/A	1996
Parnell, J.F., W.W. Golder, and T. Henson	1993	1993 Atlas of Colonial Waterbirds of North Carolina Estuaries	Hardcopy text and maps	North Carolina Sea Grant Program, Publication UNC-SG-95-02	Varies	1993
LeGrand, H., NCDEHNR - DPR	N/A	N/A	Expert knowledge	N/A	N/A	1996
Parnell, J.F. (UNCW) and W.W. Golder (Audubon Society)	N/A	N/A	Expert knowledge	N/A	N/A	1995
Fussell, J.O.	1994	A Birder's Guide to Coastal North Carolina	Hardcopy text and tables	UNC Press, Chapel Hill, NC, 540 pp.	N/A	1994
Sumner, P., NCWRC	N/A	N/A	Expert knowledge	N/A	N/A	1996
Luszcz, D., NCWRC	N/A	N/A	Expert knowledge	N/A	N/A	1996

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<b>2.5.1.1.1</b> <b>Originator</b>	<b>2.5.1.1.2</b> <b>Publication Date</b>	<b>2.5.1.1.4</b> <b>Title</b>	<b>2.5.1.1.6</b> <b>Geospatial Data Presentation Form</b>	<b>2.5.1.1.8</b> <b>Publication Information</b>	<b>2.5.1.2</b> <b>Source Scale Denominator</b>	<b>2.5.1.4</b> <b>Source Time Period</b>
Lyons, M., NPS	N/A	N/A	Expert knowledge	N/A	N/A	1995
Stewart, D., USFWS	N/A	N/A	Expert knowledge	N/A	N/A	1995
Monschein, T., NCWRC	N/A	N/A	Expert knowledge	N/A	N/A	1996
Rikard, M., NPS	N/A	N/A	Expert knowledge	N/A	N/A	1995
Epperly, S.P., NMFS	N/A	N/A	Expert knowledge	N/A	N/A	1995
Stanton, J., USFWS	N/A	Mattamuskeet National Wildlife Refuge: Waterfowl Surveys	Hardcopy text	N/A	N/A	1993-1994
U.S. Fish and Wildlife Service	N/A	Swan Quarter & Cedar Island NWR: Waterfowl Surveys	Hardcopy text	N/A	N/A	1992-1994
Strange, T., SCDNR	N/A	N/A	Expert knowledge	N/A	N/A	1995
Dodd, M., SCDNR	N/A	N/A	Expert knowledge	N/A	N/A	1996
Wilkinson, P. and M. Spinks, SCDNR	N/A	N/A	Expert knowledge	N/A	N/A	1995
Augspurger, T., USFWS	N/A	N/A	Expert knowledge	N/A	N/A	1996
LeGrand, H.E. and S.P. Hall	1995	Natural Heritage Program List of the Rare Animal Species of North Carolina	Hardcopy text	North Carolina Natural Heritage Program, DEHNR, Raleigh, NC, 67 pp.	N/A	1995

**2.5.1. SOURCE INFORMATION:**

Coverage or theme name: ESI

**2.5.1.1. SOURCE CITATION**

<b>2.5.1.1.1</b> <b>Originator</b>	<b>2.5.1.1.2</b> <b>Publication Date</b>	<b>2.5.1.1.4</b> <b>Title</b>	<b>2.5.1.1.6</b> <b>Geospatial Data Presentation Form</b>	<b>2.5.1.1.8</b> <b>Publication Information</b>	<b>2.5.1.2</b> <b>Source Scale Denominator</b>	<b>2.5.1.4</b> <b>Source Time Period</b>
Research Planning, Inc.	N/A	Overflight/ photointerpreted maps	Hardcopy maps	N/A	12000-24000	1995-1996
USFWS, National Wetlands Inventory	1996	National Wetlands Inventory maps	Digital GT Polygons	U.S. Fish and Wildlife Service, St. Petersburg, FL	24000	1981-1996

**2.5.1. SOURCE INFORMATION:**

Coverage or theme name: FISH

**2.5.1.1. SOURCE CITATION**

<b>2.5.1.1.1</b> <b>Originator</b>	<b>2.5.1.1.2</b> <b>Publication Date</b>	<b>2.5.1.1.4</b> <b>Title</b>	<b>2.5.1.1.6</b> <b>Geospatial Data Presentation Form</b>	<b>2.5.1.1.8</b> <b>Publication Information</b>	<b>2.5.1.2</b> <b>Source Scale Denominator</b>	<b>2.5.1.4</b> <b>Source Time Period</b>
NOAA/NOS, SEA Division, Estuarine Living Marine Resources Program	1996	Distribution and Abundance of Fishes and Invertebrates in North Carolina Estuaries	Digital GT polygons	NOAA/NOS, SEA Division, Silver Spring, MD	24000	1985-1996
LeGrand, H.E. and S.P. Hall	1995	Natural Heritage Program List of the Rare Animal Species of North Carolina	Hardcopy text	North Carolina Natural Heritage Program, DEHNR, Raleigh, NC, 67 pp.	N/A	1995

**2.5.1. SOURCE INFORMATION:**

Coverage or theme name: HABITATS

**2.5.1.1. SOURCE CITATION**

<b>2.5.1.1.1</b> <b>Originator</b>	<b>2.5.1.1.2</b> <b>Publication Date</b>	<b>2.5.1.1.4</b> <b>Title</b>	<b>2.5.1.1.6</b> <b>Geospatial Data Presentation Form</b>	<b>2.5.1.1.8</b> <b>Publication Information</b>	<b>2.5.1.2</b> <b>Source Scale Denominator</b>	<b>2.5.1.4</b> <b>Source Time Period</b>
Luszcz, D., NCWRC	N/A	N/A	Expert knowledge	N/A	N/A	1996
NOAA-NMFS, Beaufort Laboratory	N/A	Submersed Rooted Vasculars	Digital GT polygons	NC-CGIA, Raleigh, NC	12000-50000	1985-1992
Carraway, R.J. and L.J. Priddy	1983	Mapping of Submerged Grass Beds in Core and Bogue Sounds	Digital GT Polygons	NC-CGIA, Raleigh, NC	24000	1981
NOAA-NMFS, Beaufort Laboratory	N/A	Dare and Hyde Counties Submerged Aquatic Vegetation	Digital GT Polygons	NC-CGIA, Raleigh, NC	100000	Unknown

**2.5.1. SOURCE INFORMATION:**

Coverage or theme name: HAB\_PT

**2.5.1.1. SOURCE CITATION**

<b>2.5.1.1.1</b> <b>Originator</b>	<b>2.5.1.1.2</b> <b>Publication Date</b>	<b>2.5.1.1.4</b> <b>Title</b>	<b>2.5.1.1.6</b> <b>Geospatial Data Presentation Form</b>	<b>2.5.1.1.8</b> <b>Publication Information</b>	<b>2.5.1.2</b> <b>Source Scale Denominator</b>	<b>2.5.1.4</b> <b>Source Time Period</b>
NC Natural Heritage Program, NCDEHNR-DPR	N/A	Natural Heritage Element Occurrence Sites	Hardcopy maps	N/A	24000	1996
LeGrand, H., NCDEHNR-DPR	N/A	N/A	Expert knowledge	N/A	N/A	1996

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denominator	2.5.1.4 Source Time Period
Amoroso, J.L. and A.S. Weakley	1995	Natural Heritage Program List of the Rare Plant Species of North Carolina	Hardcopy text	North Carolina Natural Heritage Program, DEHNR, Raleigh, NC, 84 pp.	N/A	1995

**2.5.1. SOURCE INFORMATION:**

Coverage or theme name: HYDRO

**2.5.1.1. SOURCE CITATION**

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denominator	2.5.1.4 Source Time Period
Research Planning, Inc.	N/A	Overflight/ photointerpreted maps	Hardcopy maps	N/A	12000-24000	1995-1996
USFWS, National Wetlands Inventory	1996	National Wetlands Inventory maps	Digital GT Polygons	U.S. Fish and Wildlife Service, St. Petersburg, FL	24000	1981-1996

**2.5.1. SOURCE INFORMATION:**

Coverage or theme name: INDEX

**2.5.1.1. SOURCE CITATION**

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denominator	2.5.1.4 Source Time Period
Research Planning, Inc.	1996	Index for North Carolina ESI Maps	Digital GT Polygons	Joanne Halls, GIS Manager	24000	1996

**2.5.1. SOURCE INFORMATION:**

Coverage or theme name: INDEX2

**2.5.1.1. SOURCE CITATION**

<b>2.5.1.1.1</b>	<b>2.5.1.1.2</b>	<b>2.5.1.1.4</b>	<b>2.5.1.1.6</b>	<b>2.5.1.1.8</b>	<b>2.5.1.2</b>	<b>2.5.1.4</b>
<b>Originator</b>	<b>Publication Date</b>	<b>Title</b>	<b>Geospatial Data Presentation Form</b>	<b>Publication Information</b>	<b>Source Scale Denominator</b>	<b>Source Time Period</b>
Research Planning, Inc.	1996	Index for North Carolina ESI Maps	Digital GT Polygons	Joanne Halls, GIS Manager	24000	1996

**2.5.1. SOURCE INFORMATION:**

Coverage or theme name: INVERT (formerly SHELLFSH)

**2.5.1.1. SOURCE CITATION**

<b>2.5.1.1.1</b>	<b>2.5.1.1.2</b>	<b>2.5.1.1.4</b>	<b>2.5.1.1.6</b>	<b>2.5.1.1.8</b>	<b>2.5.1.2</b>	<b>2.5.1.4</b>
<b>Originator</b>	<b>Publication Date</b>	<b>Title</b>	<b>Geospatial Data Presentation Form</b>	<b>Publication Information</b>	<b>Source Scale Denominator</b>	<b>Source Time Period</b>
Porter, H., UNC Chapel Hill	N/A	N/A	Expert knowledge	N/A	N/A	1995
Research Triangle Institute	1992	Watershed Planning in the Albemarle-Pamlico Estuarine System: Report 5, Fishing Practices Mapping	Hardcopy maps and text	Research Triangle Institute, Report No. 92-05, Research Triangle Park, NC, 277 pp.	Varies	1982-1992
NOAA/NOS, SEA Division, Estuarine Living Marine Resources Program	1996	Distribution and Abundance of Fishes and Invertebrates in North Carolina Estuaries	Digital GT polygons	NOAA/NOS, SEA Division, Silver Spring, Md.	24000	1985-1996



**2.5.1. SOURCE INFORMATION:**

Coverage or theme name: MGT

**2.5.1.1. SOURCE CITATION**

<b>2.5.1.1.1 Originator</b>	<b>2.5.1.1.2 Publication Date</b>	<b>2.5.1.1.4 Title</b>	<b>2.5.1.1.6 Geospatial Data Presentation Form</b>	<b>2.5.1.1.8 Publication Information</b>	<b>2.5.1.2 Source Scale Denominator</b>	<b>2.5.1.4 Source Time Period</b>
U.S. Geological Survey	N/A	Federal Land Ownership	Digital GT polygons	NC-CGIA, Raleigh, NC	250000	1977-1988
NC DEHNR, Division of Coastal Management	N/A	Coastal Reserves	Digital GT polygons	NC-CGIA, Raleigh, NC	24000	1990
NC DEHNR, Division of Parks and Recreation	N/A	State Parks	Digital GT polygons	NC-CGIA, Raleigh, NC	100000	1990
USFWS, Division of Realty	1995	Mackay Island National Wildlife Refuge	Hardcopy map	USFWS, Division of Realty, Atlanta, GA	1 in = 2,000 ft	1995
USFWS, Division of Realty	1990	Currituck National Wildlife Refuge	Hardcopy map	USFWS, Division of Realty, Atlanta, GA	1 in = 4,000 ft	1990
USFWS, Division of Realty	1990	Alligator River National Wildlife Refuge	Hardcopy map	USFWS, Division of Realty, Atlanta, GA	1 in = 4,000 ft	1990
USFWS, Division of Realty	1988	Roanoke River National Wildlife Refuge	Hardcopy map	USFWS, Division of Realty, Atlanta, GA	1 in = ,8000 ft	1988
NC Wildlife Resources Commission	1996	Hunting and Fishing Maps for North Carolina Game Lands, 1996-1997	Hardcopy maps	North Carolina Wildlife Resources Commission, Raleigh, NC, 78 pp.	Varies	1995-1996

NORTH CAROLINA METADATA

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denominator	2.5.1.4 Source Time Period
USFWS, Pocosin Lakes NWR	1996	Pocosin Lakes National Wildlife Refuge	Hardcopy map	Pocosin Lakes NWR, Creswell, NC	Unknown	1996
USFWS, Division of Realty	1994	Swanquarter National Wildlife Refuge	Hardcopy map	USFWS, Division of Realty, Atlanta, GA	1 in = 5,280 ft	1994
USFWS, Division of Realty	1991	Pea Island National Wildlife Refuge	Hardcopy map	USFWS, Division of Realty, Atlanta, GA	1 in = 4,000 ft	1991

**2.5.1. SOURCE INFORMATION:**

Coverage or theme name: M\_MAMMAL

**2.5.1.1. SOURCE CITATION**

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denominator	2.5.1.4 Source Time Period
Thayer, V., NMFS	N/A	N/A	Expert knowledge	N/A	N/A	1996

**2.5.1. SOURCE INFORMATION:**

Coverage or theme name: NESTS

**2.5.1.1. SOURCE CITATION**

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denominator	2.5.1.4 Source Time Period
NC Natural Heritage Program NCDEHNR - DPR	N/A	Natural Heritage Element Occurrence Sites	Hardcopy maps	N/A	24000	1996
Henson, T., NCWRC	N/A	N/A	Expert knowledge	N/A	N/A	1995

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denominator	2.5.1.4 Source Time Period
Fussell, J.O.	N/A	N/A	Expert knowledge	N/A	N/A	1996
Parnell, J.F., W.W. Golder, and T. Henson	1993	1993 Atlas of Colonial Waterbirds of North Carolina Estuaries	Hardcopy text and maps	North Carolina Sea Grant Program Publication UNC-SG-95-02	Varies	1993
Fussell, J.O.	1994	A Birder's Guide to Coastal North Carolina	Hardcopy text and tables	UNC Press, Chapel Hill, NC, 540 pp.	N/A	1994
Stewart, D., USFWS	N/A	N/A	Expert knowledge	N/A	N/A	1995
LeGrand, H.E. and S.P. Hall	1995	Natural Heritage Program List of the Rare Animal Species of North Carolina	Hardcopy text	North Carolina Natural Heritage Program, DEHNR, Raleigh, NC, 67 pp.	N/A	1995

**2.5.1. SOURCE INFORMATION:**

Coverage or theme name: REPTILES

**2.5.1.1. SOURCE CITATION**

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denominator	2.5.1.4 Source Time Period
NC Natural Heritage Program NCDEHNR - DPR	N/A	Natural Heritage Element Occurrence Sites	Hardcopy maps	N/A	24000	1996
Henson, T., NCWRC	N/A	N/A	Expert knowledge	N/A	N/A	1995

NORTH CAROLINA METADATA

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denominator	2.5.1.4 Source Time Period
LeGrand, H., NCDEHNR - DPR	N/A	N/A	Expert knowledge	N/A	N/A	1996
Epperly, S.P., NMFS	N/A	N/A	Expert knowledge	N/A	N/A	1995
Rhodes, W., SCDNR	N/A	Seasonality for American Alligator	Expert knowledge	N/A	N/A	1996
LeGrand, H.E. and S.P. Hall	1995	Natural Heritage Program List of the Rare Animal Species of North Carolina	Hardcopy text	North Carolina Natural Heritage Program, DEHNR, Raleigh, NC, 67 pp.	N/A	1995

**2.5.1. SOURCE INFORMATION:**

Coverage or theme name: SOCECON

**2.5.1.1. SOURCE CITATION**

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denominator	2.5.1.4 Source Time Period
U.S. Geological Survey	Varies	USGS 7.5 Minute Topographic Quadrangles	Hardcopy maps	USGS, Reston, Va.	24000	Varies
Research Planning, Inc.	N/A	Overflight/ photointerpreted maps	Hardcopy maps	N/A	12000-24000	1995-1996
Lyons, M., NPS	N/A	N/A	Expert knowledge	N/A	N/A	1995
Stewart, D., USFWS	N/A	N/A	Expert knowledge	N/A	N/A	1995
Hardy, C., NCDEHNR - DMF	N/A	N/A	Expert knowledge	N/A	N/A	1995

<b>2.5.1.1.1</b> <b>Originator</b>	<b>2.5.1.1.2</b> <b>Publication Date</b>	<b>2.5.1.1.4</b> <b>Title</b>	<b>2.5.1.1.6</b> <b>Geospatial Data Presentation Form</b>	<b>2.5.1.1.8</b> <b>Publication Information</b>	<b>2.5.1.2</b> <b>Source Scale Denominator</b>	<b>2.5.1.4</b> <b>Source Time Period</b>
NC Department of Cultural Resources, Division of Archives and History	N/A	Historic Sites	Digital entity points	NC-CGIA, Raleigh, NC	24000	1994
NC DEHNR, Division of Marine Fisheries	N/A	Artificial Marine Reefs	Digital entity points	NC-CGIA, Raleigh, NC	Unknown	1989
NC Department of Cultural Resources, Division of Archives and History	N/A	Archaeological Sites	Digital points	NC-CGIA, Raleigh, NC	24000	1996
NC DEHNR, Division of Marine Fisheries	N/A	Fisheries Nursery Areas	Digital points	NC-CGIA, Raleigh, NC	24000	1992
NC Coastal Zone Management Division	1996	Marinas	Digital entity points	Unknown	Unknown	Unknown
NC Coastal Zone Management Division	1996	Beaches	Digital entity points	Unknown	Unknown	Unknown
NC Coastal Zone Management Division	1996	Shipwrecks	Digital entity points	Unknown	Unknown	Unknown
NC Department of Cultural Resources, Office of State Archaeology	N/A	Updates to Archaeological Sites	Hardcopy maps	Office of State Archaeology, 109 E. Jones St., Raleigh, NC	24000	1996
NC DEHNR, Division of Marine Fisheries	1992	Boat Ramps, Access, and Recreational Fishing	Digital points	Unknown	Unknown	Unknown

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denominator	2.5.1.4 Source Time Period
Research Triangle Institute	1992	Watershed Planning in the Albemarle-Pamlico Estuarine System: Report 5, Fishing Practices Mapping	Hardcopy maps and text	Research Triangle Institute, Report No. 92-05, Research Triangle Park, NC, 227 pp.	Varies	1982-1992
Benton, S., NCDEHNR	N/A	N/A	Expert knowledge	N/A	N/A	1996
NC Department of Cultural Resources, Historic Preservation Office	N/A	Beaufort Area Historic Sites	Expert knowledge	Historic Preservation Office, 109 E. Jones St. Raleigh, NC	N/A	1995
Fussell, J.O.	1994	A Birder's Guide to Coastal North Carolina	Hardcopy text and tables	UNC Press, Chapel Hill, NC, 540 pp.	N/A	1994

## 2.5.2. PROCESS STEP

### 2.5.2.1. PROCESS DESCRIPTION:

The digitization of ESI, biological resources, and human-use resources is a complex and highly quality controlled process. In order to facilitate digitizing, the entire study area was split into individual quadrangles using a map index coverage. The first layer of information digitized was the ESI. The wetlands (NWI) and existing digital shoreline were merged to form one data layer. The NWI codes were reclassified to ESI polygon codes (Table 1) and any wetlands falling in water were deleted.

**TABLE 1.** NWI to ESI conversion.

<b>ESI</b>	<b>NWI DEFINITION</b>	<b>NWI CODE</b>
10A	Estuarine, intertidal, emergent wetland	E2EM
10B	Riverine, tidal, emergent wetland	R1EM
	Riverine, Lower Perennial, emergent wetland	R2EM
	Lacustrine, Littoral, emergent wetland	L2EM
	Palustrine, emergent wetland	PEM
10C	Estuarine, intertidal, forested wetland	E2FO
	Palustrine, forested wetland	PFO
10D	Estuarine, intertidal, scrub-shrub	E2SS
	Palustrine, scrub-shrub	PSS

The field maps with ESI shoreline attributes were then scanned and digitized. Any errors in the shoreline classification were updated prior to digitization of the biological and human-use layers. All data use the shoreline as the geographic reference so that there are no slivers in the geographic layers. The biological information was compiled onto 1:24,000 USGS topographic quadrangles, 1:40,000 NOAA Navigational Charts, and 1:100,000 USGS topographic quadrangles by NOAA personnel and an in-house RPI expert using the data from regional specialists in the form of verbal discussions, maps, tables, charts, and written descriptions of wildlife distributions. The data were digitized, checked using both digital and on-screen procedures, plotted, and sent out for review by the regional specialists. The edited maps were updated on the computer, checked once again, and plotted at final map scale. A team of specialists reviewed the entire series of maps, checked all data, and made final edits. The data were merged to form the study-wide layers that are described in this document. The data merging included a

final quality control check where topological consistency, rules for geography, and database to geography were checked and reported to the GIS manager.

**2.5.2.3. PROCESS DATE:**

199612

**2.5.2.6. PROCESS CONTACT**

**2.5.2.6.1. CONTACT PERSON PRIMARY**

**2.5.2.6.1.1. CONTACT PERSON:**

Jill Petersen

**2.5.2.6.1.2. CONTACT ORGANIZATION:**

NOAA, Office of Response and  
Restoration

**2.5.2.6.3. CONTACT POSITION:**

GIS Manager

**2.5.2.6.4. CONTACT ADDRESS**

**2.5.2.6.4.1. ADDRESS TYPE:**

Physical Address

**2.5.2.6.4.2. ADDRESS:**

7600 Sand Point Way N.E.

**2.5.2.6.4.3. CITY:**

Seattle

**2.5.2.6.4.4. STATE OR PROVINCE:**

WA

**2.5.2.6.4.5. POSTAL CODE:**

98115-6349

**2.5.2.6.5. CONTACT VOICE TELEPHONE:**

(206) 526-6944

**2.5.2.6.7. CONTACT FACSIMILE TELEPHONE:**

(206) 526-6329

**2.5.2.6.8. CONTACT ELECTRONIC MAIL ADDRESS:**

jill\_petersen@hazmat.noaa.gov.us



**3.0. SPATIAL DATA ORGANIZATION INFORMATION****3.2. DIRECT SPATIAL REFERENCE METHOD:**

Vector

**3.3. POINT AND VECTOR OBJECT INFORMATION****3.3.1. SDTS TERMS DESCRIPTION:****3.3.1.1. SDTS POINT AND VECTOR OBJECT TYPE, and****3.3.1.2. POINT AND VECTOR OBJECT COUNT:**

Theme	Universe Polygon	GT-Polygons	Area Points	Complete Chains	Line Segments	Label Points	Entity Points	Nodes
BIRDS	1	684	684	2,132	517,139			1,834
ESI	1	28,186	28,186	76,382	2,782,545			58,550
FISH	1	2,862	2,862	5,156	984,131			4,904
HAB_PT							139	
HABITATS	1	1,234	1,234	1,292	87,253			1,280
HYDRO	1	2,906	2,906	6,567	1,028,291	612		6,558
INDEX	1	135	135	313	376			179
INDEX2	1	5	5	21	21			18
INVERT	1	3,038	3,038	5,841	1,096,147			5,399
MGT	1	194	194	326	68,518			304
M_MAMMAL	1	12	12	42	228			42
NESTS							46	
REPTILES	1	140	140	412	130,878			394
SOCECON				2	40		2,287	4

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**4.0. SPATIAL REFERENCE INFORMATION**

**4.1. HORIZONTAL COORDINATE SYSTEM DEFINITION**

**4.1.1. GEOGRAPHIC**

**4.1.1.1. LATITUDE RESOLUTION:**

0.00005

**4.1.1.2. LONGITUDE RESOLUTION:**

0.00005

**4.1.1.3. GEOGRAPHIC COORDINATE UNITS:**

Decimal Degrees

**4.1.4. GEODETIC MODEL**

**4.1.4.1. HORIZONTAL DATUM NAME:**

North American Datum of 1927

**4.1.4.2. ELLIPSOID NAME:**

Clark 1866

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**5.0. ENTITY AND ATTRIBUTE INFORMATION**

**5.1. DETAILED DESCRIPTION: BIO\_LUT**

Lookup table to link biology coverages to the BIORES data table.

**5.1.1. ENTITY TYPES:**

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:	
<u>Attributes</u>	RARNUM	integer
	ID	integer

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

RARNUM

**5.1.2.2. ATTRIBUTE DEFINITION:**

An identifier that links the BIO\_LUT table to the BIORES table

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

An identifier that links the biology coverages to the BIO\_LUT table

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

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**5.1. DETAILED DESCRIPTION: BIOFILE**

The data table BIOFILE is a flat file format that provides all of the biology attributes contained in the relational data tables when used in conjunction with the supplementary tables BREED\_DT and SOURCES.

**5.1.1. ENTITY TYPES:**

**5.1.1.1. ENTITY TYPE LABEL:**

**5.1.1.2. ENTITY TYPE DEFINITION:**

---

<u>Attributes</u>		
	ELEMENT	character
	SUBELEMENT	character
	NAME	character
	GEN_SPEC	character
	S_F	character
	T_E	character
	NHP	character
	DATE_PUB	integer
	CONC	character
	JAN	character
	FEB	character
	MAR	character
	APR	character
	MAY	character
	JUN	character
	JUL	character
	AUG	character
	SEP	character
	OCT	character
	NOV	character
	DEC	character
	BREED1	character
	BREED2	character
	BREED3	character
	BREED4	character
	BREED5	character
	RARNUM	integer
	G_SOURCE	integer
	S_SOURCE	integer
	BREED	integer

---

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

ELEMENT

**5.1.2.2. ATTRIBUTE DEFINITION:**

Major categories of biological data

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

BIRD	Birds
FISH	Fish
HABITAT	Habitats and Rare Plants
INVERT	Invertebrates
M_MAMMAL	Marine Mammals
REPTILE	Reptiles and Amphibians

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

SUBELEMENT

**5.1.2.2. ATTRIBUTE DEFINITION:**

Species subgroup

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

alligator  
 anadromous  
 clam  
 crab  
 diving  
 dolphin  
 gull\_tern  
 mussel  
 oyster  
 passerine  
 pelagic



**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

raptor  
sav  
scallop  
shorebird  
shrimp  
shrub  
special  
turtle  
wading  
waterfowl

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

NAME

**5.1.2.2. ATTRIBUTE DEFINITION:**

Species common name

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

Alewife  
American alligator  
American avocet  
American bittern  
American coot  
American eel  
American oyster (eastern)  
American oystercatcher  
American shad  
American wigeon  
Anhinga  
Atlantic bay scallop  
Atlantic croaker  
Atlantic menhaden  
Atlantic sturgeon  
Bald eagle  
Bay anchovy  
Black drum

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

Black duck  
Black rail  
Black scoter (common)  
Black skimmer  
Black-bellied plover  
Black-crowned night heron  
Black-necked stilt  
Blue crab  
Blue mussel  
Blueback herring  
Bluefish  
Blue-winged teal  
Bonapartes gull  
Bottlenose dolphin  
Brackishwater clam  
Brant  
Brown pelican  
Brown shrimp  
Bufflehead  
Calico scallop  
Canada goose  
Canvasback  
Carolina goldenrod  
Carolina grasswort  
Carolina spleenwort  
Caspian tern  
Cattle egret  
Clapper rail  
Cobia  
Common goldeneye  
Common loon  
Common merganser  
Common moorhen  
Common snipe  
Common tern  
Cormorant  
Curlew sandpiper  
Diamondback terrapin  
Double-crested cormorant  
Dowitcher  
Dunlin  
Eiders  
Forsters tern  
Gadwall  
Glossy ibis

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

Godfreys sandwort  
Goldeneye  
Grass shrimp  
Gray snapper  
Great black-backed gull  
Great blue heron  
Great egret  
Greater yellowlegs  
Green sea turtle  
Green-backed heron  
Green-winged teal  
Gulf flounder  
Gull-billed tern  
Gulls  
Hawksbill sea turtle  
Herring gull  
Hooded merganser  
Horned grebe  
Kemps ridley sea turtle  
King rail  
Ladyfish  
Laughing gull  
Least bittern  
Least sandpiper  
Least tern  
Leatherback sea turtle  
Lesser yellowlegs  
Little blue heron  
Loggerhead sea turtle  
Long-billed curlew  
Long-billed dowitcher  
Mallard  
Marbled godwit  
Merganser  
Merlin  
Mummichog  
Northern gannet  
Northern harrier  
Northern pintail  
Northern shoveler  
Oldsquaw  
Osprey  
Pectoral sandpiper  
Peregrine falcon  
Pied-billed grebe

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

Pinfish  
Pink shrimp  
Piping plover  
Purple sandpiper  
Quahog spp. (hard clam)  
Red drum  
Red knot  
Red-breasted merganser  
Reddish egret  
Redhead  
Red-throated loon  
Ring-billed gull  
Ring-necked duck  
Roseate tern  
Royal tern  
Ruddy duck  
Ruddy turnstone  
Saltmarsh spikerush  
Sanderling  
Sandwich tern  
Scaup  
Scoter  
Seabeach amaranth  
Seagrass  
Seaside sparrow  
Seatrout (weakfish)  
Semipalmated plover  
Semipalmated sandpiper  
Sharp-tailed sparrow  
Shearwaters  
Sheepshead  
Sheepshead minnow  
Shorebirds  
Short-billed dowitcher  
Shortnose sturgeon  
Silversides  
Snow goose  
Snowy egret  
Sooty tern  
Sora rail  
Southern flounder  
Southern kingfish (whiting)  
Spanish mackerel  
Spot  
Spotted seatrout

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

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Spring flowering goldenrod  
Stilt sandpiper  
Striped bass  
Striped mullet  
Summer flounder  
Surf scoter  
Terns  
Tricolored heron  
Virginia joint-vetch  
Virginia rail  
Wading birds  
Waterfowl  
Western sandpiper  
Whimbrel  
Whistling swan (tundra swan)  
White ibis  
White perch  
White shrimp  
White-rumped sandpiper  
Willet  
Wilson's plover  
Wood duck  
Wood stork  
Yellow fringeless orchid  
Yellow rail  
Yellow-crowned night heron

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**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

GEN\_SPEC

**5.1.2.2. ATTRIBUTE DEFINITION:**

Species scientific name

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

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Acipenser brevirostrum  
Acipenser oxyrinchus  
Aeschynomene virginica  
Aix sponsa  
Alligator mississippiensis  
Alosa aestivalis  
Alosa pseudoharengus  
Alosa sapidissima  
Amaranthus pumilus  
Ammodramus maritimus  
Ammodramus maritimus  
Ammodramus maritimus  
Ammodramus maritimus  
Anas acuta  
Anas americana  
Anas clypeata  
Anas crecca  
Anas discors  
Anas platyrhynchos  
Anas rubripes  
Anas strepera  
Anchoa mitchilli  
Anguilla rostrata  
Anhinga anhinga  
Archosargus probatocephalus  
Ardea herodias  
Arenaria interpres  
Argopecten gibbus  
Argopecten irradians  
Asplenium heteroresiliens  
Aythya americana  
Aythya collaris  
Aythya spp.  
Aythya valisineria  
Botaurus lentiginosus  
Branta bernicla  
Branta canadensis  
Brevoortia tyrannus  
Bubulcus ibis  
Bucephala albeola  
Bucephala clangula  
Bucephala spp.  
Butorides striatus  
Calidris alba  
Calidris alpina  
Calidris canutus

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

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*Calidris ferruginea*  
*Calidris fuscicollis*  
*Calidris himantopus*  
*Calidris maritima*  
*Calidris mauri*  
*Calidris melanotos*  
*Calidris minutilla*  
*Calidris pusilla*  
*Callinectes sapidus*  
*Caretta caretta*  
*Casmerodius albus*  
*Catoptrophorus semipalmatus*  
*Charadrius melodus*  
*Charadrius semipalmatus*  
*Charadrius wilsonia*  
*Chelonia mydas*  
*Chen caerulescens*  
*Circus cyaneus*  
*Clangula hyemalis*  
*Coturnicops noveboracensis*  
*Crassostrea virginica*  
*Cynoscion nebulosus*  
*Cynoscion regalis*  
*Cyprinodon variegatus*  
*Dermochelys coriacea*  
*Egretta caerulea*  
*Egretta rufescens*  
*Egretta thula*  
*Egretta tricolor*  
*Eleocharis halophila*  
*Elops saurus*  
*Eretmochelys imbricata*  
*Eudocimus albus*  
*Falco columbarius*  
*Falco peregrinus*  
*Fulica americana*  
*Fundulus heteroclitus*  
*Gallinago gallinago*  
*Gallinula chloropus*  
*Gavia immer*  
*Gavia stellata*  
*Haematopus palliatus*  
*Haliaeetus leucocephalus*  
*Himantopus mexicanus*  
*Ixobrychus exilis*

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

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Lagodon rhomboides  
Larus argentatus  
Larus atricilla  
Larus delawarensis  
Larus marinus  
Larus philadelphia  
Laterallus jamaicensis  
Leiostomus xanthurus  
Lepidochelys kempii  
Lilaeopsis carolinensis  
Limnodromus griseus  
Limnodromus scolopaceus  
Limnodromus spp.  
Limosa fedoa  
Lophodytes cucullatus  
Lutjanus griseus  
Malaclemys terrapin  
Melanitta nigra  
Melanitta perspicillata  
Melanitta spp.  
Menidia spp.  
Menticirrhus americanus  
Mercenaria spp.  
Mergus merganser  
Mergus serrator  
Mergus spp.  
Micropogonias undulatus  
Minuartia godfreyi  
Morone americana  
Morone saxatilis  
Morus bassanus  
Mugil cephalus  
Mycteria americana  
Mytilus edulis  
Numenius americanus  
Numenius phaeopus  
Nyctanassa violacea  
Nycticorax nycticorax  
Olor columbianus  
Oxyura jamaicensis  
Palaemonetes sp.  
Pandion haliaetus  
Paralichthys albigutta  
Paralichthys dentatus  
Paralichthys lethostigma



**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

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*Pelecanus occidentalis*  
*Penaeus aztecus*  
*Penaeus duorarum*  
*Penaeus setiferus*  
*Phalacrocorax auritus*  
*Phalacrocorax sp.*  
*Platanthera integra*  
*Plegadis falcinellus*  
*Pluvialis squatarola*  
*Podiceps auritus*  
*Podilymbus podiceps*  
*Pogonias cromis*  
*Pomatomus saltatrix*  
*Porzana carolina*  
*Rachycentron canadum*  
*Rallus elegans*  
*Rallus limicola*  
*Rallus longirostris*  
*Rangia cuneata*  
*Recurvirostra americana*  
*Rynchops niger*  
*Sciaenops ocellatus*  
*Scomberomorus maculatus*  
*Solidago pulchra*  
*Solidago verna*  
*Somateria spp.*  
*Sterna antillarum*  
*Sterna caspia*  
*Sterna dougallii*  
*Sterna fosteri*  
*Sterna fuscata*  
*Sterna hirundo*  
*Sterna maxima*  
*Sterna nilotica*  
*Sterna sandvicensis*  
*Tringa flavipes*  
*Tringa melanaleuca*  
*Tursiops truncatus*

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**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

S\_F

**5.1.2.2. ATTRIBUTE DEFINITION:**

State and Federal status

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

F	Federally listed
S	State listed
S/F	State and Federally listed

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:**

USFWS

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

T\_E

**5.1.2.2. ATTRIBUTE DEFINITION:**

Threatened and endangered status

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

E	Endangered
E/E	Endangered on State and Federal lists
E/T	Endangered on State lists; Threatened on Federal lists
T	Threatened
T/T	Threatened on State and Federal lists

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:**

USFWS

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

NHP

**5.1.2.2. ATTRIBUTE DEFINITION:**

This field is blank because no NHP information was gathered when this atlas was published. The field is included here to maintain consistency with the latest ESI data structure.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

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Not supplied with this atlas

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**5.1.2.1. ATTRIBUTE LABEL:**

DATE\_PUB

**5.1.2.2. ATTRIBUTE DEFINITION:**

This field is blank because no NHP information was gathered when this atlas was published. The field is included here to maintain consistency with the latest ESI data structure.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

Not supplied with this atlas

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**5.1.2.1. ATTRIBUTE LABEL:**

CONC

**5.1.2.2. ATTRIBUTE DEFINITION:**

Relative or actual count of a species concentration at a specific location. Field is blank if no data are available

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

JAN

**5.1.2.2. ATTRIBUTE DEFINITION:**

Present in January

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

X

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

Present  
(blank) Not Present

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

FEB

**5.1.2.2. ATTRIBUTE DEFINITION:**

Present in February

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

X

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

Present  
(blank) Not Present

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

MAR

**5.1.2.2. ATTRIBUTE DEFINITION:**

Present in March

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

<b>5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:</b>	<b>5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:</b>
X	Present (blank) Not Present

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:**  
Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

APR

**5.1.2.2. ATTRIBUTE DEFINITION:**

Present in April

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

<b>5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:</b>	<b>5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:</b>
X	Present (blank) Not Present

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:**  
Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

MAY

**5.1.2.2. ATTRIBUTE DEFINITION:**

Present in May

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
X	Present (blank) Not Present
5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:	
Research Planning, Inc.	
5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT: nominal	
5.1.2.1. ATTRIBUTE LABEL: JUN	
5.1.2.2. ATTRIBUTE DEFINITION: Present in June	
5.1.2.3. ATTRIBUTE DEFINITION SOURCE: Research Planning, Inc.	
5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
X	Present (blank) Not Present
5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:	
Research Planning, Inc.	
5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT: nominal	
5.1.2.1. ATTRIBUTE LABEL: JUL	
5.1.2.2. ATTRIBUTE DEFINITION: Present in July	
5.1.2.3. ATTRIBUTE DEFINITION SOURCE: Research Planning, Inc.	

<b>5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:</b>	<b>5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:</b>
X	Present (blank) Not Present
<hr/>	
<b>5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:</b> Research Planning, Inc.	
<b>5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:</b> nominal	
<b>5.1.2.1. ATTRIBUTE LABEL:</b> AUG	
<b>5.1.2.2. ATTRIBUTE DEFINITION:</b> Present in August	
<b>5.1.2.3. ATTRIBUTE DEFINITION SOURCE:</b> Research Planning, Inc.	
<b>5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:</b>	<b>5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:</b>
X	Present (blank) Not Present
<hr/>	
<b>5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:</b> Research Planning, Inc.	
<b>5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:</b> nominal	
<b>5.1.2.1. ATTRIBUTE LABEL:</b> SEP	
<b>5.1.2.2. ATTRIBUTE DEFINITION:</b> Present in September	
<b>5.1.2.3. ATTRIBUTE DEFINITION SOURCE:</b> Research Planning, Inc.	

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
X	Present (blank) Not Present
5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:	
Research Planning, Inc.	
5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT: nominal	
5.1.2.1. ATTRIBUTE LABEL: OCT	
5.1.2.2. ATTRIBUTE DEFINITION: Present in October	
5.1.2.3. ATTRIBUTE DEFINITION SOURCE: Research Planning, Inc.	
5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
X	Present (blank) Not Present
5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:	
Research Planning, Inc.	
5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT: nominal	
5.1.2.1. ATTRIBUTE LABEL: NOV	
5.1.2.2. ATTRIBUTE DEFINITION: Present in November	
5.1.2.3. ATTRIBUTE DEFINITION SOURCE: Research Planning, Inc.	



<b>5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:</b>	<b>5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:</b>
X	Present (blank) Not Present
<hr/>	
<b>5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:</b> Research Planning, Inc.	
<b>5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:</b> nominal	
<b>5.1.2.1. ATTRIBUTE LABEL:</b> DEC	
<b>5.1.2.2. ATTRIBUTE DEFINITION:</b> Present in December	
<b>5.1.2.3. ATTRIBUTE DEFINITION SOURCE:</b> Research Planning, Inc.	
<b>5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:</b>	<b>5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:</b>
X	Present (blank) Not Present
<hr/>	
<b>5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:</b> Research Planning, Inc.	
<b>5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:</b> nominal	
<b>5.1.2.1. ATTRIBUTE LABEL:</b> BREED1	
<b>5.1.2.2. ATTRIBUTE DEFINITION:</b> Species' breeding or life stage textual summary where: if ELEMENT = BIRD then BREED1 = nesting; if ELEMENT = FISH then BREED1 = spawning; if ELEMENT = INVERT then BREED1 = spawning; if ELEMENT = REPTILE then BREED1 = nesting; if ELEMENT = M_MAMMAL then BREED1 = mating	

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

XXX-XXX	3 character abbreviation of start and end month of breed1 activities
-	Not Occurring
N/A	No breed1 activities for this element

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

BREED2

**5.1.2.2. ATTRIBUTE DEFINITION:**

Species' breeding or life stage textual summary where:

if ELEMENT = BIRD then BREED2 = laying;

if ELEMENT = FISH then BREED2 = outmigration;

if ELEMENT = INVERT then BREED2 = larvae;

if ELEMENT = REPTILE then BREED2 = hatching;

if ELEMENT = M\_MAMMAL then BREED2 = calving

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

XXX-XXX	3 character abbreviation of start and end month of breed2 activities
-	Not Occurring
N/A	No breed2 activities for this element

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

BREED3

**5.1.2.2. ATTRIBUTE DEFINITION:**

Species' breeding or life stage textual summary where:  
 if ELEMENT = BIRD then BREED3 = hatching;  
 if ELEMENT = FISH then BREED3 = larvae;  
 if ELEMENT = INVERT then BREED3 = mating;  
 if ELEMENT = REPTILE then BREED3 = interesting;  
 if ELEMENT = M\_MAMMAL then BREED3 = pupping

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

XXX-XXX	3 character abbreviation of start and end month of breed3 activities
-	Not Occurring
N/A	No breed3 activities for this element

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

BREED4

**5.1.2.2. ATTRIBUTE DEFINITION:**

Species' breeding or life stage textual summary where:  
 if ELEMENT = BIRD then BREED4 = fledging;  
 if ELEMENT = FISH then BREED4 = juveniles;  
 if ELEMENT = INVERT then BREED4 = juveniles;  
 if ELEMENT = REPTILE then BREED4 = juveniles;  
 if ELEMENT = M\_MAMMAL then BREED4 = molting

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
XXX-XXX	3 character abbreviation of start and end month of breed4 activities
-	Not Occurring
N/A	No breed4 activities for this element

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:**  
NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

BREED5

**5.1.2.2. ATTRIBUTE DEFINITION:**

Species' breeding or life stage textual summary where:

if ELEMENT = FISH then BREED5 = adults;

if ELEMENT = INVERT then BREED5 = adults;

if ELEMENT = REPTILE then BREED5 = adults;

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
XXX-XXX	3 character abbreviation of start and end month of breed5 activities
-	Not Occurring
N/A	No breed5 activities for this element

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:**  
NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

RARNUM

**5.1.2.2. ATTRIBUTE DEFINITION:**

An identifier that links directly back to the biological data layers or to the BIO\_LUT lookup table

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

G\_SOURCE

**5.1.2.2. ATTRIBUTE DEFINITION:**

Geographic source identifier that links to the flat file's supplementary data table SOURCES

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

1-N

Unique number

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

S\_SOURCE

**5.1.2.2. ATTRIBUTE DEFINITION:**

Seasonality source identifier that links to the flat file's supplementary data table SOURCES

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

1-N

Unique number

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

BREED

**5.1.2.2. ATTRIBUTE DEFINITION:**

Breed identifier that links to the flat file's supplementary data table BREED\_DT that allows searches of breeding activities by month.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

1-N

Unique number

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1. DETAILED DESCRIPTION: BIORES**

The data table BIORES contains the attributes necessary for linking to several spatial data layers and other data tables.

**5.1.1. ENTITY TYPES:**

<b>5.1.1.1. ENTITY TYPE LABEL:</b>	<b>5.1.1.2. ENTITY TYPE DEFINITION:</b>
<u>Attributes</u>	RARNUM integer SPECIES_ID integer CONC character SEASON_ID integer G_SOURCE integer S_SOURCE integer ELEMENT character EL_SPE character EL_SPE_SEA character

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

RARNUM

**5.1.2.2. ATTRIBUTE DEFINITION:**

An identifier that links to the BIO\_LUT table and directly back to the biology coverages

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

1-N

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

Unique number

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**  
SPECIES\_ID

**5.1.2.2. ATTRIBUTE DEFINITION:**  
Numeric identifier for each species that is unique within each element and refers to a nationwide ESI species list maintained by NOAA

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**  
Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

1-N

Unique number

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**  
Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**  
nominal

**5.1.2.1. ATTRIBUTE LABEL:**  
CONC

**5.1.2.2. ATTRIBUTE DEFINITION:**  
Relative or actual count of a species concentration at a specific location. Field is blank if no data are available.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**  
Research Planning, Inc.

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**  
Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**  
nominal

**5.1.2.1. ATTRIBUTE LABEL:**  
SEASON\_ID

**5.1.2.2. ATTRIBUTE DEFINITION:**  
A link from the BIORES table to the SEASONAL table.



**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

<b>5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:</b>	<b>5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:</b>
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1-N

Unique number

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

G\_SOURCE

**5.1.2.2. ATTRIBUTE DEFINITION:**

Geographic source identifier that links to the SOURCES data table

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

<b>5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:</b>	<b>5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:</b>
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1-N

Unique number

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

S\_SOURCE

**5.1.2.2. ATTRIBUTE DEFINITION:**

Seasonality source identifier that links to the SOURCES data table

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

1-N

Unique number

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

ELEMENT

**5.1.2.2. ATTRIBUTE DEFINITION:**

Major categories of biological data

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

BIRD  
FISH  
HABITAT  
INVERT  
M\_MAMMAL  
REPTILE

Birds  
Fish  
Habitats and Rare Plants  
Invertebrates  
Marine Mammals  
Reptiles and Amphibians

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

EL\_SPE

**5.1.2.2. ATTRIBUTE DEFINITION:**

Concatenation of the first character of the ELEMENT and the SPECIES\_ID that provides a link to the SPECIES table.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

EL\_SPE\_SEA

**5.1.2.2. ATTRIBUTE DEFINITION:**

Concatenation of the first character of the ELEMENT, the SPECIES\_ID, and the SEASON\_ID that provides a link to the SEASONAL table.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

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### 5.1. DETAILED DESCRIPTION: BIRDS

The data layer BIRDS contains the polygons with bird species. Birds are divided into several species subgroups based on taxonomy, morphology, behavior, and oil spill vulnerability and sensitivity. The species table lists all the birds included on the maps, sorted by subgroup. These species were included either because of their likelihood of impact by an oil spill, or their special protection status as threatened or endangered.

Waterfowl, diving birds (pelicans, cormorants, and loons), and pelagic birds (gannets and shearwaters) are usually at greatest risk during oil spills, because they spend nearly all of their time on the water surface, and/or because they become partially or entirely immersed while feeding. Waterfowl can also be contaminated through contact with oiled wetland vegetation. Wading birds are usually at slightly lesser risk, primarily because they become oiled mainly on the legs and bill while wading for prey. Wading bird feathers and upper body parts can be more extensively contaminated, however, by contact with oiled vegetation. Shorebirds usually avoid oil, but may be impacted by loss of feeding areas or intertidal prey, particularly during important migration periods. Gulls may be at risk because they are often attracted to and will prey on sick or injured prey. This behavior may result in oiling of feathers and the ingestion of oil. Terns are additionally at risk when they dive for prey. Raptors may also prey on oiled or injured species and thus may be contaminated themselves or ingest oil. Osprey may additionally be oiled while diving for fish. Passerine birds are typically not at great risk during spills; however, response activities can disturb nesting or damage coastal habitat for these species. Passerine birds of concern during spills include threatened or endangered species, especially if they nest near the shoreline or in wetland habitats such as marshes.

The following BIRDS species are found in the North Carolina ESI atlas:

SPECIES ID	NAME
1	Common loon
3	Red-throated loon
5	Horned grebe
8	Double-crested cormorant
11	Whistling swan (tundra swan)
12	Canada goose
13	Brant

NORTH CAROLINA METADATA

<b>SPECIES ID</b>	<b>NAME</b>
15	Snow goose
16	Mallard
17	Northern pintail
18	Green-winged teal
20	Northern shoveler
21	Canvasback
24	Common goldeneye
26	Bufflehead
27	Oldsquaw
30	Surf scoter
32	Common merganser
33	Red-breasted merganser
34	American coot
38	Herring gull
40	Ring-billed gull
42	Bonaparte's gull
45	Common tern
54	Great blue heron
55	Whimbrel
58	Greater yellowlegs
59	Lesser yellowlegs
60	Red knot
61	Pectoral sandpiper
62	Least sandpiper
63	Dunlin
64	Short-billed dowitcher
65	Long-billed dowitcher
66	Western sandpiper
67	Sanderling
69	Semipalmated plover
71	Black-bellied plover
73	Ruddy turnstone
77	Osprey
79	Cormorant
86	Least tern
87	Little blue heron
88	Great egret
89	Snowy egret
90	Black-crowned night heron
91	Glossy ibis
92	Great black-backed gull
93	Cattle egret
94	Tricolored heron
97	Green-backed heron

<b>SPECIES ID</b>	<b>NAME</b>
98	Laughing gull
115	White ibis
118	Brown pelican
120	Yellow-crowned night heron
121	Anhinga
124	Redhead
125	Clapper rail
127	Sooty tern
133	Black skimmer
134	Gull-billed tern
135	Sandwich tern
136	Caspian tern
137	Royal tern
138	Forster's tern
141	American avocet
142	Black-necked stilt
148	Ruddy duck
150	Black rail
152	American oystercatcher
154	Wilson's plover
155	Willet
156	Semipalmated sandpiper
162	Gadwall
163	Reddish egret
167	Northern gannet
169	American wigeon
178	Least bittern
179	Pied-billed grebe
180	Ring-necked duck
181	Northern harrier
184	King rail
185	American bittern
186	Black duck
187	Virginia rail
188	Sora rail
189	Yellow rail
190	Blue-winged teal
191	Wood duck
192	Common moorhen
196	Common snipe
197	Black scoter (common)
198	Hooded merganser
209	Long-billed curlew
210	Marbled godwit

SPECIES ID	NAME
213	Stilt sandpiper
220	Merlin
234	Purple sandpiper
238	White-rumped sandpiper
277	Seaside sparrow
278	Sharp-tailed sparrow
286	Dowitcher
299	Scaup
300	Goldeneye
301	Merganser
302	Scoter
303	Curlew sandpiper
1,001	Gulls
1,002	Shorebirds
1,003	Waterfowl
1,004	Wading birds
1,008	Terns
1,009	Shearwaters
1,020	Eiders

**5.1.1. ENTITY TYPES:**

**5.1.1.1. ENTITY TYPE LABEL:**

GT-Polygons

**5.1.1.2. ENTITY TYPE DEFINITION:**

ID	integer
RARNUM	integer

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

A unique identifier that links to the BIO\_LUT table. ID is a concatenation of atlas number (35), element number (1), and record number. ID values of 9999 are holes in polygons and do not contain information.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:**

NOAA



**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

RARNUM

**5.1.2.2. ATTRIBUTE DEFINITION:**

An identifier that links directly to the BIORES table or the flat format BIOFILE table

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

1-N

Unique number

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

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**5.1. DETAILED DESCRIPTION: BREED**

The data table BREED identifies the life stages and abundances, by month, for each species. (There are no breeding activities for HABITAT or HAB\_PT elements.)

**5.1.1. ENTITY TYPES:**

<b>5.1.1.1. ENTITY TYPE LABEL:</b>	<b>5.1.1.2. ENTITY TYPE DEFINITION:</b>
<u>Attributes</u>	EL_SPE_SEA      character MONTH            integer BREED1            character BREED2            character BREED3            character BREED4            character BREED5            character

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

EL\_SPE\_SEA

**5.1.2.2. ATTRIBUTE DEFINITION:**

Concatenation of the first character of the ELEMENT, the SPECIES\_ID, and the SEASON\_ID. Links to BIORES and SEASONAL data tables. If a species has any different monthly presence or breeding activity, a new seasonality record is used to accommodate the variable nature of the species across the study area

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

MONTH

**5.1.2.2. ATTRIBUTE DEFINITION:**

Two-digit integer corresponding to the calendar month. Can have up to 12 records to account for each month of the year

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

---

1	January
2	February
3	March
4	April
5	May
6	June
7	July
8	August
9	September
10	October
11	November
12	December

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

BREED1

**5.1.2.2. ATTRIBUTE DEFINITION:**

Species' breeding or life stage information where:  
 if EL\_SPE\_SEA contains "B" then BREED1 = nesting;  
 if EL\_SPE\_SEA contains "F" then BREED1 = spawning;  
 if EL\_SPE\_SEA contains "I" then BREED1 = spawning;  
 if EL\_SPE\_SEA contains "R" then BREED1 = nesting;  
 if EL\_SPE\_SEA contains "M" then BREED1 = mating

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

N	Not occurring
Y	Occurring

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

BREED2

**5.1.2.2. ATTRIBUTE DEFINITION:**

Species' breeding or life stage information where:  
 if EL\_SPE\_SEA contains "B" then BREED2 = laying;  
 if EL\_SPE\_SEA contains "F" then BREED2 = outmigration;  
 if EL\_SPE\_SEA contains "I" then BREED2 = larvae;  
 if EL\_SPE\_SEA contains "R" then BREED2 = hatching;  
 if EL\_SPE\_SEA contains "M" then BREED2 = calving

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

N	Not occurring
Y	Occurring

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

BREED3

**5.1.2.2. ATTRIBUTE DEFINITION:**

Species' breeding or life stage information where:  
 if EL\_SPE\_SEA contains "B" then BREED3 = hatching;  
 if EL\_SPE\_SEA contains "F" then BREED3 = larvae;  
 if EL\_SPE\_SEA contains "I" then BREED3 = mating;  
 if EL\_SPE\_SEA contains "R" then BREED3 = interesting;  
 if EL\_SPE\_SEA contains "M" then BREED3 = pupping

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

N	Not occurring
Y	Occurring

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

BREED4

**5.1.2.2. ATTRIBUTE DEFINITION:**

Species' breeding or life stage information where:  
 if EL\_SPE\_SEA contains "B" then BREED4 = fledging;  
 if EL\_SPE\_SEA contains "F" then BREED4 = juveniles;  
 if EL\_SPE\_SEA contains "I" then BREED4 = juveniles;  
 if EL\_SPE\_SEA contains "R" then BREED4 = juveniles;  
 if EL\_SPE\_SEA contains "M" then BREED4 = molting

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
N	Not occurring
Y	Occurring

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:  
Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:  
nominal

5.1.2.1. ATTRIBUTE LABEL:  
BREED5

5.1.2.2. ATTRIBUTE DEFINITION:  
Species' breeding or life stage information where:  
if EL\_SPE\_SEA contains "F" then BREED5 = adults;  
if EL\_SPE\_SEA contains "I" then BREED5 = adults;  
if EL\_SPE\_SEA contains "R" then BREED5 = adults

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:  
Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
N	Not occurring
Y	Occurring

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:  
Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:  
nominal

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**5.1. DETAILED DESCRIPTION: BREED\_DT**

The data table BREED\_DT is a supplement to the flat format BIOFILE that allows searches to be conducted for life stage activities by month. This is a condensed version of the BREED table where multiple species of the same element may link to the same BREED\_DT records. (There are no breeding activities for the HABITAT or HAB\_PT elements.)

**5.1.1. ENTITY TYPES:**

**5.1.1.1. ENTITY TYPE LABEL:**

Attributes

**5.1.1.2. ENTITY TYPE DEFINITION:**

BREED integer  
 MONTH integer  
 BREED1 character  
 BREED2 character  
 BREED3 character  
 BREED4 character  
 BREED5 character

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

BREED

**5.1.2.2. ATTRIBUTE DEFINITION:**

An integer value that links from the BIOFILE to the BREED\_DT table

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

1-N

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

Unique number

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

MONTH

**5.1.2.2. ATTRIBUTE DEFINITION:**

Two-digit integer corresponding to the calendar month. Each month is listed whether any special life activity is occurring or not.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

1	January
2	February
3	March
4	April
5	May
6	June
7	July
8	August
9	September
10	October
11	November
12	December

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

BREED1

**5.1.2.2. ATTRIBUTE DEFINITION:**

Species' breeding or life stage information where:  
 if EL\_SPE\_SEA contains "B" then BREED1 = nesting;  
 if EL\_SPE\_SEA contains "F" then BREED1 = spawning;  
 if EL\_SPE\_SEA contains "I" then BREED1 = spawning;  
 if EL\_SPE\_SEA contains "R" then BREED1 = nesting;  
 if EL\_SPE\_SEA contains "M" then BREED1 = mating

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

N	Not occurring
Y	Occurring
-	No Breed1 activity for this element

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

BREED2

**5.1.2.2. ATTRIBUTE DEFINITION:**

Species' breeding or life stage information where:  
 if EL\_SPE\_SEA contains "B" then BREED2 = laying;  
 if EL\_SPE\_SEA contains "F" then BREED2 = outmigration;  
 if EL\_SPE\_SEA contains "I" then BREED2 = larvae;  
 if EL\_SPE\_SEA contains "R" then BREED2 = hatching;  
 if EL\_SPE\_SEA contains "M" then BREED2 = calving

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

N	Not occurring
Y	Occurring
-	No Breed2 activity for this element

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

BREED3

**5.1.2.2. ATTRIBUTE DEFINITION:**

Species' breeding or life stage information where:  
 if EL\_SPE\_SEA contains "B" then BREED3 = hatching;  
 if EL\_SPE\_SEA contains "F" then BREED3 = larvae;  
 if EL\_SPE\_SEA contains "I" then BREED3 = mating;  
 if EL\_SPE\_SEA contains "R" then BREED3 = interesting;  
 if EL\_SPE\_SEA contains "M" then BREED3 = pupping

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

N	Not occurring
Y	Occurring
-	No Breed3 activity for this element

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

BREED4

**5.1.2.2. ATTRIBUTE DEFINITION:**

Species' breeding or life stage information where:  
 if EL\_SPE\_SEA contains "B" then BREED4 = fledging;  
 if EL\_SPE\_SEA contains "F" then BREED4 = juveniles;  
 if EL\_SPE\_SEA contains "I" then BREED4 = juveniles;  
 if EL\_SPE\_SEA contains "R" then BREED4 = juveniles;  
 if EL\_SPE\_SEA contains "M" then BREED4 = molting

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

N  
Y  
-

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

Not occurring  
Occurring  
No Breed4 activity for this element

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

BREED5

**5.1.2.2. ATTRIBUTE DEFINITION:**

Species' breeding or life stage information where:  
if EL\_SPE\_SEA contains "F" then BREED5 = adults;  
if EL\_SPE\_SEA contains "I" then BREED5 = adults;  
if EL\_SPE\_SEA contains "R" then BREED5 = adults

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

N  
Y  
-

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

Not occurring  
Occurring  
No Breed5 activity for this element

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

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**5.1. DETAILED DESCRIPTION: ESI**

The data layer ESI contains arc (Complete Chains) and polygonal (GT-Polygons) features for the ESI shoreline classification and is based on *Guidelines for Developing Digital Environmental Sensitivity Index Atlases and Data-bases* (Michel, J. and J. Dahlin, 1993, Hazardous Materials Response and Assessment Division, NOAA). The ESI classification was performed in April 1995.

**5.1.1. ENTITY TYPES:**

5.1.1.1.	ENTITY TYPE LABEL:	5.1.1.2.	ENTITY TYPE DEFINITION:
	<u>Complete Chain</u>		ESI character LINE character SOURCE_ID integer
	<u>GT-Polygons</u>		ENVIR character ESI character WATER_CODE character

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

ESI

**5.1.2.2. ATTRIBUTE DEFINITION:**

The intertidal habitats of North Carolina were originally mapped during overflights conducted in July 1981. They were updated onto 1:24,000 U.S. Geological Survey (USGS) topographic maps by an experienced coastal geologist in January 1996 using a set of 1:800 color vertical aerial photographs from late 1989. Where appropriate, multiple habitats were delineated for each shoreline segment. Portions of the coast were flown in February 1996 to verify the photo-interpretation. The aerial surveys were carried out using a helicopter, flying at elevations of 300-500 feet and slow air speed.

Prediction of the behavior and persistence of oil on intertidal habitats is based on an understanding of the dynamics of the coastal environments, not just the substrate type and grain

size. The sensitivity of a particular intertidal habitat is an integration of the following factors:

- 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

All of these factors are used to determine the relative sensitivity of intertidal habitats. Key to the sensitivity ranking is an understanding of the relationships between: physical processes, substrate, shoreline type, product type, fate and effect, and sediment transport patterns. 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.

These concepts have been used in the development of the ESI, which ranks shoreline environments as to their relative sensitivity to oil spills, potential biological injury, and ease of cleanup. 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. A comprehensive shoreline habitat ranking system has been developed for the entire U.S. The shoreline habitats present in North Carolina are listed below in order of increasing sensitivity to spilled oil.

- 1B) Exposed, Solid Man-made Structures
- 3A) Fine-grained Sand Beaches
- 3B) Scarps and Steep Slopes in Sand
- 4) Medium- to Coarse-grained Sand Beaches
- 6B) Riprap
- 7) Exposed Tidal Flats
- 8A) Sheltered Scarps in Mud
- 8B) Sheltered, Solid Man-made Structures



- 9A) Sheltered Tidal Flats
- 9B) Vegetated Low Riverine Banks
- 10A) Salt- and Brackish-water Marshes
- 10B) Freshwater Marshes
- 10C) Freshwater Swamps
- 10D) Scrub-Shrub Wetlands

These shoreline habitats are described in terms of their physical description, predicted oil behavior, and response considerations.

The item ESI contains values according to the ESI ranking of the shorelines and polygons. The ESI rankings progress from low to high susceptibility to oil spills. The North Carolina shoreline types are listed below. In many cases, the shorelines are also ranked with multiple codes such as 10/7. The first number is the most landward shoreline type, salt marsh, with exposed tidal flats being the shoreline type closest to the water. ESI polygons were derived from National Wetlands Inventory data. The polygons were recoded to ESI types using the scheme outlined in Table 1.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

<b>5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:</b>	<b>5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:</b>
1B	Exposed, Solid Man-made Structures
1B/3A	Exposed, Solid Man-made Structures/Fine-grained Sand Beaches
1B/3B	Exposed, Solid Man-made Structures/Scarps and Steep Slopes in Sand
1B/3B/4	Exposed, Solid Man-made Structures/Scarps and Steep Slopes in Sand/Medium- to Coarse-grained Sand Beaches
1B/4	Exposed, Solid Man-made Structures/Medium- to Coarse-grained Sand Beaches
1B/4/7	Exposed, Solid Man-made Structures/Medium- to Coarse-grained Sand Beaches/Exposed Tidal Flats
1B/6B	Exposed, Solid Man-made Structures/Riprap

<b>5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:</b>	<b>5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:</b>
1B/6B/4	Exposed, Solid Man-made Structures/Riprap/Medium- to Coarse-grained Sand Beaches
1B/6B/7	Exposed, Solid Man-made Structures/Riprap/Exposed Tidal Flats
1B/7	Exposed, Solid Man-made Structures/Exposed Tidal Flats
1B/10A	Exposed, Solid Man-made Structures/Salt and Brackish-water Marshes
1B/10A/4	Exposed, Solid Man-made Structures/Salt and Brackish-water Marshes/Medium- to Coarse-grained Sand Beaches
1B/10A/7	Exposed, Solid Man-made Structures/Salt and Brackish-water Marshes/Exposed Tidal Flats
1B/10C	Exposed, Solid Man-made Structures/Freshwater Swamps
1B/10D	Exposed, Solid Man-made Structures/Scrub-Shrub Wetlands
3A	Fine-grained Sand Beaches
3A/4	Fine-grained Sand Beaches/Medium- to Coarse-grained Sand Beaches
3A/7	Fine-grained Sand Beaches/Exposed Tidal Flats
3B	Scarps and Steep Slopes in Sand
3B/1B	Scarps and Steep Slopes in Sand/Exposed, Solid Man-made Structures
3B/3A	Scarps and Steep Slopes in Sand/Fine-grained Sand Beaches
3B/3A/7	Scarps and Steep Slopes in Sand/Fine-grained Sand Beaches/Exposed Tidal Flats
3B/10A	Scarps and Steep Slopes in Sand/Salt and Brackish-water Marshes
3B/4	Scarps and Steep Slopes in Sand/Medium- to Coarse-grained Sand Beaches
3B/4/7	Scarps and Steep Slopes in Sand/Medium- to Coarse-grained Sand Beaches/Exposed Tidal Flats
3B/6B	Scarps and Steep Slopes in Sand/Riprap
3B/6B/4	Scarps and Steep Slopes in Sand/Riprap/Medium- to Coarse-grained Sand Beaches
3B/7	Scarps and Steep Slopes in Sand/Exposed Tidal Flats
3B/9A	Scarps and Steep Slopes in Sand/Sheltered Tidal Flats
3B/9B	Scarps and Steep Slopes in Sand/Vegetated Low Riverine Banks

<b>5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:</b>	<b>5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:</b>
3B/10A/7	Scarps and Steep Slopes in Sand/Salt and Brackish-water Marshes/Exposed Tidal Flats
4	Medium- to Coarse-grained Sand Beaches
4/7	Medium- to Coarse-grained Sand Beaches/Exposed Tidal Flats
6B	Riprap
6B/3A	Riprap/Fine-grained Sand Beaches
6B/4	Riprap/Medium- to Coarse-grained Sand Beaches
6B/7	Riprap/Exposed Tidal Flats
6B/8A	Riprap/Sheltered Scarps in Mud
6B/10A	Riprap/Salt and Brackish-water Marshes
7	Exposed Tidal Flats
7/4	Exposed Tidal Flats/Medium- to Coarse-grained Sand Beaches
8A	Sheltered Scarps in Mud
8A/6B	Sheltered Scarps in Mud/Riprap
8A/7	Sheltered Scarps in Mud/Exposed Tidal Flats
8A/9A	Sheltered Scarps in Mud/Sheltered Tidal Flats
8A/10A	Sheltered Scarps in Mud/Salt and Brackish-water Marshes
8A/10A/4	Sheltered Scarps in Mud/Salt and Brackish-water Marshes/Medium- to Coarse-grained Sand Beaches
8A/10B	Sheltered Scarps in Mud/Freshwater Marshes
8B	Sheltered, Solid Man-made Structures
9A	Sheltered Tidal Flats
9B	Vegetated Low Riverine Banks
9B/4	Vegetated Low Riverine Banks/Medium- to Coarse-grained Sand Beaches
9B/4/7	Vegetated Low Riverine Banks/Medium- to Coarse-grained Sand Beaches/Exposed Tidal Flats
9B/7	Vegetated Low Riverine Banks/Exposed Tidal Flats
9B/9A	Vegetated Low Riverine Banks/Sheltered Tidal Flats
9B/10A	Vegetated Low Riverine Banks/Salt and Brackish-water Marshes
10A	Salt and Brackish-water Marshes
10A/3A/7	Salt and Brackish-water Marshes/Fine-grained Sand Beaches/Exposed Tidal Flats
10A/4	Salt and Brackish-water Marshes/Medium- to Coarse-grained Sand Beaches

<b>5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:</b>	<b>5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:</b>
10A/4/7	Salt and Brackish-water Marshes/Medium- to Coarse-grained Sand Beaches/Exposed Tidal Flats
10A/6B	Salt and Brackish-water Marshes/Riprap
10A/7	Salt and Brackish-water Marshes/Exposed Tidal Flats
10A/9A	Salt and Brackish-water Marshes/Sheltered Tidal Flats
10B	Freshwater Marshes
10B/7	Freshwater Marshes/Exposed Tidal Flats
10C	Freshwater Swamps
10C/4	Freshwater Swamps/Medium- to Coarse-grained Sand Beaches
10C/4/7	Freshwater Swamps/Medium- to Coarse-grained Sand Beaches/Exposed Tidal Flats
10C/7	Freshwater Swamps/Exposed Tidal Flats
10C/10A	Freshwater Swamps/Salt and Brackish-water Marshes
10C/10A/4	Freshwater Swamps/Salt and Brackish-water Marshes/Medium- to Coarse-grained Sand Beaches
10C/10B	Freshwater Swamps/Freshwater Marshes
10C/10D	Freshwater Swamps/Scrub-Shrub Wetlands
10/D	Scrub-Shrub Wetlands
10D/4	Scrub-Shrub Wetlands/Medium- to Coarse-grained Sand Beaches
10D/7	Scrub-Shrub Wetlands/Exposed Tidal Flats
10D/7/4	Scrub-Shrub Wetlands/Exposed Tidal Flats/Medium- to Coarse-grained Sand Beaches
10D/9A	Scrub-Shrub Wetlands/Sheltered Tidal Flats
10D/10A	Scrub-Shrub Wetlands/Salt and Brackish-water Marshes
10D/10A/7	Scrub-Shrub Wetlands/Salt and Brackish-water Marshes/Exposed Tidal Flats
10D/10B	Scrub-Shrub Wetlands/Freshwater Marshes
U	Unranked

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

ordinal

**5.1.2.1. ATTRIBUTE LABEL:**

LINE

**5.1.2.2. ATTRIBUTE DEFINITION:**

Type of geographic feature

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

B	Breakwater
F	Flat
H	Hydrography or stream features
I	Index
M	Marsh
S	Shoreline

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

SOURCE\_ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

Data source for the ESI

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

0	1:24,000 NC CGIA shoreline
1	Aerial photography
4	RPI overflight
5	NWI
6	South Carolina shoreline
7	Biology Island for BIRDS

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

ENVIR

**5.1.2.2. ATTRIBUTE DEFINITION:**

Regional environment

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

E

Estuarine

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

WATER\_CODE

**5.1.2.2. ATTRIBUTE DEFINITION:**

Specifies a polygon as either water or land

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

L

Land

W

Water

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

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### 5.1. DETAILED DESCRIPTION: FISH

The data layer FISH contains the polygons with fish species. Fish and invertebrates included in the North Carolina atlas include estuarine-dependent and anadromous species. Species of commercial, recreational, or conservation interest are emphasized, although other species are included. Fish distributions are based on data compiled by the NOAA Strategic Environmental Assessments Division, under the Estuarine Living Marine Resources (ELMR) Program.

NOAA's ELMR program has developed a consistent database describing the distribution, abundance, and life history characteristics of important fish and invertebrates in U.S. estuaries. The spatial and temporal distribution of ELMR's categorical relative abundance data were assigned to North Carolina's estuaries based on regional and local fisheries science experts, survey reports, peer-reviewed literature, and existing quantitative data. The relative abundance categories (highly abundant, abundant, common, rare, and not present) are intended to simulate the categories often used by fisheries biologists. These abundance estimates were then verified through an extensive peer-review process utilizing the knowledge and field experience of fisheries scientists, managers, and biologists. The life histories included in the ELMR database include adult, juvenile, spawning, larval, and egg lifestages. The data summaries represent the best available source of information about the current distribution and abundance of selected species. The following FISH species are found in the North Carolina ESI atlas:

<b>SPECIES ID</b>	<b>NAME</b>
65	Bluefish
85	Alewife
86	Blueback herring
87	American shad
95	Mummichog
98	American eel
101	Shortnose sturgeon
102	Atlantic sturgeon
104	Striped bass
107	Spotted seatrout
108	Summer flounder
109	Red drum
111	Southern flounder
112	Gulf flounder

SPECIES ID	NAME
113	Bay anchovy
115	Atlantic menhaden
116	Striped mullet
117	Pinfish
121	Spot
122	Black drum
123	Atlantic croaker
124	Southern kingfish (whiting)
127	Spanish mackerel
134	Cobia
137	Sheepshead
138	Seatrout (weakfish)
140	Ladyfish
145	White perch
274	Sheepshead minnow
306	Gray snapper
335	Silversides

**5.1.1. ENTITY TYPES:**

**5.1.1.1. ENTITY TYPE LABEL:**

GT-Polygons

**5.1.1.2. ENTITY TYPE DEFINITION:**

ID	integer
RARNUM	integer

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

A unique identifier that links to the BIO\_LUT table. ID is a concatenation of atlas number (35), element number (2), and record number. ID values of 9999 are holes in polygons and do not contain information.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

RARNUM

**5.1.2.2. ATTRIBUTE DEFINITION:**

An identifier that links directly to the BIORES table or the flat format BIOFILE table

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

1-N

Unique number

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

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**5.1. DETAILED DESCRIPTION: HABITATS**

The data layer HABITATS contains the polygons with seagrass beds.

Intertidal seagrass beds are at greater risk from floating oil, as compared to subtidal beds. For most oil spills, the abundant animals associated with seagrass habitats are often at greater risk than the vegetation.

The following HABITATS species are found in the North Carolina ESI atlas:

SPECIES ID	NAME
85	Seagrass

**5.1.1. ENTITY TYPES:**

**5.1.1.1. ENTITY TYPE LABEL:**

GT-Polygons

**5.1.1.2. ENTITY TYPE DEFINITION:**

ID	integer
RARNUM	integer

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

A unique identifier that links to the BIO\_LUT table. ID is a concatenation of atlas number (35), element number (3), and record number. ID values of 9999 are holes in polygons and do not contain information.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

RARNUM

**5.1.2.2. ATTRIBUTE DEFINITION:**

An identifier that links directly to the BIORES table or the flat format BIOFILE table

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

1-N

Unique number

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1. DETAILED DESCRIPTION: HAB\_PT**

The data layer HAB\_PT contains the points with threatened or endangered plant species. For terrestrial plants, the primary risk during spills would be from disturbance, such as trampling, during response operations.

The following HAB\_PT species are found in the North Carolina ESI atlas:

SPECIES ID	NAME
144	Carolina grasswort
145	Seabeach amaranth
146	Yellow fringeless orchid
190	Virginia joint-vetch
206	Saltmarsh spikerush
207	Carolina goldenrod
208	Godfrey's sandwort
209	Spring flowering goldenrod
210	Carolina spleenwort

**5.1.1. ENTITY TYPES:**

**5.1.1.1. ENTITY TYPE LABEL:**

Entity Points

**5.1.1.2. ENTITY TYPE DEFINITION:**

ID	integer
RARNUM	integer

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

A unique identifier that links to the BIO\_LUT table. ID is a concatenation of atlas number (35), element number (33), and record number.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

RARNUM

**5.1.2.2. ATTRIBUTE DEFINITION:**

An identifier that links directly to the BIORES table or the flat format BIOFILE table

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

1-N

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

Unique number

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal



**5.1. DETAILED DESCRIPTION: HYDRO**

The data layer HYDRO contains polygonal water and land features as well as linear features for rivers and streams that are tidally influenced.

**5.1.1. ENTITY TYPES:**

**5.1.1. ENTITY TYPES:**

<b>5.1.1.1. ENTITY TYPE LABEL:</b>	<b>5.1.1.2. ENTITY TYPE DEFINITION:</b>
<u>GT-Polygons</u>	WATER_CODE    character
<u>Complete Chains</u>	LINE            character
	SOURCE_ID     integer

The LINE, SOURCE\_ID, and WATER\_CODE attributes are the same as in the ESI data layer. The HYDRO data layer contains all annotation used in producing the atlas. The annotation features are categorized into three subclasses in order to simplify the mapping and quality control procedures: geog or geographic features, soc or socioeconomic features, and hydro or water features.

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

WATER\_CODE

**5.1.2.2. ATTRIBUTE DEFINITION:**

Specifies a polygon as either water or land

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

L	Land
W	Water

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

LINE

**5.1.2.2. ATTRIBUTE DEFINITION:**

Type of geographic feature

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

B	Breakwater
H	Hydrography or stream features
I	Index
S	Shoreline

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

SOURCE\_ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

Data source for the ESI

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

0	1:24,000 NC CGIA shoreline
1	Aerial photography
4	RPI overflight
5	NWI
6	South Carolina shoreline
7	Biology Island for BIRDS

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**  
nominal

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**5.1. DETAILED DESCRIPTION: INDEX**

The data layer INDEX contains the map or polygon boundaries for each map in the atlas.

**5.1.1. ENTITY TYPES:**

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:
<u>GT-Polygons</u>	TILE-NAME      character TOPO-NAME     character SCALE            integer MAPANGLE       floating point PAGESIZE       character

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

TILE-NAME

**5.1.2.2. ATTRIBUTE DEFINITION:**

The TILE-NAME contains the map number according to the specified layout of the atlas. During the map production process, the value of TILE-NAME is plotted on the map product to order the maps in a coherent manner. The values for each polygon are unique and range from 1 through 131.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

TOPO-NAME

**5.1.2.2. ATTRIBUTE DEFINITION:**

USGS 1:24,000 topographic map name. Some polygons straddle two or more maps and all map names are included in this attribute. The date (latest/revised) of the USGS maps are also included in this field.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

- 
- ARAPAHOE, NC (1993)
  - ASKIN, NC (1983)
  - ATLANTIC, NC (1949)

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

AURORA, NC (1993)  
BARCO, NC (1982)  
BATH, NC (1993)  
BEAUFORT, NC (1987)  
BELHAVEN, NC (1974)  
BLOUNTS BAY, NC (1993)  
BLUFF POINT, NC (1951)  
BROAD CREEK, NC (1980)  
BROWNS INLET, NC (1988)  
BUFFALO CITY, NC (1980)  
BUXTON, NC (1983)  
CALABASH, NC-SC (1990)  
CAMDEN POINT, NC (1982)  
CAMP LEJEUNE, NC (1971)  
CAPE FEAR, NC (1970)  
CAPE HATTERAS, NC (1983)  
CAPE LOOKOUT, NC (1951)  
CAROLINA BEACH, NC (1970)  
CASTLE HAYNE, NC (1970)  
CHERRY POINT, NC (1983)  
COINJOCK, NC (1982)  
COLUMBIA EAST, NC (1974)  
COLUMBIA WEST, NC (1974)  
CORE CREEK, NC (1983)  
COROLLA, NC (1982)  
CREEDS, VA.-NC (1986)  
CURRITUCK, NC (1982)  
DAVIS, NC (1983)  
EAST LAKE, NC (1975)  
EAST LAKE SE, NC (1987)  
EDENHOUSE, NC (1982)  
EDENTON, NC (1981)  
ELIZABETH CITY, NC (1982)  
ENGELHARD EAST, NC (1983)  
ENGELHARD NE, NC (1980)  
ENGELHARD NW, NC (1987)  
ENGELHARD WEST, NC (1983)  
FAIRFIELD, NC (1983)  
FAIRFIELD NE, NC (1974)

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

FAIRFIELD NW, NC (1983)  
FORT LANDING, NC (1974)  
FRYING PAN, NC (1974)  
GREAT ISLAND, NC (1951)  
GREEN ISLAND, NC (1983)  
HAMPSTEAD, NC (1970)  
HARKERS ISLAND, NC (1983)  
HARVEY NECK, NC (1982)  
HATTERAS, NC (1987)  
HAVELOCK, NC (1983)  
HERTFORD, NC (1982)  
HOLDEN BEACH, NC (1990)  
HOLLY RIDGE, NC (1970)  
HORSEPEN POINT, NC (1950)  
HOWARD REEF, NC (1980)  
HUBERT, NC (1988)  
JACKSONVILLE SOUTH, NC (1988)  
JARVISBURG, NC (1982)  
JONES BAY, NC (1993)  
KITTY HAWK, NC (1982)  
KNOTTS ISLAND, VA.-NC (1971)  
KURE BEACH, NC (1979)  
LEONARDS POINT, NC (1974)  
LITTLE FISHING POINT, NC (1974)  
LITTLE KINNAKEET, NC (1983)  
LITTLE RIVER, SC-NC (1990)  
LOCKWOODS FOLLY, NC (1990)  
LONG BAY, NC (1987)  
LONG SHOAL POINT, NC (1951)  
LOWLAND, NC (1993)  
MANN'S HARBOR, NC (1974)  
MANSFIELD, NC (1983)  
MANTEO, NC (1983)  
MARTIN POINT, NC (1982)  
MERRIMON, NC (1983)  
MIDDLETOWN, NC (1978)  
MIDDLETOWN ANCHORAGE, NC (1985)  
MOSSEY ISLAND, NC (1982)  
NEW BERN, NC (1988)

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

NEW HOLLAND, NC (1974)  
NEW LAKE SE, NC (1983)  
NEW RIVER INLET, NC (1988)  
NEWPORT, NC (1983)  
NIXONTON, NC (1982)  
NORTH BAY, NC (1971)  
OCRACOKE, NC (1983)  
OREGON INLET, NC (1983)  
ORIENTAL, NC (1987)  
PAMLICO BEACH, NC (1974)  
PAMLICO POINT, NC (1951)  
PANTEGO, NC (1974)  
PEA ISLAND, NC (1983)  
PLYMOUTH WEST, NC (1987)  
POINT HARBOR, NC (1982)  
POINT OF MARSH, NC (1983)  
PONZER, NC (1983)  
PORTSMOUTH, NC (1983)  
RANSOMVILLE, NC (1983)  
ROANOKE ISLAND NE, NC (1983)  
RODANTHE, NC (1983)  
ROPER NORTH, NC (1978)  
SALTER PATH, NC (1983)  
SCOTTS HILL, NC (1970)  
SCRANTON, NC (1974)  
SHALLOTTE, NC (1990)  
SHILOH, NC (1982)  
SNEADS FERRY, NC (1988)  
SOUTH CREEK, NC (1993)  
SOUTH RIVER, NC (1983)  
SOUTHPORT, NC (1990)  
SPICER BAY, NC (1971)  
STELLA, NC (1988)  
STEVENSON POINT, NC (1982)  
STUMPY POINT, NC (1953)  
STYRON BAY, NC (1971)  
SWANQUARTER, NC (1974)  
SWANSBORO, NC (1983)  
TOPSAIL, NC (1970)



**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

UPPER BROAD CREEK, NC (1993)  
VANDEMERE, NC (1993)  
WADE POINT, NC (1990)  
WAINWRIGHT ISLAND, NC (1971)  
WANCHESE, NC (1983)  
WEEKSVILLE, NC (1982)  
WESTOVER, NC (1978)  
WILLISTON, NC (1983)  
WILMINGTON, NC (1979)  
WRIGHTSVILLE BEACH, NC (1970)  
YEOPIM RIVER, NC (1982)

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

SCALE

**5.1.2.2. ATTRIBUTE DEFINITION:**

SCALE contains the value of the denominator of the scale that the map is plotted in the final map product.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

48,000  
50,000  
54,000  
60,000  
100,000  
150,000

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

MAPANGLE

**5.1.2.2. ATTRIBUTE DEFINITION:**

MAPANGLE contains a value to rotate the final map product so that it is situated straight up and down.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

-2.039  
-2.002  
-1.986  
-1.913  
-1.882  
-1.841  
-1.769  
-1.750  
-1.696  
-1.624  
-1.552  
-1.480  
-1.407  
-1.335  
-1.263  
-1.191  
-1.119  
-1.046  
-0.974  
-0.902  
-0.830  
-0.758  
-0.685  
-0.613  
-0.601  
-0.541  
-0.469  
-0.397  
-0.325  
0.00

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

PAGESIZE

**5.1.2.2. ATTRIBUTE DEFINITION:**

PAGESIZE contains the value of the width and height of the map in the final map product.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

11,17

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

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**5.1. DETAILED DESCRIPTION: INDEX2**

The data layer INDEX2 contains the map or polygon boundaries for each map in the atlas.

**5.1.1. ENTITY TYPES:**

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:
<u>GT-Polygons</u>	TILE-NAME      character TOPO-NAME      character SCALE            integer MAPANGLE       floating point PAGESIZE        character

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

TILE-NAME

**5.1.2.2. ATTRIBUTE DEFINITION:**

The TILE-NAME contains the map number according to the specified layout of the atlas. During the map production process, the value of TILE-NAME is plotted on the map product to order the maps in a coherent manner. The values for each polygon are unique and range from 132 through 135.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

TOPO-NAME

**5.1.2.2. ATTRIBUTE DEFINITION:**

Regional Sound name

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

- 
- ALBEMARLE SOUND, NC
  - PAMLICO SOUND, NC (UPPER)
  - PAMLICO SOUND, NC (MIDDLE)
  - PAMLICO SOUND, NC (LOWER)
-

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

SCALE

**5.1.2.2. ATTRIBUTE DEFINITION:**

SCALE contains the value of the denominator of the scale that the map is plotted in the final map product.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

135,000

145,000

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

MAPANGLE

**5.1.2.2. ATTRIBUTE DEFINITION:**

MAPANGLE contains a value to rotate the final map product so that it is situated straight up and down.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

-1.800

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

PAGESIZE

**5.1.2.2. ATTRIBUTE DEFINITION:**

PAGESIZE contains the value of the width and height of the map in the final map product.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

11,17

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

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### 5.1. DETAILED DESCRIPTION: INVERT (formerly SHELLFSH)

The data layer INVERT contains the polygons with invertebrate species. Fish and invertebrates included in the North Carolina atlas include estuarine-dependent and anadromous species. Species of commercial, recreational, or conservation interest are emphasized, although other species are included. Fish distributions are based on data compiled by the NOAA SEA Division, under the Estuarine Living Marine Resources (ELMR) Program.

NOAA's ELMR program has developed a consistent database describing the distribution, abundance, and life history characteristics of important fish and invertebrates in U.S. estuaries. The spatial and temporal distribution of ELMR's categorical relative abundance data were assigned to North Carolina's estuaries based on regional and local fisheries science experts, survey reports, peer-reviewed literature, and existing quantitative data. The relative abundance categories (highly abundant, abundant, common, rare, and not present) are intended to simulate the categories often used by fisheries biologists. These abundance estimates were then verified through an extensive peer-review process utilizing the knowledge and field experience of fisheries scientists, managers, and biologists. The life histories included in the ELMR database include adult, juvenile, spawning, larval, and egg lifestages. The data summaries represent the best available source of information about the current distribution and abundance of selected species. The following INVERT species are found in the North Carolina ESI atlas:

SPECIES ID	NAME
4	Pink shrimp
19	Blue mussel
41	Atlantic bay scallop
43	American oyster (eastern)
49	Blue crab
50	White shrimp
51	Brown shrimp
82	Brackishwater clam
97	Grass shrimp
100	Quahog spp. (hard clam)
102	Calico scallop

**5.1.1. ENTITY TYPES:**

**5.1.1.1. ENTITY TYPE LABEL:**

GT-Polygons

**5.1.1.2. ENTITY TYPE DEFINITION:**

ID integer

RARNUM integer

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

A unique identifier that links to the BIO\_LUT table. ID is a concatenation of atlas number (35), element number (7), and record number. ID values of 9999 are holes in polygons and do not contain information.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

RARNUM

**5.1.2.2. ATTRIBUTE DEFINITION:**

An identifier that links directly to the BIORES table or the flat format BIOFILE table

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

1-N

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

Unique number

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

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**5.1. DETAILED DESCRIPTION: MGT**

The data layer MGT contains the managed lands polygons.

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:
<u>GT-Polygons</u>	TYPE ID HUNUM
	character integer integer

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

TYPE

**5.1.2.2. ATTRIBUTE DEFINITION:**

Identifies polygons with a socioeconomic, or human-use, feature. This attribute allows direct access to the type of feature instead of linking to the more detailed SOC\_DAT table.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
MS	Marine Sanctuary
NP	National Park
P	Park
WR	Wildlife Refuge

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

A unique identifier that links to the SOC\_LUT table. ID is a concatenation of atlas number (35), element number (11), and record number

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

HUNUM

**5.1.2.2. ATTRIBUTE DEFINITION:**

An identifier that links directly to the SOC\_DAT table.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

1-N

Unique number

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1. DETAILED DESCRIPTION: M\_MAMMAL**

The data layer M\_MAMMAL contains the dolphin marine mammal polygons. Bottlenose dolphins are likely to be present throughout the study area, in nearly all estuarine and nearshore waters of the Atlantic. Dolphins are only depicted, however, in specific locations where known calving or nursery concentrations occur. There may be many such areas that are not known, so areas depicted in the atlas should not be considered the only areas where calving and nursery activities occur.

The following M\_MAMMAL species are found in the North Carolina ESI atlas:

SPECIES ID	NAME
17	Bottlenose dolphin

**5.1.1. ENTITY TYPES:**

**5.1.1.1. ENTITY TYPE LABEL:**

GT-Polygons

**5.1.1.2. ENTITY TYPE DEFINITION:**

ID	integer
RARNUM	integer

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

A unique identifier that links to the BIO\_LUT table. ID is a concatenation of atlas number (35), element number (4), and record number. ID values of 9999 are holes in polygons and do not contain information.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

RARNUM

**5.1.2.2. ATTRIBUTE DEFINITION:**

An identifier that links directly to the BIORES table or the flat format BIOFILE table

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

1-N

Unique number

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal



### 5.1. DETAILED DESCRIPTION: NESTS

The data layer NESTS contains entity points representing nesting sites. Birds are divided into several species subgroups based on taxonomy, morphology, behavior, and oil spill vulnerability and sensitivity. The species table lists all the birds included on the maps, sorted by subgroup. These species were included either because of their likelihood of impact by an oil spill, or their special protection status as threatened or endangered.

Waterfowl, diving birds (pelicans, cormorants, and loons), and pelagic birds (gannets and shearwaters) are usually at greatest risk during oil spills, because they spend nearly all of their time on the water surface, and/or because they become partially or entirely immersed while feeding. Waterfowl can also be contaminated through contact with oiled wetland vegetation. Wading birds are usually at slightly lesser risk, primarily because they become oiled mainly on the legs and bill while wading for prey. Wading bird feathers and upper body parts can be more extensively contaminated, however, by contact with oiled vegetation. Shorebirds usually avoid oil, but may be impacted by loss of feeding areas or intertidal prey, particularly during important migration periods. Gulls may be at risk because they are often attracted to and will prey on sick or injured prey. This behavior may result in oiling of feathers and the ingestion of oil. Terns are additionally at risk when they dive for prey. Raptors may also prey on oiled or injured species and thus may be contaminated themselves or ingest oil. Osprey may additionally be oiled while diving for fish. Passerine birds are typically not at great risk during spills; however, response activities can disturb nesting or damage coastal habitat for these species. Passerine birds of concern during spills include threatened or endangered species, especially if they nest near the shoreline or in wetland habitats such as marshes.

The following NESTS species are found in the North Carolina ESI atlas:

SPECIES ID	NAME
1	Common loon
3	Red-throated loon
5	Horned grebe
8	Double-crested cormorant
11	Whistling swan (tundra swan)
12	Canada goose
13	Brant
15	Snow goose

## NORTH CAROLINA METADATA

<b>SPECIES ID</b>	<b>NAME</b>
16	Mallard
17	Northern pintail
18	Green-winged teal
20	Northern shoveler
21	Canvasback
24	Common goldeneye
26	Bufflehead
27	Oldsquaw
30	Surf scoter
32	Common merganser
33	Red-breasted merganser
34	American coot
38	Herring gull
40	Ring-billed gull
42	Bonaparte's gull
45	Common tern
54	Great blue heron
55	Whimbrel
58	Greater yellowlegs
59	Lesser yellowlegs
60	Red knot
61	Pectoral sandpiper
62	Least sandpiper
63	Dunlin
64	Short-billed dowitcher
65	Long-billed dowitcher
66	Western sandpiper
67	Sanderling
69	Semipalmated plover
71	Black-bellied plover
73	Ruddy turnstone
76	Bald Eagle
77	Osprey
79	Cormorant
86	Least tern
87	Little blue heron
88	Great egret
89	Snowy egret
90	Black-crowned night heron
91	Glossy ibis
92	Great black-backed gull
93	Cattle egret
94	Tricolored heron
95	Roseate tern

<b>SPECIES ID</b>	<b>NAME</b>
97	Green-backed heron
98	Laughing gull
107	Peregrine falcon
115	White ibis
118	Brown pelican
120	Yellow-crowned night heron
121	Anhinga
124	Redhead
125	Clapper rail
127	Sooty tern
132	Wood stork
133	Black skimmer
134	Gull-billed tern
135	Sandwich tern
136	Caspian tern
137	Royal tern
138	Forster's tern
141	American avocet
142	Black-necked stilt
148	Ruddy duck
150	Black rail
152	American oystercatcher
153	Piping plover
154	Wilson's plover
155	Willet
156	Semipalmated sandpiper
162	Gadwall
163	Reddish egret
167	Northern gannet
169	American wigeon
178	Least bittern
179	Pied-billed grebe
180	Ring-necked duck
181	Northern harrier
184	King rail
185	American bittern
186	Black duck
187	Virginia rail
188	Sora rail
189	Yellow rail
190	Blue-winged teal
191	Wood duck
192	Common moorhen
196	Common snipe

SPECIES ID	NAME
197	Black scoter (common)
198	Hooded merganser
209	Long-billed curlew
210	Marbled godwit
213	Stilt sandpiper
220	Merlin
234	Purple sandpiper
238	White-rumped sandpiper
277	Seaside sparrow
278	Sharp-tailed sparrow
286	Dowitcher
299	Scaup
300	Goldeneye
301	Merganser
302	Scoter
303	Curlew sandpiper
1,001	Gulls
1,002	Shorebirds
1,003	Waterfowl
1,004	Wading birds
1,008	Terns
1,009	Shearwaters
1,020	Eiders

**5.1.1. ENTITY TYPES:**

**5.1.1.1. ENTITY TYPE LABEL:**

Entity Points

**5.1.1.2. ENTITY TYPE DEFINITION:**

ID	integer
RARNUM	integer

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

A unique identifier that links to the BIO\_LUT table. ID is a concatenation of atlas number (35), element number (5), and record number.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

RARNUM

**5.1.2.2. ATTRIBUTE DEFINITION:**

An identifier that links directly to the BIORES table or the flat format BIOFILE table

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

1-N

Unique number

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

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### 5.1. DETAILED DESCRIPTION: REPTILES

The data layer REPTILES contains the polygons with reptile species. Reptiles depicted in the North Carolina atlas include marine or sea turtles and the American alligator. Sea turtle areas displayed on the maps are limited to nesting beaches, and several well-known in-water concentration areas. Sea turtle nesting beaches include sand beach areas where sea turtles come ashore to nest. In addition to nesting locations and the few in-water areas depicted, loggerhead, green, Kemp's ridley, and leatherback sea turtles can occur throughout the coastal, estuarine, and/or marine waters of North Carolina. All sea turtles are protected as threatened or endangered species.

In addition to direct oiling, sea turtle adults, nests, and young may also be at risk from response activities and equipment. Beach cleanup operations and heavy machinery can disturb both adult and hatchling turtles, as well as their nests. Ruts left on the beach by heavy equipment can entrap hatchlings trying to get to the water, resulting in death from exposure or predation. Hatchlings may also be killed by entrapment behind booms placed to protect the shoreline. Flood lights used for night operations or security could disorient adult turtles or hatchlings, causing them to move towards oiled areas or roads. American alligators can occur throughout freshwater and estuarine habitats in North Carolina, particularly in wetlands, coastal rivers, ponds, and impoundments. Due to widespread abundance, alligators are only depicted on the maps in areas where Natural Heritage Program data indicated their presence.

The following REPTILES species are found in the North Carolina ESI atlas:

SPECIES ID	NAME
2	Green sea turtle
3	American alligator
4	Kemp's ridley sea turtle
5	Leatherback sea turtle
6	Loggerhead sea turtle
7	Diamondback terrapin
9	Hawksbill sea turtle

**5.1.1. ENTITY TYPES:**

**5.1.1.1. ENTITY TYPE LABEL:**

GT-Polygons

**5.1.1.2. ENTITY TYPE DEFINITION:**

ID	integer
RARNUM	integer

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

A unique identifier that links to the BIO\_LUT table. ID is a concatenation of atlas number (35), element number (6), and record number. ID values of 9999 are holes in polygons and do not contain information.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

RARNUM

**5.1.2.2. ATTRIBUTE DEFINITION:**

An identifier that links directly to the BIORES table or the flat format BIOFILE table

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

1-N

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

Unique number



**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

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**5.1. DETAILED DESCRIPTION: SEASONAL**

The data table SEASONAL specifies the month when each species is present.

**5.1.1. ENTITY TYPES:**

<b>5.1.1.1. ENTITY TYPE LABEL:</b>	<b>5.1.1.2. ENTITY TYPE DEFINITION:</b>	
<u>Attributes</u>	ELEMENT	character
	SPECIES_ID	integer
	SEASON_ID	integer
	JAN	character
	FEB	character
	MAR	character
	APR	character
	MAY	character
	JUN	character
	JUL	character
	AUG	character
	SEP	character
	OCT	character
	NOV	character
	DEC	character
	EL_SPE_SEA	character

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

ELEMENT

**5.1.2.2. ATTRIBUTE DEFINITION:**

Major categories of biological data

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

<b>5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:</b>	<b>5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:</b>
BIRD	Birds
FISH	Fish
HABITAT	Habitats and Rare Plants
INVERT	Invertebrates
M_MAMMAL	Marine Mammals
REPTILE	Reptiles and Amphibians

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

SPECIES\_ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

Numeric identifier for each species that is unique within each element and refers to a nationwide ESI species list maintained by NOAA

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

1-N

Unique number

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

SEASON\_ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

Numeric identifier for the unique monthly presence and life history characteristics of each species at a given location. There can be one seasonality record per species, or the same species can have different monthly presence or breeding activities at different sites. When this occurs, a new record with a different SEASON\_ID is referenced

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
---------------------------------------	--

1-N

Unique number

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:  
Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:  
nominal

5.1.2.1. ATTRIBUTE LABEL:  
JAN

5.1.2.2. ATTRIBUTE DEFINITION:  
Present in January

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:  
Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
---------------------------------------	--

X

Present  
(blank) Not Present

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:  
Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:  
nominal

5.1.2.1. ATTRIBUTE LABEL:  
FEB

5.1.2.2. ATTRIBUTE DEFINITION:  
Present in February

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:  
Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
X	Present (blank) Not Present
5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:	
Research Planning, Inc.	
5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:	
nominal	
5.1.2.1. ATTRIBUTE LABEL:	
MAR	
5.1.2.2. ATTRIBUTE DEFINITION:	
Present in March	
5.1.2.3. ATTRIBUTE DEFINITION SOURCE:	
Research Planning, Inc.	
5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
X	Present (blank) Not Present
5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:	
Research Planning, Inc.	
5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:	
nominal	
5.1.2.1. ATTRIBUTE LABEL:	
APR	
5.1.2.2. ATTRIBUTE DEFINITION:	
Present in April	
5.1.2.3. ATTRIBUTE DEFINITION SOURCE:	
Research Planning, Inc.	

<b>5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:</b>	<b>5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:</b>
X	Present (blank) Not Present
<hr/>	
<b>5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:</b> Research Planning, Inc.	
<b>5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:</b> nominal	
<b>5.1.2.1. ATTRIBUTE LABEL:</b> MAY	
<b>5.1.2.2. ATTRIBUTE DEFINITION:</b> Present in May	
<b>5.1.2.3. ATTRIBUTE DEFINITION SOURCE:</b> Research Planning, Inc.	
<b>5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:</b>	<b>5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:</b>
X	Present (blank) Not Present
<hr/>	
<b>5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:</b> Research Planning, Inc.	
<b>5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:</b> nominal	
<b>5.1.2.1. ATTRIBUTE LABEL:</b> JUN	
<b>5.1.2.2. ATTRIBUTE DEFINITION:</b> Present in June	
<b>5.1.2.3. ATTRIBUTE DEFINITION SOURCE:</b> Research Planning, Inc.	

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
X	Present (blank) Not Present
5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:	
Research Planning, Inc.	
5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT: nominal	
5.1.2.1. ATTRIBUTE LABEL: JUL	
5.1.2.2. ATTRIBUTE DEFINITION: Present in July	
5.1.2.3. ATTRIBUTE DEFINITION SOURCE: Research Planning, Inc.	
5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
X	Present (blank) Not Present
5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:	
Research Planning, Inc.	
5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT: nominal	
5.1.2.1. ATTRIBUTE LABEL: AUG	
5.1.2.2. ATTRIBUTE DEFINITION: Present in August	
5.1.2.3. ATTRIBUTE DEFINITION SOURCE: Research Planning, Inc.	



<b>5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:</b>	<b>5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:</b>
X	Present (blank) Not Present
<hr/>	
<b>5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:</b>	
Research Planning, Inc.	
<b>5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:</b> nominal	
<b>5.1.2.1. ATTRIBUTE LABEL:</b> SEP	
<b>5.1.2.2. ATTRIBUTE DEFINITION:</b> Present in September	
<b>5.1.2.3. ATTRIBUTE DEFINITION SOURCE:</b> Research Planning, Inc.	
<b>5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:</b>	<b>5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:</b>
X	Present (blank) Not Present
<hr/>	
<b>5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:</b>	
Research Planning, Inc.	
<b>5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:</b> nominal	
<b>5.1.2.1. ATTRIBUTE LABEL:</b> OCT	
<b>5.1.2.2. ATTRIBUTE DEFINITION:</b> Present in October	
<b>5.1.2.3. ATTRIBUTE DEFINITION SOURCE:</b> Research Planning, Inc.	

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
X	Present (blank) Not Present
<b>5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:</b>	
Research Planning, Inc.	
<b>5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:</b> nominal	
<b>5.1.2.1. ATTRIBUTE LABEL:</b> NOV	
<b>5.1.2.2. ATTRIBUTE DEFINITION:</b> Present in November	
<b>5.1.2.3. ATTRIBUTE DEFINITION SOURCE:</b> Research Planning, Inc.	
5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
X	Present (blank) Not Present
<b>5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:</b>	
Research Planning, Inc.	
<b>5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:</b> nominal	
<b>5.1.2.1. ATTRIBUTE LABEL:</b> DEC	
<b>5.1.2.2. ATTRIBUTE DEFINITION:</b> Present in December	
<b>5.1.2.3. ATTRIBUTE DEFINITION SOURCE:</b> Research Planning, Inc.	

<b>5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:</b>	<b>5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:</b>
X	Present (blank) Not Present
<hr/>	
<b>5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:</b>	
Research Planning, Inc.	
<b>5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:</b>	
nominal	
<b>5.1.2.1. ATTRIBUTE LABEL:</b>	
EL_SPE_SEA	
<b>5.1.2.2. ATTRIBUTE DEFINITION:</b>	
Concatenation of the first character of the ELEMENT, the SPECIES_ID, and the SEASON_ID that provides a link from the BIORES table to the BREED table.	
<b>5.1.2.3. ATTRIBUTE DEFINITION SOURCE:</b>	
Research Planning, Inc.	
<b>5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:</b>	
Research Planning, Inc.	
<b>5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:</b>	
nominal	

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**5.1. DETAILED DESCRIPTION: SOC\_DAT**

The data table SOC\_DAT contains the human-use attributes and links to the data layers MGT and SOCECON either directly, using HUNUM, or through the unique ID, using SOC\_LUT.

**5.1.1. ENTITY TYPES:**

**5.1.1.1. ENTITY TYPE LABEL:**

Attributes

**5.1.1.2. ENTITY TYPE DEFINITION:**

HUNUM integer  
 TYPE character  
 NAME character  
 CONTACT character  
 PHONE character  
 G\_SOURCE integer  
 A\_SOURCE integer

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

HUNUM

**5.1.2.2. ATTRIBUTE DEFINITION:**

A unique identifier that links to the SOC\_LUT lookup table or directly back to the MGT and SOCECON coverages

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

1-N

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

Unique link

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

TYPE

**5.1.2.2. ATTRIBUTE DEFINITION:**

Identifies the feature type

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

<p>ACCESS AIRPORT ARCHAEOLOGICAL SITE BOAT RAMP COAST GUARD COMMERCIAL FISHING FERRY HISTORICAL SITE MARINA MARINE SANCTUARY NATIONAL PARK PARK RECREATIONAL BEACH RECREATIONAL FISHING SPECIAL MANAGEMENT AREA WATER INTAKE WILDLIFE REFUGE</p>	<p>Access Airport Archaeological Site Boat Ramp Coast Guard Commercial Fishing Ferry Historical Site Marina Marine Sanctuary National Park Park Recreational Beach Recreational Fishing Special Management Area Water Intake Wildlife Refuge</p>
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**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

NAME

**5.1.2.2. ATTRIBUTE DEFINITION:**

The feature name

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

70 WEST MARINA  
 8 HALF MARINA VILLAG  
 AIRPORT MARINA  
 ALLIGATOR RIVER NATIONAL WILDLIFE REFUGE  
 ALTOONA SHIPWRECK (1878)  
 ANCHORAGE INN MARINA  
 ANCHORAGE MARINA  
 ANGLER INN MARINA  
 ANNA HEIDRETTTER SHIPWRECK (1942)  
 ATLANTIC BEACH  
 AVENEL SUBDIVISION  
 B F MILLIS N SONS SF  
 BAILEYS MARINA  
 BALD HEAD ISLAND STATE NATURAL AREA  
 BARBOURS HARBOR MARI  
 BARNESFIELD  
 BATCHELOR BAY GAME LAND  
 BAYSHORE MARINA N RA  
 BAYSHORE PARK DOCKAG  
 BAYSIDE MARINA N CAM  
 BEACH ACCESS  
 BEACONS REACH MARINA  
 BEAUFORT GULF DOCKS  
 BEAUFORT INN  
 BEAUFORT LANDING TOW  
 BEAUFORT TOWN DOCKS  
 BEAUFORT YACHT CLUB  
 BENJAMIN HARDESTY HOUSE  
 BETHEL FISHING CENTE  
 BIG TROUT MARINA N C  
 BLUE MARLIN MARINA  
 BOCK MARINE BUILDERS  
 BOWMANS SEAFOOD  
 BRANYWINE BAY MARINA  
 BROCK BASIN  
 BRUNSWICK CO  
 BULLS PLACE  
 BUSH REPAIR CENTER  
 BUXTON WOODS COASTAL RESERVE  
 CALICO JACKS MARINA  
 CALVIN ROSE BOAT DOC  
 CANADAY MARINA  
 CAPE HATTERAS NATIONAL SEASHORE  
 CAPE LOOKOUT LIGHT STATION

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

CAPE LOOKOUT NATIONAL SEASHORE  
CAPT JIMS MARINA  
CAPT STACYS  
CAPTN CARLS SEAFOOD  
CARL GERHARD  
CAROLINA ATLANTIC FI  
CAROLINA BEACH STATE PARK  
CAROLINA INLET MARIN  
CAROLINA SEAFOOD INC  
CARTERET COUNTY  
CASPER  
CASWELL BEACH  
CAUSEWAY MARINA  
CEDAR ISLAND NATIONAL WILDLIFE REFUGE  
CEDAR PT VILLAS AND  
CEE BEE MARINA  
CHEATHAM AND ASSOCIA  
CHOWAN GAME LAND  
CITY OF JACKSONVILLE  
CITY OF SOUTHPORT  
CLAMMING  
CLYDE PHILLIPS  
COASTAL CAROLINA YAC  
COATS LANDING HARBOR  
COINJOCK MARINA  
COLINGTON HARBOUR YA  
COMMUNITY BOAT BASIN  
COMMUNITY STORE DOCK  
CORAL BAY MARINA  
CROATAN GAME LAND  
CROWS NEST MARINA  
CURRITUCK BANKS N.E.R.R.  
CURRITUCK COUNTY  
CURRITUCK NATIONAL WILDLIFE REFUGE  
DANIELS DOCKAGE  
DARE COUNTY  
DARE COUNTY REGIONAL AIRPORT  
DARE GAME LAND  
DAVIS LANDING  
DISCOVERY DIVING CO  
DOCKSIDE MARINA  
DUDLEYS MARINA  
DUTCHMAN CREEK MARIN  
DUTCHMAN CREEK MARIN  
E CITY MARINA



**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

EAST BAY BOAT WORKS  
EDENTON MARINA  
EDENTON MUNICIPAL AIRPORT  
ELIZABETH CITY  
ELIZABETH CITY SHIPY  
EMERALD ISLE  
EXPLORER  
FIGURE EIGHT IS YACH  
FIRST FLIGHT AIRPORT  
FISHERMANS INN  
FISHERMANS INN MARIN  
FOREST SOUND MARINA  
FORT FISHER STATE RECREATION AREA  
FORT MACON MARINA  
FORT MACON STATE PARK  
FORT RALEIGH NATIONAL HISTORIC SITE  
FREEMANS BAIT AND TA  
GEA KOHLER SHIPWRECK (1933)  
GILLIKIN BOAT BASIN  
GILLIKIN MARINE RAIL  
GOOSE CREEK GAME LAND  
GOOSE CREEK RESORT  
GOOSE CREEK STATE PARK  
GULL HARBOR MARINA  
GULL ROCK GAME LAND  
HALL HAVEN BOAT BASI  
HAMMOCKS BEACH STATE PARK  
HAMPSTEAD MARINA  
HARBOUR MOTEL N MARI  
HARBOUR VILLAGE MARI  
HARKERS ISLAND FISHI  
HARRELSONS MARINA  
HARRELSONS MARINE  
HARRISONS  
HARVEY PT. DEF. TESTING LANDING STRIP  
HATTERAS HARBOR MARI  
HATTERAS MARLIN CLUB  
HERITAGE POINT MARINA  
HERTFORD  
HERTFORD MUNICIPAL D  
HOLIDAY ISLAND MARIN  
HOLLY SHELTER GAME LAND  
HOMER SMITH HOMERS P  
HOPKINS SEAFOOD  
HURRICANE BOAT WORKS

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

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INDIGO PLANTATION MA  
ISLAND HARBOR MARINA  
ISLAND MARINE BOAT Y  
J A HODGES MARINA  
JARRETT BAY BOAT WOR  
JOCKEYS RIDGE STATE PARK  
JOEY AND RENEEES  
JOHNSON MARINE SERVI  
JOLLY ROGER CHARTER  
JORDAN CREEK MARINA  
JORDANS SEAFOOD N MA  
KERR STREET MARINA  
KILL DEVIL HILLS  
KITTY HAWK  
KNUCKLES LANDING  
L T EVERETT N SONS S  
LAMBS MARINA INC  
LANDING FIELD  
LANDING STRIP  
LANES MARINA  
LEE CREEK AIRPORT  
LEEWARD HARBOR  
LONG BEACH  
LONG BEACH PUBLIC RA  
MACKAY ISLAND NATIONAL WILDLIFE REFUGE  
MANNS HARBOR MARINA  
MANTEO  
MANTEO WATERFRONT MA  
MARINERS COVE  
MARINERS POINT CONDO  
MARINERS WHARF  
MARSH HARBOR MARINA  
MARSHALLBERG HARBOR  
MASON MARINA  
MASONBORO ISLAND N.E.R.R.  
MASONS MARINA AND MO  
MATTAMUSKEET NATIONAL WILDLIFE REFUGE  
METROPOLIS  
MIDWAY MARINA N MOTE  
MOREHEAD C WFRONT TO  
MOREHEAD CITY YACHT  
MOREHEAD GULF DOCKS  
MOREHEAD MARINE  
MOREHEAD SPORTS MARI  
NAGS HEAD

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**


---

NAGS HEAD KDH  
 NEUSE RIVER GAME LAND  
 NEW LAKE GAME LAND  
 NEW RIVER MARINA  
 NORTH RIVER GAME LAND  
 NORTHWEST RIVER MARSH GAME LAND  
 OAK WINDS MARINA  
 OCRACOKE FISHING CEN  
 OCRACOKE ISLAND AIRPORT  
 ODENS DOCK  
 OLD FERRY DOCK  
 OLD FERRY MARINA  
 ONEALS DOCKSIDE  
 ONSLOW COUNTY  
 ORIENTAL  
 OSPREY OAKS MARINA  
 OYSTER POINT  
 PAGES CREEK MARINA  
 PARADISE BAY  
 PASQUOTANK RIVER YAC  
 PEA ISLAND NATIONAL WILDLIFE REFUGE  
 PEA ISLAND NWR IMPOUNDMENTS  
 PELETIER CREEK BOATW  
 PERMUDA ISLAND COASTAL RESERVE  
 PETERS POINT FIELD  
 PHANTOM  
 PIRATES COVE YACHT C  
 PIVERS ISLAND MARINA  
 POCAHONTAS  
 POCOSIN LAKES NATIONAL WILDLIFE REFUGE  
 POPLAR BRANCH BOAT B  
 PORTSIDE MARINA  
 POWER PLANT COOLING INTAKE  
 PUNGO CREEK MOTEL N  
 PUNGO RIVER GAME LAND  
 QUARTER DECK  
 QUEENS GRANT  
 R W JONES FISH CO  
 RACHEL CARSON N.E.R.R.  
 RADIO ISLAND MARINA  
 RIVERSIDE BOAT WORKS  
 ROSE BAY MARINA  
 ROSES MARINA  
 SALTY DAWG MARINA  
 SALTY SHORES MARINA

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

SCOTCH BONNETT MARIN  
SCOTT BOATYARD  
SCOTTS HILL MARINA N  
SEA GATE MARINA  
SEA WATER MARINA  
SHIPWRECK  
SILVER LAKE MARINE  
SLEEPY CREEK BOAT WO  
SNEADS FERRY FISH N  
SNEADS FERRY MARINA  
SOMERSET PLANTATION  
SOUNDVIEW  
SOUTHERN SHORES MARI  
SOUTHPORT  
SOUTHPORT CITY DOCK  
SOUTHPORT MARINA  
SPOONERS CREEK YACHT  
SUMMER LIFEGUARD BEACH  
SURF CITY  
SURF CITY MARINA  
SUTTON LAKE GAME LAND  
SWAN POINT MARINA  
SWANQUARTER NATIONAL WILDLIFE REFUGE  
TAYLOR BOAT WORKS  
TAYLORS RAILWAY  
TEACHS LAIR MARINA  
TEXACO STATION  
THE BLUFFS  
THE FLYING BRIDGE  
THE HARBOR MASTER  
THE ICE HOUSE  
THE PELICAN  
THEODORE ROOSEVELT STATE NATURAL AREA  
THERON HOWARD DAVIS  
TOM AND JOES SPORTS  
TOMMYS CAMPGROUND  
TOPSAIL BEACH  
TOPSAIL MARINA  
TOWN CREEK MARINA  
TOWN OF ATLANTIC BEACH  
TOWN OF AURORA MARIN  
TOWN OF BEAUFORT  
TOWN OF EDENTON  
TOWN OF EMERALD ISLE  
TOWN OF INDIAN BEACH

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

TOWN OF MOREHEAD CITY  
TOWN OF SWANSBORO  
TRADEWINDS MARINA  
TRIPLE S MARINA VILL  
USMC AIR STATION, CHERRY POINT  
USS HURON  
VESTA  
VILLAGE MARINA  
WATERWAY INN  
WATERWAY MARINE  
WETHERINGTON GLASS  
WHITE OAK RIVER IMPOUNDMENT GAME LAND  
WHITES TRAILER PARK  
WILD DAYRELL  
WILLIAMS SEAFOOD  
WILLIS BOAT LANDING  
WILLIS BOAT YARD  
WRIGHT BROTHERS NATIONAL MEMORIAL  
YAUPON BEACH  
YOPPS TACKLE SHOP  
ZEKES ISLAND N.E.R.R.

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

CONTACT

**5.1.2.2. ATTRIBUTE DEFINITION:**

Contact person

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

PHONE

**5.1.2.2. ATTRIBUTE DEFINITION:**

Telephone number

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

G\_SOURCE

**5.1.2.2. ATTRIBUTE DEFINITION:**

Geographic source identifier that links to the SOURCES data table

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

1-N

Unique link

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**  
Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

A\_SOURCE

**5.1.2.2. ATTRIBUTE DEFINITION:**

Attribute source identifier that links to the SOURCES data table

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

1-N

Unique link

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

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**5.1. DETAILED DESCRIPTION: SOC\_LUT**

Lookup table to link SOC\_DAT to SOCECON and MGT data layers.

**5.1.1. ENTITY TYPES:**

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:
<u>Attributes</u>	HUNUM integer
	ID integer

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

HUNUM

**5.1.2.2. ATTRIBUTE DEFINITION:**

A unique identifier that links SOCECON and MGT to the SOC\_DAT data table

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

A unique identifier that links SOC\_LUT to the SOCECON and MGT data layers

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

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**5.1. DETAILED DESCRIPTION: SOCECON**

The data layer SOCECON contains the entity points and complete chains for the human-use data.

**5.1.1. ENTITY TYPES:**

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:
<u>Complete Chains</u>	TYPE character
<u>Entity Points</u>	TYPE character
	ID integer
	HUNUM integer

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

TYPE

**5.1.2.2. ATTRIBUTE DEFINITION:**

Identifies a line or point with a socioeconomic, or human-use, feature. This attribute allows direct access to the type of feature instead of linking to the more detailed SOC\_DAT table.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
A2	Access (Point)
A	Airport (Point)
AS	Archaeological Site (Point)
B	Recreational Beach (Point)
BR	Boat Ramp (Point)
CG	Coast Guard (Point)
CF	Commercial Fishing (Point)
F	Ferry (Point)
HS	Historical Site (Point)
M	Marina (Point)
RF	Recreational Fishing (Point)
SB	State Border (Chain)

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
SM	Special Management Area (Point)
WI	Water Intake (Point)

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:  
Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:  
nominal

5.1.2.1. ATTRIBUTE LABEL:  
ID

5.1.2.2. ATTRIBUTE DEFINITION:  
A unique identifier that links to the SOC\_LUT table. ID is a concatenation of atlas number (35), element number (10), and record number.

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:  
NOAA

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:  
NOAA

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:  
nominal

5.1.2.1. ATTRIBUTE LABEL:  
HUNUM

5.1.2.2. ATTRIBUTE DEFINITION:  
An identifier that links directly to the SOC\_DAT table.

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:  
NOAA

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
1-N	Unique number

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

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**5.1. DETAILED DESCRIPTION: SOURCES**

The data table SOURCES contains the primary sources used to create the ESI atlas.

**5.1.1. ENTITY TYPES:**

**5.1.1.1. ENTITY TYPE LABEL:**

Attributes

**5.1.1.2. ENTITY TYPE DEFINITION:**

SOURCE_ID	integer
ORIGINATOR	character
DATE_PUB	integer
TITLE	character
DATA_FORMAT	character
PUBLICATION	character
SCALE	character
TIME_PERIOD	character

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

SOURCE\_ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

Source identifier that links to G\_SOURCE, S\_SOURCE, and A\_SOURCE found in the BIORES, BIOFILE and SOC\_DAT tables.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

1-N

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

Unique number

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**  
ORIGINATOR

**5.1.2.2. ATTRIBUTE DEFINITION:**  
Author of the data set

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**  
Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**  
nominal

**5.1.2.1. ATTRIBUTE LABEL:**  
DATE\_PUB

**5.1.2.2. ATTRIBUTE DEFINITION:**  
Date of data collection or publication

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**  
Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

1-N

The first two integers are the month and the last four are the year. If month is unknown, only the four-digit year is entered

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**  
Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**  
nominal

**5.1.2.1. ATTRIBUTE LABEL:**  
TITLE

**5.1.2.2. ATTRIBUTE DEFINITION:**  
Title of the source data set or document

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**  
Originator who provided data, or RPI for personal interviews with resource experts

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**  
nominal



**5.1.2.1. ATTRIBUTE LABEL:**

DATA\_FORMAT

**5.1.2.2. ATTRIBUTE DEFINITION:**

The format of the source data set

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

Digital Entity Points  
Digital GT Polygons  
Digital Points  
Digital Polygons  
Expert Knowledge  
Hardcopy Maps  
Hardcopy Maps, Text  
Hardcopy Text  
Hardcopy Text and Maps  
Hardcopy Text and Tables

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

PUBLICATION

**5.1.2.2. ATTRIBUTE DEFINITION:**

Additional citation information

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

SCALE

**5.1.2.2. ATTRIBUTE DEFINITION:**

Source scale denominator

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

ordinal

**5.1.2.1. ATTRIBUTE LABEL:**

TIME\_PERIOD

**5.1.2.2. ATTRIBUTE DEFINITION:**

Date(s) of data collection

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1. DETAILED DESCRIPTION: SPECIES**

The data table SPECIES identifies all species used in the ESI atlas.

**5.1.1. ENTITY TYPES:**

<b>5.1.1.1. ENTITY TYPE LABEL:</b>	<b>5.1.1.2. ENTITY TYPE DEFINITION:</b>
<u>Attributes</u>	
	SPECIES_ID integer
	NAME character
	GEN_SPEC character
	ELEMENT character
	SUBELEMENT character
	NHP character
	DATE_PUB integer
	EL_SPE character

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

SPECIES\_ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

Numeric identifier for each species that is unique within each element and refers to a nationwide ESI species list maintained by NOAA

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

<b>5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:</b>	<b>5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:</b>
1-N	Unique number

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

NAME

**5.1.2.2. ATTRIBUTE DEFINITION:**

Species common name

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

Alewife  
American alligator  
American avocet  
American bittern  
American coot  
American eel  
American oyster (eastern)  
American oystercatcher  
American shad  
American wigeon  
Anhinga  
Atlantic bay scallop  
Atlantic croaker  
Atlantic menhaden  
Atlantic sturgeon  
Bald eagle  
Bay anchovy  
Black drum  
Black duck  
Black rail  
Black scoter (common)  
Black skimmer  
Black-bellied plover  
Black-crowned night heron  
Black-necked stilt  
Blue crab  
Blue mussel  
Blueback herring  
Bluefish  
Blue-winged teal  
Bonapartes gull  
Bottlenose dolphin  
Brackishwater clam  
Brant  
Brown pelican  
Brown shrimp

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

Bufflehead  
Calico scallop  
Canada goose  
Canvasback  
Carolina goldenrod  
Carolina grasswort  
Carolina spleenwort  
Caspian tern  
Cattle egret  
Clapper rail  
Cobia  
Common goldeneye  
Common loon  
Common merganser  
Common moorhen  
Common snipe  
Common tern  
Cormorant  
Curlew sandpiper  
Diamondback terrapin  
Double-crested cormorant  
Dowitcher  
Dunlin  
Eiders  
Forsters tern  
Gadwall  
Glossy ibis  
Godfreys sandwort  
Goldeneye  
Grass shrimp  
Gray snapper  
Great black-backed gull  
Great blue heron  
Great egret  
Greater yellowlegs  
Green sea turtle  
Green-backed heron  
Green-winged teal  
Gulf flounder  
Gull-billed tern  
Gulls  
Hawksbill sea turtle  
Herring gull  
Hooded merganser  
Horned grebe

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

Kemps ridley sea turtle  
King rail  
Ladyfish  
Laughing gull  
Least bittern  
Least sandpiper  
Least tern  
Leatherback sea turtle  
Lesser yellowlegs  
Little blue heron  
Loggerhead sea turtle  
Long-billed curlew  
Long-billed dowitcher  
Mallard  
Marbled godwit  
Merganser  
Merlin  
Mummichog  
Northern gannet  
Northern harrier  
Northern pintail  
Northern shoveler  
Oldsquaw  
Osprey  
Pectoral sandpiper  
Peregrine falcon  
Pied-billed grebe  
Pinfish  
Pink shrimp  
Piping plover  
Purple sandpiper  
Quahog spp. (hard clam)  
Red drum  
Red knot  
Red-breasted merganser  
Reddish egret  
Redhead  
Red-throated loon  
Ring-billed gull  
Ring-necked duck  
Roseate tern  
Royal tern  
Ruddy duck  
Ruddy turnstone  
Saltmarsh spikerush

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

Sanderling  
 Sandwich tern  
 Scaup  
 Scoter  
 Seabeach amaranth  
 Seagrass  
 Seaside sparrow  
 Seatrout (weakfish)  
 Semipalmated plover  
 Semipalmated sandpiper  
 Sharp-tailed sparrow  
 Shearwaters  
 Sheepshead  
 Sheepshead minnow  
 Shorebirds  
 Short-billed dowitcher  
 Shortnose sturgeon  
 Silversides  
 Snow goose  
 Snowy egret  
 Sooty tern  
 Sora rail  
 Southern flounder  
 Southern kingfish (whiting)  
 Spanish mackerel  
 Spot  
 Spotted seatrout  
 Spring flowering goldenrod  
 Stilt sandpiper  
 Striped bass  
 Striped mullet  
 Summer flounder  
 Surf scoter  
 Terns  
 Tricolored heron  
 Virginia joint-vetch  
 Virginia rail  
 Wading birds  
 Waterfowl  
 Western sandpiper  
 Whimbrel  
 Whistling swan (tundra swan)  
 White ibis  
 White perch  
 White shrimp

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

White-rumped sandpiper  
Willet  
Wilson's plover  
Wood duck  
Wood stork  
Yellow frigatebird  
Yellow rail  
Yellow-crowned night heron

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

GEN\_SPEC

**5.1.2.2. ATTRIBUTE DEFINITION:**

Species scientific name

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

Acipenser brevirostrum  
Acipenser oxyrinchus  
Aeschynomene virginica  
Aix sponsa  
Alligator mississippiensis  
Alosa aestivalis  
Alosa pseudoharengus  
Alosa sapidissima  
Amaranthus pumilus  
Ammodramus maritimus  
Ammodramus caudacuta  
Anas acuta  
Anas americana  
Anas clypeata  
Anas crecca  
Anas discors  
Anas platyrhynchos  
Anas rubripes  
Anas strepera  
Anchoa mitchilli



**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

Anguilla rostrata  
 Anhinga anhinga  
 Archosargus probatocephalus  
 Ardea herodias  
 Arenaria interpres  
 Argopecten gibbus  
 Argopecten irradians  
 Asplenium heteroresiliens  
 Aythya americana  
 Aythya collaris  
 Aythya spp.  
 Aythya valisineria  
 Botaurus lentiginosus  
 Branta bernicla  
 Branta canadensis  
 Brevoortia tyrannus  
 Bubulcus ibis  
 Bucephala albeola  
 Bucephala clangula  
 Bucephala spp.  
 Butorides striatus  
 Calidris alba  
 Calidris alpina  
 Calidris canutus  
 Calidris ferruginea  
 Calidris fuscicollis  
 Calidris himantopus  
 Calidris maritima  
 Calidris mauri  
 Calidris melanotos  
 Calidris minutilla  
 Calidris pusilla  
 Callinectes sapidus  
 Caretta caretta  
 Casmerodius albus  
 Catoptrophorus semipalmatus  
 Charadrius melodus  
 Charadrius semipalmatus  
 Charadrius wilsonia  
 Chelonia mydas  
 Chen caerulescens  
 Circus cyaneus  
 Clangula hyemalis  
 Coturnicops noveboracensis  
 Crassostrea virginica

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

Cynoscion nebulosus  
Cynoscion regalis  
Cyprinodon variegatus  
Dermochelys coriacea  
Egretta caerulea  
Egretta rufescens  
Egretta thula  
Egretta tricolor  
Eleocharis halophila  
Elops saurus  
Eretmochelys imbricata  
Eudocimus albus  
Falco columbarius  
Falco peregrinus  
Fulica americana  
Fundulus heteroclitus  
Gallinago gallinago  
Gallinula chloropus  
Gavia immer  
Gavia stellata  
Haematopus palliatus  
Haliaeetus leucocephalus  
Himantopus mexicanus  
Ixobrychus exilis  
Lagodon rhomboides  
Larus argentatus  
Larus atricilla  
Larus delawarensis  
Larus marinus  
Larus philadelphia  
Laterallus jamaicensis  
Leiostomus xanthurus  
Lepidochelys kempii  
Lilaeopsis carolinensis  
Limnodromus griseus  
Limnodromus scolopaceus  
Limnodromus spp.  
Limosa fedoa  
Lophodytes cucullatus  
Lutjanus griseus  
Malaclemys terrapin  
Melanitta nigra  
Melanitta perspicillata  
Melanitta spp.  
Menidia spp.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

*Menticirrhus americanus*  
*Mercenaria* spp.  
*Mergus merganser*  
*Mergus serrator*  
*Mergus* spp.  
*Micropogonias undulatus*  
*Minuartia godfreyi*  
*Morone americana*  
*Morone saxatilis*  
*Morus bassanus*  
*Mugil cephalus*  
*Mycteria americana*  
*Mytilus edulis*  
*Numenius americanus*  
*Numenius phaeopus*  
*Nyctanassa violacea*  
*Nycticorax nycticorax*  
*Olor columbianus*  
*Oxyura jamaicensis*  
*Palaemonetes* sp.  
*Pandion haliaetus*  
*Paralichthys albigutta*  
*Paralichthys dentatus*  
*Paralichthys lethostigma*  
*Pelecanus occidentalis*  
*Penaeus aztecus*  
*Penaeus duorarum*  
*Penaeus setiferus*  
*Phalacrocorax auritus*  
*Phalacrocorax* sp.  
*Platanthera integra*  
*Plegadis falcinellus*  
*Pluvialis squatarola*  
*Podiceps auritus*  
*Podilymbus podiceps*  
*Pogonias cromis*  
*Pomatomus saltatrix*  
*Porzana carolina*  
*Rachycentron canadum*  
*Rallus elegans*  
*Rallus limicola*  
*Rallus longirostris*  
*Rangia cuneata*  
*Recurvirostra americana*  
*Rynchops niger*

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

Sciaenops ocellatus  
 Scomberomorus maculatus  
 Solidago pulchra  
 Solidago verna  
 Somateria spp.  
 Sterna antillarum  
 Sterna caspia  
 Sterna dougallii  
 Sterna fosteri  
 Sterna fuscata  
 Sterna hirundo  
 Sterna maxima  
 Sterna nilotica  
 Sterna sandvicensis  
 Tringa flavipes  
 Tringa melanaleuca  
 Tursiops truncatus

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

ELEMENT

**5.1.2.2. ATTRIBUTE DEFINITION:**

Biological element

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

BIRD	Birds
FISH	Fish
HABITAT	Habitats and Rare Plants
INVERT	Invertebrates
M_MAMMAL	Marine Mammals
REPTILE	Reptiles and Amphibians

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

SUBELEMENT

**5.1.2.2. ATTRIBUTE DEFINITION:**

Species subgroup

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

alligator  
anadromous  
clam  
crab  
diving  
dolphin  
gull\_tern  
mussel  
oyster  
passerine  
pelagic  
raptor  
sav  
scallop  
shorebird  
shrimp  
shrub  
special  
turtle  
wading  
waterfowl

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

NHP

**5.1.2.2. ATTRIBUTE DEFINITION:**

This field is blank because no NHP information was gathered when this atlas was published. The field is included here to maintain consistency with the latest ESI data structure.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

Not supplied with this atlas

---

**5.1.2.1. ATTRIBUTE LABEL:**

DATE\_PUB

**5.1.2.2. ATTRIBUTE DEFINITION:**

This field is blank because no NHP information was gathered when this atlas was published. The field is included here to maintain consistency with the latest ESI data structure.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

Not supplied with this atlas

---

**5.1.2.1. ATTRIBUTE LABEL:**

EL\_SPE

**5.1.2.2. ATTRIBUTE DEFINITION:**

Concatenation of the first character of the ELEMENT and the SPECIES\_ID, which provides the link from the BIORES table.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1. DETAILED DESCRIPTION: STATUS**

The data table STATUS identifies the species that are listed as either threatened or endangered on state or federal lists.

**5.1.1. ENTITY TYPES:**

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:
<u>Attributes</u>	ELEMENT character SPECIES_ID integer STATE character S_F character T_E character DATE_PUB integer EL_SPE character

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

ELEMENT

**5.1.2.2. ATTRIBUTE DEFINITION:**

Major categories of biological data

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
BIRD	Birds
FISH	Fish
HABITAT	Habitats and Rare Plants
INVERT	Invertebrates
M_MAMMAL	Marine Mammals
REPTILE	Reptiles and Amphibians

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**  
SPECIES\_ID

**5.1.2.2. ATTRIBUTE DEFINITION:**  
Numeric identifier for each species and is unique within each element and refers to a nationwide ESI species list maintained by NOAA

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**  
Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

---

1-N

Unique number

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:**  
Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**  
nominal

**5.1.2.1. ATTRIBUTE LABEL:**  
STATE

**5.1.2.2. ATTRIBUTE DEFINITION:**  
Two-letter state abbreviation

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**  
Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

---

CA

California

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:**  
Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**  
nominal



**5.1.2.1. ATTRIBUTE LABEL:**

S\_F

**5.1.2.2. ATTRIBUTE DEFINITION:**

State and Federal status

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

F	Federally listed
S	State listed
S/F	State and Federally listed

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

USFWS

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

T\_E

**5.1.2.2. ATTRIBUTE DEFINITION:**

Threatened and endangered status

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

E	Endangered
E/E	Endangered on State and Federal lists
E/T	Endangered on State lists; Threatened on Federal lists
T	Threatened
T/T	Threatened on State and Federal lists

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

USFWS

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

DATE\_PUB

**5.1.2.2. ATTRIBUTE DEFINITION:**

This is the date the atlas was published when the given state and federal listings were in effect. In some of the earlier atlases, no date may be given because this was not a data item at the time of original publication.

**5.1.2.1. ATTRIBUTE LABEL:**

EL\_SPE

**5.1.2.2. ATTRIBUTE DEFINITION:**

Concatenation of the first character of the ELEMENT and the SPECIES\_ID, which provides the link from the BIORES and SPECIES tables.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

## **6.0. DISTRIBUTION INFORMATION**

### **6.1. DISTRIBUTOR**

#### **6.1.1. CONTACT PERSON PRIMARY**

##### **6.1.1.1. CONTACT PERSON:**

John Kaperick

##### **6.1.1.2. CONTACT ORGANIZATION:**

NOAA, Office of Response and Restoration

#### **6.1.4. CONTACT ADDRESS**

##### **6.1.4.1. ADDRESS TYPE:**

Physical Address

##### **6.1.4.2. ADDRESS:**

7600 Sand Point Way N.E.

##### **6.1.4.3. CITY:**

Seattle

##### **6.1.4.4. STATE OR PROVINCE:**

WA

##### **6.1.4.5. POSTAL CODE:**

98115-6349

#### **6.1.5. CONTACT VOICE TELEPHONE:**

(206) 526-6319

#### **6.1.7. CONTACT FACSIMILE TELEPHONE:**

(206) 526-6329

### **6.2. RESOURCE DESCRIPTION:**

ESI Atlas for North Carolina

### **6.3. DISTRIBUTION LIABILITY:**

Although this data has 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.

### **6.5. CUSTOM ORDER PROCESS**

Contact NOAA for distribution options (see 6.1.1.).

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**7.0. METADATA REFERENCE INFORMATION**

**7.1. METADATA DATE:**

200007

**7.2. METADATA REVIEW DATE:**

200007

**7.4. METADATA CONTACT**

**7.4.1. CONTACT PERSON PRIMARY**

**7.4.1.1. CONTACT PERSON:**

Jill Petersen

**7.4.1.2. CONTACT ORGANIZATION:**

NOAA, Office of Response and Restoration

**7.4.3. CONTACT POSITION:**

GIS Manager

**7.4.4. CONTACT ADDRESS**

**7.4.4.1. ADDRESS TYPE:**

Physical Address

**7.4.4.2. ADDRESS:**

7600 Sand Point Way N.E.

**7.4.4.3. CITY:**

Seattle

**7.4.4.4. STATE OR PROVINCE:**

Washington

**7.4.4.5. POSTAL CODE:**

98115-6349

**7.4.5. CONTACT VOICE TELEPHONE:**

(206) 526-6944

**7.4.7. CONTACT FACSIMILE TELEPHONE:**

(206) 526-6329

**7.4.8. CONTACT ELECTRONIC MAIL ADDRESS:**

jill\_petersen@hazmat.noaa.gov.us

**7.5. METADATA STANDARD NAME:**

Content Standards for Digital Geospatial Metadata

**7.6. METADATA STANDARD VERSION:**

19940608

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