

SOUTH CAROLINA
ENVIRONMENTAL SENSITIVITY
INDEX METADATA

May 1997

Prepared By:

National Oceanic and Atmospheric Administration
Hazardous Materials Response and Assessment Division
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FILE DESCRIBES: Digital data for 1996 South Carolina Environmental Sensitivity Index. Data were compiled and digitized at Research Planning, Inc., Columbia, SC.

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FILE CREATED ON: 19960625

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), Office of Ocean Resources Conservation and Assessment, Seattle, Washington 98115; and Research Planning, Inc., 1121 Park Street, Post Office Box 328, Columbia, South Carolina 29202

1.1.2. PUBLICATION DATE:

199606

1.1.4. TITLE:

Sensitivity of Coastal Environments and Wildlife to Spilled Oil: South 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:

South Carolina

1.1.8. PUBLICATION INFORMATION**1.1.8.1. PUBLICATION PLACE:**

Seattle, Washington

1.1.8.2. PUBLISHER:

NOAA, Office of Ocean Resources Conservation and Assessment

1.1.9. OTHER CITATION DETAILS:

Prepared by Research Planning, Inc., Columbia, South Carolina for the Hazardous Materials Response and Assessment Division, National Oceanic and Atmospheric Administration, Seattle, Washington

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 South 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 mapped during aerial and ground surveys conducted over the period from March to October 1995. The biological and human-use resources data were compiled by regional biologists in 1995. The dates for these data vary and are documented in Section 2.5.1

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:

-81.125

1.5.1.2. EAST BOUNDING COORDINATE:

-78.5

1.5.1.3. NORTH BOUNDING COORDINATE:

33.892

1.5.1.4. SOUTH BOUNDING COORDINATE:

32.00

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:

South Carolina Coastal Zone, Calhoun County, Charleston County, Charleston Harbor, Dorchester County, Georgetown County, Horry County, Jasper County, Murrell's Inlet, Port Royal Sound, St. Helena Sound

1.7. ACCESS CONSTRAINTS:

In the course of this project, the use of several digital databases containing potentially sensitive information required the formulation of data distribution, licensing, or disclaimer agreements. The release of digital data from certain sources as part of the South Carolina ESI database is thus restricted. As part of data agreements with SCDNR and the South Carolina Department of Archives and History (SCDAH), the following clauses are included as part of this introductory text.

For the digital data provided by SCDNR, "The SCDNR MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS OF USE FOR A PARTICULAR PURPOSE, EXPRESS OR IMPLIED WITH RESPECT TO THE DATA PROVIDED FOR USE IN THE ESI MAPPING PROCESS. Any user of this data, in hardcopy or digitized format, accepts the same, AS IS, WITH ALL FAULTS, and assumes all responsibility for the use thereof, and further

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The following disclaimer applies specifically to threatened and endangered element occurrence data provided by the SCDNR Heritage Trust Program. “The quantity and quality of data collected by the SCDNR Heritage Trust Program is dependent on the research and observations of many individuals and organizations. Not all of this information is the result of comprehensive or site-specific field surveys. Some natural areas in South Carolina have never been thoroughly surveyed. As a result, new locations for plant and animal species are continuously being added to the database. Since data acquisition is a dynamic, on-going process, the SCDNR Heritage Trust Program cannot provide a definitive statement on the presence, absence, or condition of biological elements in any part of South Carolina. Information supplied by the SCDNR Heritage Trust Program summarizes existing data known to the program at the time of the request regarding the biological elements or locations in question. They should never be regarded as final statements on the elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments. The data is provided as one source of information to assist others in the preservation of natural diversity.”

For the digital data provided by SCDAH, “SCDAH makes no representations of any kind, included but not limited to the warranties of merchantability or fitness for a particular use, nor are any such warranties to be implied, with respect to the digital data layers furnished hereunder. SCDAH assumes no responsibility to maintain them in any manner or form.”

“The quantity and quality of data collected by the SCDAH is dependent on the research and observations of many individuals and organizations. Not all of this information is the result of comprehensive or site-specific field surveys. Some historic resources in South Carolina have never been thoroughly surveyed. As a result, new locations for historic resources are constantly added to the database. Since data acquisition is a dynamic, on-going process, the SCDAH cannot provide a definitive statement on the presence, absence, or condition of historic elements in any part of South Carolina. Information supplied by the SCDAH summarizes existing data known to the program at the time of the request regarding the historic elements or locations in question. They should never be regarded as final statements on the elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments. The data are provided as one source of information to assist others in the preservation of historic resources.”

1.8. USE CONSTRAINTS:

DO NOT USE ESI MAPS FOR NAVIGATIONAL PURPOSES.

Acknowledgment of NOAA and other contributing sources listed in 1.11. (Data Set Credit) 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’s Coastal Service Center in Charleston, South Carolina, NOAA’s Hazardous Materials Response and Assessment Division in Seattle, Washington, and the SCDHEC Charleston Harbor Project. The United States Coast Guard provided helicopter support during the shoreline habitat mapping. The South Carolina Department of Natural Resources assisted greatly with project coordination, expert knowledge, data gathering, and data transfer. Jane Settle of SCDNR Marine Resources Division was instrumental in the coordination and completion of this project.

Most of the biological data included on the maps were provided by SCDNR scientists and resource managers. Digital data for the shoreline and wetland polygons were provided by the SCDNR Water Resources Commission, the SCDNR Land Resources Commission, and the University of South Carolina’s Baruch Institute. Digital point data for threatened and endangered species were provided by the SCDNR Heritage Trust Program. Katherine Boyle and James

Scurry (Land Resources Division) assisted with data transfer. Digital point data for bald eagle and colonial waterbird nesting sites were provided by Thomas Murphy and staff with the SCDNR Wildlife and Freshwater Fisheries Division. Digital data for oyster resources, artificial reefs, boat ramps, marinas, and fishing piers were provided by SCDNR Marine Resources Division. Andrew Bury assisted with data transfer. Digital data for historic sites were provided by the South Carolina Department of Archives and History. Thomas Shaw assisted with data transfer.

At Research Planning, Inc. (RPI), Scott Zengel and Joanne Halls were the project managers. Shoreline mapping was conducted by Todd M. Montello and Miles O. Hayes. Biological and human-use resources data were collected by Scott Zengel and compiled onto basemaps by Scott Zengel, Todd M. Montello, and Christopher Locke. Kara Hastings was the GIS coordinator. Kara Hastings, Christopher Locke, James Olsen, Mark White, Lee Diveley, and William Holton entered the data and produced the final maps. Systems administration was coordinated by William Holton. Graphics were provided by Joe Holmes and Rebecca Cox. Dot Zaino prepared the final text.

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 712/80 with 4 X-terminals) with unix operating system (HP-UX Release A.09.01). The following files are included in the data set:

biores.e00	birds.e00	
esi.e00	fish.e00	hydro.e00
index.e00	m_mammal.e00	mgt.e00
nests.e00	pnts_lut.e00	poly_lut.e00
reptiles.e00	seasonal.e00	shellfish.e00
socecon.e00	soc_data.e00	soc_lut.e00
sources.e00	species.e00	status.e00
t_mammal.e00		

The entire data set is approximately 60 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 socio-economic 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 review the entire series of maps, check all data, and make 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® consistencies. A final review is made by the GIS manager, where data is written to tape and metadata is written.

2.3. COMPLETENESS REPORT:

Shoreline Habitat Mapping:

The shoreline habitats of South 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 compiled 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, marine mammals, reptiles, shellfish, and terrestrial mammals.

Each ELEMENT corresponds to a coverage or geographic theme. There are six attribute tables, BIORES, SEASONAL, SPECIES, SOURCES, STATUS, and BREED, that are used to store the complex biological data (Fig. 1). Each biological polygon coverage (BIRDS, FISH, M_MAMMALS, REPTILES, SHELLFSH, and T_MAMMAL) is linked to the Biological Resources table (BIORES) using the lookup table POLY_LUT. The point coverage NESTS is

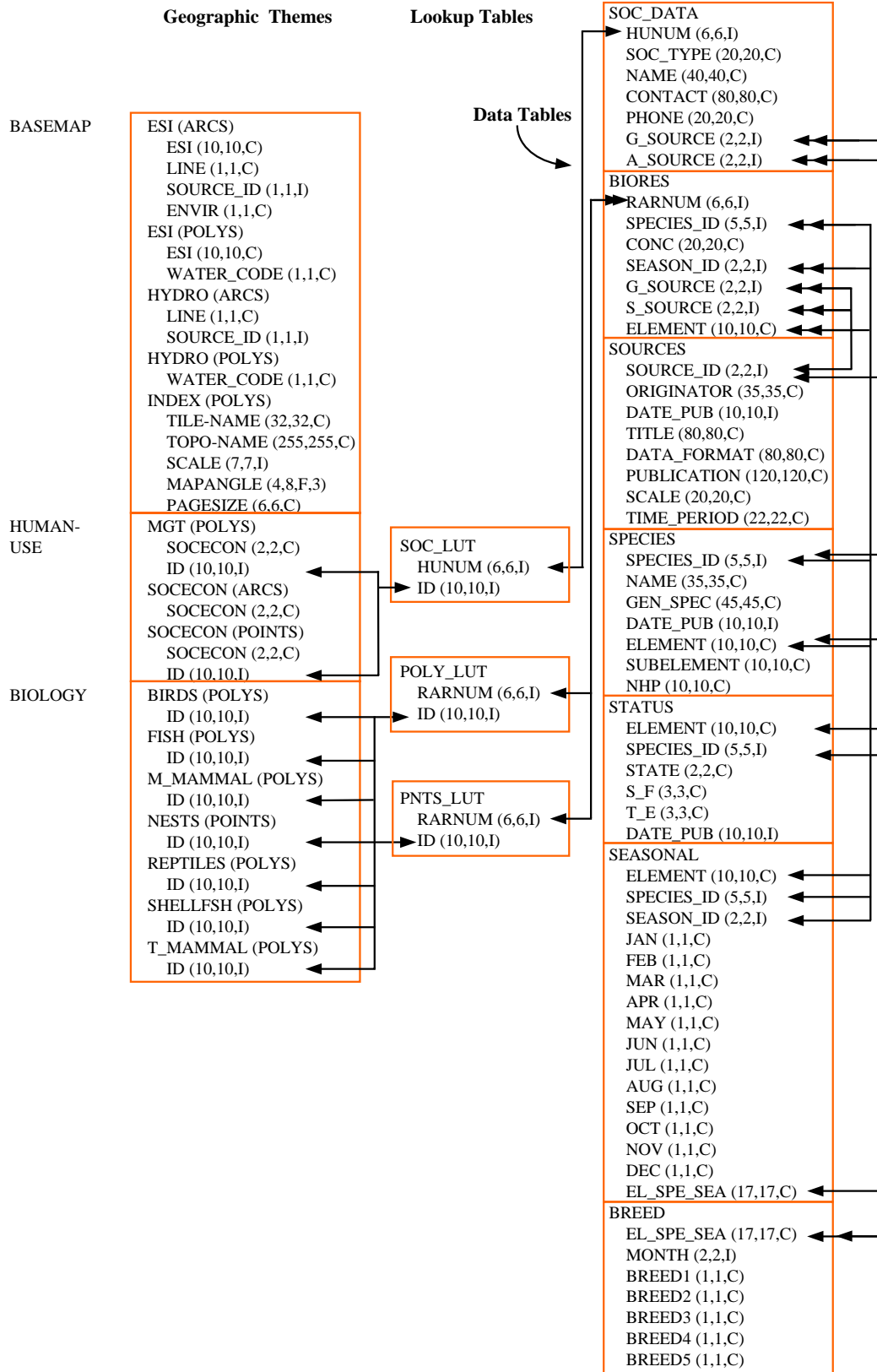


FIGURE 1. Relationships between coverages and attribute files.

linked to the BIORES table using the lookup table PNTS_LUT. The items in BIORES are: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, and ELEMENT. 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 LOW, MEDIUM, or HIGH for all coverages except NESTS, which may have a value for the number of nesting sites. SEASON_ID contains a numeric value according to the monthly presence of the species. Usually, there is one seasonality per species, but occasionally the same species has different monthly presence or breeding activity. When this occurs, a new record with a different seasonality 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	juvenile	adult
REPTILE	nesting	hatching	internesting		
SHELLFISH	spawning	larvae	mating	juvenile	adult

NOTE: There are no BREED variables for M_MAMMALS or T_MAMMALS.

However, when the South Carolina atlas was compiled, no adult fish or shellfish were considered in the data structure.

The SPECIES table contains the species identification number (SPECIES_ID), common name (NAME), scientific name (GEN_SPEC), 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 are:

ELEMENT	SUBELEMENT
BIRD	diving
	gull_tern
	raptor
	shorebird
	wading
	waterfowl
FISH	anadromous
	special
MARINE MAMMAL	dolphin
REPTILE	alligator
	turtle
SHELLFISH	clam
	crab
	oyster
	shrimp
TERRESTRIAL MAMMAL	small mammal

The BIORES items G_SOURCE and S_SOURCE refer to the geographic and seasonality sources and link to the SOURCES table.

The STATUS table contains threatened and/or endangered information by species (SPECIES_ID), 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), and species element (ELEMENT).

Human-Use Resources:

Several human-use, or socio-economic, features are included in ESI atlases. Entity points and complete chains (arcs) are digitized into the coverage SOCECON and managed land polygonal data are stored in the MGT coverage. Both data sets are linked to the table SOC_DATA using the SOC_LUT and items RARNUM and ID. ID is a concatenation of atlas number (34), element number (SOCECON = 10 and Managed Lands = 11), and unique record number.

ENTITY POINTS (.PAT)		COMPLETE CHAINS (.AAT)		POLYGONS (.PAT)	
Item	Type	Item	Type	Item	Type
SOCECON	C	SOCECON	C	SOCECON	C
ID	I			ID	I

Complete chains are digitized and attributed in the variable LINE for the following features. The SOCECON item may contain the following values:

Entity Points		Polygons	
Feature	SOCECON	Feature	SOCECON
Airport	A	National Park	NP
Aquaculture	AQ	Regional or State Park	P
Beach	B	Wildlife Refuge	WR
Boat Ramp	BR		
Coast Guard	CG		
Historic Site	HS		
Marina	M		
Marine Sanctuary	MS		
Recreational Fishing	RF		
Water Intake	WI		
Water Quality Station	WQ		
Complete Chains			
Feature	SOCECON		
State Border	SB		

The table SOC_DATA contains the resource at risk number (HUNUM), the feature type (SOC_TYPE), the name of the facility (NAME), the geographic source (G_SOURCE), and the 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 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
Strange, T. SCDNR, McClellanville, SC	N/A	Waterfowl Concentrations for South Carolina	Expert knowledge	Unknown	N/A	1955-1995
Post, W. and S.A. Gauthreaux	1989	Status and Distribution of South Carolina Birds	Hardcopy text	Contributions from the Charleston Museum No. 18, Charleston, SC, 83 pp.	N/A	Historical-1989
Wilkinson, P. and M. Spinks SCDNR, Georgetown, SC	N/A	Seabird and Shorebird Roosts and Nests for the S.C. Coast	Expert knowledge	N/A	N/A	to 1995
Dodd, M. SCDNR	N/A	Wading Bird Feeding Habitats	Expert knowledge	N/A	N/A	1996
Richardson, B. USFWS, Wadmalaw Island, SC	N/A	N/A	Expert knowledge	N/A	N/A	1996

2.5.1. SOURCE INFORMATION:

Coverage or theme name: ESI

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.	1995	ESI Overflight Maps	Hardcopy maps	N/A	24000	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
SCDNR—Marine Resources Division	N/A	NWI	Digital polygons	N/A	24000	Various
SCDNR—Water Resources Division	N/A	NWI	Digital polygons	N/A	24000	1990
SCDNR—Land Resources Division	N/A	NWI	Digital polygons	N/A	24000	Various
University of South Carolina—Baruch Institute	N/A	NWI	Digital polygons	N/A	24000	Various

2.5.1. SOURCE INFORMATION:

Coverage or theme name: FISH

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
Wenner, C. and W. Roumillat SCDNR, Charleston, SC	N/A	Estuarine, Nearshore, and Reef Fish Assemblages for South Carolina, and Fishing Sites	Expert knowledge	N/A	N/A	to 1995
Nelson, D.M., E.A. Irlandi, L.R. Settle, M.E. Monaco, and L. Coston-Clements	1991	Distribution and Abundance of Fishes and Invertebrates in Southeast Estuaries	Hardcopy data tables	ELMR Rept. No. 9, NOAA/NOS SEA Division, Silver Spring, MD, 167 pp.	N/A	to 1991

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
B. McCord SCDNR	N/A	Anadromous Shad and Herring Runs for South Carolina Coastal Rivers	Expert knowledge	N/A	N/A	to 1995
Smith, T., M. Collins, and B. McCord SCDNR, Charleston, SC	N/A	Occurrences of Atlantic and Shortnose Sturgeons in South Carolina Waters Database (Draft)	Un-published data tables and expert knowledge	N/A	N/A	Historical-1995
Ulrich, G. SCDNR	N/A	Shark Concentrations for South Carolina	Expert knowledge	N/A	N/A	1996
Settle, J. SCDNR, Charleston, SC	N/A	N/A	Expert knowledge	N/A	N/A	1996

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.	1995	ESI Overflight Maps	Hardcopy maps	N/A	24000	1995
SCDNR—Marine Resources Division	N/A	NWI	Digital polygons	N/A	24000	Various
SCDNR—Water Resources Division	N/A	NWI	Digital polygons	N/A	24000	1990

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
SCDNR—Land Resources Division	N/A	NWI	Digital polygons	N/A	24000	Various
University of South Carolina—Baruch Institute	N/A	NWI	Digital polygons	N/A	24000	Various

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.	1995	Index for South Carolina ESI maps	Digital complex polygons	Bill Holton, GIS Analyst	24000	1995

2.5.1. SOURCE INFORMATION:

Coverage or theme name: MGT

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
Fairey, D.A. and J.B. Berry	1986	South Carolina Public Lands Ownership Inventory, State and Federal Owned Land	Hardcopy maps and text	S.C. Land Resources Conservation Commission, 106 pp.	200000	to 1986

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
Richardson, B. USFWS, Wadmalaw Island, SC	N/A	Boundary Map for ACE Basin NERR	Expert knowledge	N/A	N/A	1996
Porter, D. Baruch Institute of Marine Science	N/A	Boundary Map for North Inlet-Winyah Bay NERR	Digital polygons	N/A	Unknown	Unknown
Elwart, D. South Carolina Department of Parks, Recreation, and Tourism	Various	State Parks	Hardcopy maps	Unknown	Various	Various
USGS	Varies by Map	USGS Topographic Quadrangles	Hardcopy maps	USGS, Washington, D.C.	24000	Varies by Map

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
Settle, J. SCDNR, Charleston, SC	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
SCDNR, Heritage Trust Program, Columbia, SC	N/A	South Carolina Heritage Trust Database	ARC/INFO point coverage and dBASE files	Heritage Trust Program Data Manager: Kathy Boyle	Unknown	to 1994
Murphy, T. SCDNR, Green Pond, SC	N/A	South Carolina Bald Eagle Nest Database	dBASE files (lat/long)	N/A	Unknown	to 1995
Murphy, T. and P. Wilkinson SCDNR, Green Pond and Georgetown, SC	N/A	South Carolina Colonial Waterbird Nesting Database	dBASE files (lat/long)	N/A	Unknown	1988-1995
Post, W. and S.A. Gauthreaux	1989	Status and Distribution of South Carolina Birds	Hardcopy text	Contributions from the Charleston Museum No. 18, Charleston, SC, 83 pp.	N/A	Historical-1989

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
Murphy, S. SCDNR, Charleston, SC	N/A	Sea Turtle Nesting Beaches for South Carolina	Expert knowledge	N/A	N/A	1990-1992

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
Rhodes, W. SCDNR, Bonneau, SC	N/A	Alligator Concentration Areas for South Carolina	Expert knowledge	N/A	N/A	1996

2.5.1. SOURCE INFORMATION:

Coverage or theme name: SHELLFSH

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
Anderson, W.D., W.J. Keith, F.H. Mills, M.E. Bailey, and J.L. Steinmeyer	1978	A Survey of South Carolina Hard Clam Resources	Hardcopy maps and text	SC MRC, Tech. Rept. No. 32, Charleston, SC 18 pp.	24000	1973-1977
Nelson, S.M., E.A. Irlandi, L.R. Settle, M.E. Monaco, and L. Coston-Clements	1991	Distribution & Abundance of Fishes & Invertebrates in Southeast Estuaries	Hardcopy data tables	ELMR Rept. No. 9, NOAA/ NOS SEA Division, Silver Spring, MD, 167 pp.	N/A	to 1991
Delancey, L. SCDNR, Charleston, SC	N/A	Juvenile Shrimp and Crab Habitats for South Carolina	Expert knowledge	N/A	N/A	to 1995
Anderson, W. SCDNR, Charleston, SC	N/A	Oyster Habitats in South Carolina	Expert knowledge	N/A	N/A	1996

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
Whetstone, J. SC Sea Grant MEP, Georgetown, SC and A. Stokes, SCDNR, Bluffton, SC	N/A	Aquaculture Ponds, Facilities, and Water Intakes for South Carolina	Expert knowledge	N/A	N/A	to 1995
Hackett, J. SCDHEC/OCRM Charleston Harbor Project	N/A	Charleston Harbor Project Water Quality Stations	Hardcopy maps	N/A	85000 approx.	to 1995
Knight, S. SCDHEC, Myrtle Beach, SC	N/A	Water Intake Locations	Hardcopy maps and text	N/A	24000	to 1995
Fanning, W. SCDHEC	N/A	Water Intake Locations	Hardcopy maps	N/A	50000	to 1995
SC Sea Grant Consortium and Clemson University, Dept. of Parks, Recreation, and Tourism Management	1988	South Carolina Public Beach and Coastal Access Guide	Hardcopy maps and text	SC Dept. of Parks, Recreation, and Tourism, SCDHEC Coastal Council, Charleston, SC, 137 pp.	100000 approx.	1987-1988
USGS	Varies by Map	USGS Topographic Quadrangles	Hardcopy maps	USGS, Washington, D.C.	24000	Varies by Map
SCDNR, Marine Resources, Charleston, SC	N/A	Artificial Reefs in South Carolina	ARC/INFO point coverage	Marine Resources Data Manager: Andrew Bury	Unknown	to 1994
Shaw, T. SC Department of Archives and History, Columbia, SC	N/A	Historical Sites in South Carolina	ARC/INFO point coverage	N/A	24000	to 1988

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
SCDNR, Marine Resources Division, Charleston, SC	N/A	Boat Ramps, Marinas, and Fishing Piers in South Carolina	ARC/INFO point coverages	Marine Resources Data Manager: Andrew Bury	24000	1988
Wenner, C. and W. Roumillat SCDNR, Charleston, SC	N/A	Estuarine, Nearshore, and Reef Fish Assemblages for South Carolina, and Fishing Sites	Expert knowledge	N/A	N/A	to 1995

2.5.1. SOURCE INFORMATION:

Coverage or theme name: T_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
Baker, O. SCDNR, Columbia, SC	N/A	Small Fur-bearing Mammal Habitats for South Carolina	Expert knowledge	N/A	N/A	to 1995
SCDNR, Heritage Trust Program, Columbia, SC	N/A	South Carolina Heritage Trust Database	ARC/INFO point coverage and dBASE files	Heritage Trust Program Data Manager: Kathy Boyle	Unknown	to 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. A digital shoreline

was generated from NWI data obtained from multiple sources. These data were aggregated to ESI wetland polygons and an attempt was made to fix major edge-matching problems between quadrangles. However, the editing procedure identified only those wetlands that are tidally and marine influenced. No attempt was made to fix problems in the upland wetlands. Any errors in the shoreline classification were updated prior to digitization of the biological and socio-economic 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 by an in-house biological 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:

199606

2.5.2.6. PROCESS CONTACT

CONTACT PERSON PRIMARY

2.5.2.6.1.1. CONTACT PERSON:

Jill Petersen

2.5.2.6.1.2. CONTACT ORGANIZATION:

NOAA HMRAD

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.

Bin C15700

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

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

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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	13,601	13,601	25,696	942,206			19,366
ESI	1	10,608	10,608	27,773	860,566			22,235
FISH	1	2,569	2,569	4,828	442,600			3,871
HYDRO	1	5,129	5,129	8,187	474,973	467		8,053
INDEX	1	63	63	140	172			78
MGT	1	12	12	18	5,447			18
M_MAMMAL	1	171	171	335	59,916			288
NESTS							213	
REPTILES	1	107	107	227	64,498			218
SHELLFSH	1	2,454	2,454	4,137	363,190			3,414
SOCECON				3	313		704	44
T_MAMMAL	1	7,484	7,484	10,352	746,350			8,886

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4.0 SPATIAL REFERENCE INFORMATION

4.1. HORIZONTAL COORDINATE SYSTEM DEFINITION

4.1.2. PLANAR

4.1.2.1. MAP PROJECTION

4.1.2.1.1. MAP PROJECTION NAME:

Universal Transverse Mercator

4.1.2.1.2. MAP PROJECTION PARAMETERS:

4.1.2.1.2.1. ZONE:

17

4.1.2.1.2.2. UNITS:

Meters

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: BIRDS

The data layer BIRDS contains the polygons with bird species.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:
GT-Polygons	ID 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 POLY_LUT table. The POLY_LUT is a lookup table with two attributes: ID and RARNUM. ID is a concatenation of atlas number (34), element number (1), and record number. ID values of zero are holes in polygons and do not contain information. In the lookup table, the value of RARNUM is determined for each unique combination of ELEMENT, SPECIES_ID, SEASON_ID, and CONC and links to the biology table, BIORES. The items in BIORES are: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, and ELEMENT. 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 LOW, MEDIUM, HIGH, or VERY HIGH. SEASON_ID contains a numeric value according to the monthly presence of the species. Usually, there is one seasonality per species, but occasionally the same species has different monthly presence or breeding activity. When this occurs, a new record with a different seasonality is referenced.

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

SPECIES ID	NAME
1	Common loon
3	Red-throated loon
8	Double-crested cormorant
15	Snow goose
16	Mallard
17	Northern pintail
18	Green-winged teal
20	Northern shoveler
21	Canvasback
22	Greater scaup
23	Lesser scaup
24	Common goldeneye
26	Bufflehead
27	Oldsquaw
30	Surf scoter
32	Common merganser
33	Red-breasted merganser
34	American coot
56	Spotted sandpiper
58	Greater yellowlegs
59	Lesser yellowlegs
60	Red knot
63	Dunlin
69	Semipalmated plover
70	Killdeer
71	Black-bellied plover
73	Ruddy turnstone
86	Least tern
89	Snowy egret
94	Tricolored heron
98	Laughing gull
118	Brown pelican
124	Redhead
125	Clapper rail
133	Black skimmer
134	Gull-billed tern
135	Sandwich tern
137	Royal tern
141	American avocet
142	Black-necked stilt
148	Ruddy duck

SPECIES ID	NAME
152	American oystercatcher
153	Piping plover
154	Wilson's plover
155	Willet
156	Semipalmated sandpiper
162	Gadwall
169	American wigeon
178	Least bittern
180	Ring-necked duck
186	Black duck
190	Blue-winged teal
191	Wood duck
197	Black scoter (common)
198	Hooded merganser
210	Marbled godwit
211	Mottled duck
234	Purple sandpiper
286	Dowitcher
290	Peep
1,001	Gulls
1,002	Shorebirds
1,004	Wading birds
1,008	Terns

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: ESI

The data layer ESI contains arc (Complete Chains) and polygonal (GT-Polygons) features for the ESI shoreline classification and is based on *Environmental Sensitivity Index Guidelines, Version 2.0* (Halls, J., J. Michel, S. Zengel, and J. Dahlin, 1996, Hazardous Materials Response and Assessment Division, NOAA). The ESI classification was performed over the period from March-October 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 ENVIR character
<u>GT-Polygons</u>	ESI character WATER_CODE character

5.1.2. ATTRIBUTES:

5.1.2.1. ATTRIBUTE LABEL:

ESI

5.1.2.2. ATTRIBUTE DEFINITION:

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 South 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.

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	Exposed Walls and Other Solid Structures Made of Concrete, Wood, or Metal
1/2A	Exposed Walls and Other Solid Structures Made of Concrete, Wood, or Metal/Exposed Scarps in Clay

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
1/3A	Exposed Walls and Other Solid Structures Made of Concrete, Wood, or Metal/Fine-grained Sand Beaches
1/3A/7	Exposed Walls and Other Solid Structures Made of Concrete, Wood, or Metal/Fine-grained Sand Beaches/ Exposed Tidal Flats (Sandy)
1/5	Exposed Walls and Other Solid Structures Made of Concrete, Wood, or Metal/Mixed Sand and Gravel (Shell) Beaches
1/6A	Exposed Walls and Other Solid Structures Made of Concrete, Wood, or Metal/Gravel (Shell) Beaches
1/6B	Exposed Walls and Other Solid Structures Made of Concrete, Wood, or Metal/Exposed Riprap Structures
1/6B/3A	Exposed Walls and Other Solid Structures Made of Concrete, Wood, or Metal/Exposed Riprap Structures/ Fine-grained Sand Beaches
1/6B/7	Exposed Walls and Other Solid Structures Made of Concrete, Wood, or Metal/Exposed Riprap Structures/ Exposed Tidal Flats (Sandy)
1/7	Exposed Walls and Other Solid Structures Made of Concrete, Wood, or Metal/Exposed Tidal Flats (Sandy)
1/10A	Exposed Walls and Other Solid Structures made of Concrete, Wood, or Metal/Salt and Brackish-water Marshes/Salt and Brackish-water Marshes
1/10A/7	Exposed Walls and Other Solid Structures Made of Concrete, Wood, or Metal/Salt and Brackish-water Marshes/Exposed Tidal Flats (Sandy)
1/10B	Exposed Walls and Other Solid Structures Made of Concrete, Wood, or Metal/Freshwater Marshes (Herbaceous Vegetation)
2A	Exposed Scarps in Clay
2A/3A	Exposed Scarps in Clay/Fine-grained Sand Beaches
2A/7	Exposed Scarps in Clay/Exposed Tidal Flats (Sandy)
2A/10A	Exposed Scarps in Clay/Salt and Brackish-water Marshes
2B	Wave-cut Mud Platforms
3A	Fine-grained Sand Beaches
3A/2A	Fine-grained Sand Beaches/Exposed Scarps in Clay
3A/2B	Fine-grained Sand Beaches/Wave-cut Mud Platforms
3A/3B	Fine-grained Sand Beaches/Scarps and Steep Slopes in Sand
3A/6B	Fine-grained Sand Beaches/Exposed Riprap Structures

**5.1.2.4.1.1.
ENUMERATED
DOMAIN VALUE:**

**5.1.2.4.1.2.
ENUMERATED DOMAIN
VALUE DEFINITION:**

3A/7	Fine-grained Sand Beaches/Exposed Tidal Flats (Sandy)
3A/8B	Fine-grained Sand Beaches/Sheltered Scarps in Marsh/ Mud
3A/8B/7	Fine-grained Sand Beaches/Sheltered Scarps in Marsh/ Mud/Exposed Tidal Flats (Sandy)
3A/9	Fine-grained Sand Beaches/Sheltered Tidal Flats/Oyster Beds (Muddy)
3A/10A	Fine-grained Sand Beaches/Salt and Brackish-water Marshes
3A/10A/6A	Fine-grained Sand Beaches/Salt and Brackish-water Marshes/Gravel (Shell) Beaches
3A/10A/7	Fine-grained Sand Beaches/Salt and Brackish-water Marshes/Exposed Tidal Flats (Sandy)
3A/10A/8B	Fine-grained Sand Beaches/Salt and Brackish-water Marshes/Sheltered Scarps in Marsh/Mud
3A/10A/9	Fine-grained Sand Beaches/Salt and Brackish-water Marshes/Sheltered Tidal Flats/Oyster Beds (Muddy)
3B	Scarps and Steep Slopes in Sand
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 (Sandy)
3B/5	Scarps and Steep Slopes in Sand/Mixed Sand and Gravel (Shell) Beaches
3B/6A	Scarps and Steep Slopes in Sand/Gravel (Shell) Beaches
3B/6A/7	Scarps and Steep Slopes in Sand/Gravel (Shell) Beaches/ Exposed Tidal Flats (Sandy)
3B/6B	Scarps and Steep Slopes in Sand/Exposed Riprap Structures
3B/7	Scarps and Steep Slopes in Sand/Exposed Tidal Flats (Sandy)
3B/7/9	Scarps and Steep Slopes in Sand/Exposed Tidal Flats (Sandy)/Sheltered Tidal Flats/Oyster Beds (Muddy)
3B/8B	Scarps and Steep Slopes in Sand/Sheltered Scarps in Marsh/Mud
3B/9	Scarps and Steep Slopes in Sand/Sheltered Tidal Flats/Oyster Beds (Muddy)
3B/10A	Scarps and Steep Slopes in Sand/Salt and Brackish-water Marshes

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
3B/10A/7	Scarps and Steep Slopes in Sand/Salt and Brackish-water Marshes/Exposed Tidal Flats (Sandy)
3B/10B	Scarps and Steep Slopes in Sand/Freshwater Marshes (Herbaceous Vegetation)
4	Medium- to Coarse-grained Sand Beaches
4/7	Medium- to Coarse-grained Sand Beaches/Exposed Tidal Flats (Sandy)
5	Mixed Sand and Gravel (Shell) Beaches
5/2B	Mixed Sand and Gravel (Shell) Beaches/Wave-cut Mud Platforms
5/2B/10A	Mixed Sand and Gravel (Shell) Beaches/Wave-cut Mud Platforms/Salt and Brackish-water Marshes
5/7	Mixed Sand and Gravel (Shell) Beaches/Exposed Tidal Flats (Sandy)
5/9	Mixed Sand and Gravel (Shell) Beaches/Sheltered Tidal Flats/Oyster Beds (Muddy)
5/10A	Mixed Sand and Gravel (Shell) Beaches/Salt and Brackish-water Marshes
5/10A/6A	Mixed Sand and Gravel (Shell) Beaches/Salt and Brackish-water Marshes/Gravel (Shell) Beaches
5/10A/7	Mixed Sand and Gravel (Shell) Beaches/Salt and Brackish-water Marshes/Exposed Tidal Flats (Sandy)
6A	Gravel (Shell) Beaches
6A/7	Gravel (Shell) Beaches/Exposed Tidal Flats (Sandy)
6A/9	Gravel (Shell) Beaches/Sheltered Tidal Flats/Oyster Beds (Muddy)
6A/10A	Gravel (Shell) Beaches/Salt and Brackish-water Marshes
6B	Exposed Riprap Structures
6B/3A	Exposed Riprap Structures/Fine-grained Sand Beaches
6B/5	Exposed Riprap Structures/Mixed Sand and Gravel (Shell) Beaches
6B/6A	Exposed Riprap Structures/Gravel (Shell) Beaches
6B/7	Exposed Riprap Structures/Exposed Tidal Flats (Sandy)
6B/8B	Exposed Riprap Structures/Sheltered Scarps in Marsh/ Mud
6B/9	Exposed Riprap Structures/Sheltered Tidal Flats/Oyster Beds (Muddy)
6B/9/7	Exposed Riprap Structures/Sheltered Tidal Flats/Oyster Beds (Muddy)/Exposed Tidal Flats (Sandy)

**5.1.2.4.1.1.
ENUMERATED
DOMAIN VALUE:**

**5.1.2.4.1.2.
ENUMERATED DOMAIN
VALUE DEFINITION:**

6B/10A	Exposed Riprap Structures/Salt and Brackish-water Marshes
6B/10A/7	Exposed Riprap Structures/Salt and Brackish-water Marshes/Exposed Tidal Flats (Sandy)
6B/10A/9	Exposed Riprap Structures/Salt and Brackish-water Marshes/Sheltered Tidal Flats/Oyster Beds (Muddy)
7	Exposed Tidal Flats (Sandy)
7/2B	Exposed Tidal Flats (Sandy)/Exposed Scarps in Clay
7/6B	Exposed Tidal Flats (Sandy)/Exposed Riprap Structures
7/9	Exposed Tidal Flats (Sandy)/Sheltered Tidal Flats/Oyster Beds (Muddy)
7/10A	Exposed Tidal Flats (Sandy)/Salt and Brackish-water Marshes
8A	Sheltered, Solid Man-made Structures
8A/2A	Sheltered, Solid Man-made Structures/Exposed Scarps in Clay
8A/3A	Sheltered, Solid Man-made Structures/Fine-grained Sand Beaches
8A/3B/7	Sheltered, Solid Man-made Structures/Scarps and Steep Slopes in Sand
8A/6A	Sheltered, Solid Man-made Structures/Gravel (Shell) Beaches
8A/7	Sheltered, Solid Man-made Structures/Exposed Tidal Flats (Sandy)
8A/8B	Sheltered, Solid Man-made Structures/Sheltered Scarps in Marsh/Mud
8A/9	Sheltered, Solid Man-made Structures/Sheltered Tidal Flats/Oyster Beds (Muddy)
8A/10A	Sheltered, Solid Man-made Structures/Salt and Brackish-water Marshes
8A/10A/7	Sheltered, Solid Man-made Structures/Salt and Brackish-water Marshes/Exposed Tidal Flats (Sandy)
8A/10A/9	Sheltered, Solid Man-made Structures/Salt and Brackish-water Marshes/Sheltered Tidal Flats/Oyster Beds (Muddy)
8B	Sheltered Scarps in Marsh/Mud
8B/5	Sheltered Scarps in Marsh/Mud/Mixed Sand and Gravel (Shell) Beaches
8B/6A	Sheltered Scarps in Marsh/Mud/Gravel (Shell) Beaches

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
8B/7	Sheltered Scarps in Marsh/Mud/Exposed Tidal Flats (Sandy)
8B/9	Sheltered Scarps in Marsh/Mud/Sheltered Tidal Flats/ Oyster Beds (Muddy)
8B/10A	Sheltered Scarps in Marsh/Mud/Salt and Brackish-water Marshes
8B/10A/6A	Sheltered Scarps in Marsh/Mud/Salt and Brackish-water Marshes/Gravel (Shell) Beaches
9	Sheltered Tidal Flats/Oyster Beds (Muddy)
9/3A	Sheltered Tidal Flats/Oyster Beds (Muddy)/Fine-grained Sand Beaches
9/6A	Sheltered Tidal Flats/Oyster Beds (Muddy)/Gravel (Shell) Beaches
9/10A	Sheltered Tidal Flats/Oyster Beds (Muddy)/Salt and Brackish-water Marshes
10A	Salt and Brackish-water Marshes
10A/3A	Salt and Brackish Water Marshes/Fine-grained Sand Beaches
10A/3A/7	Salt and Brackish Water Marshes/Fine-grained Sand Beaches/Exposed Tidal Flats (Sandy)
10A/3A/9	Salt and Brackish Water Marshes/Fine-grained Sand Beaches/Sheltered Tidal Flats/Oyster Beds (Muddy)
10A/4	Salt and Brackish Water Marshes/Medium- to Coarse- grained Sand Beaches
10A/5	Salt and Brackish Water Marshes/Mixed Sand and Gravel (Shell) Beaches
10A/5/7	Salt and Brackish Water Marshes/Mixed Sand and Gravel (Shell) Beaches/Exposed Tidal Flats (Sandy)
10A/6A	Salt and Brackish Water Marshes/Gravel (Shell) Beaches
10A/6A/10A	Salt and Brackish Water Marshes/Gravel (Shell) Beaches/ Salt and Brackish Water Marshes
10A/6A/2B	Salt and Brackish Water Marshes/Gravel (Shell) Beaches/Wave-cut Mud Platforms
10A/6A/7	Salt and Brackish Water Marshes/Gravel (Shell) Beaches/Exposed Tidal Flats (Sandy)
10A/6A/8B	Salt and Brackish Water Marshes/Gravel (Shell) Beaches/Sheltered Scarps in Marsh/Mud
10A/6A/9	Salt and Brackish Water Marshes/Gravel (Shell) Beaches/Sheltered Tidal Flats/Oyster Beds (Muddy)

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
10A/6B	Salt and Brackish Water Marshes/Exposed Riprap Structures
10A/6B/7	Salt and Brackish Water Marshes/Exposed Riprap Structures/Exposed Tidal Flats (Sandy)
10A/7	Salt and Brackish Water Marshes/Exposed Tidal Flats (Sandy)
10A/8A	Salt and Brackish Water Marshes/Sheltered, Solid Man-made Structures
10A/8B	Salt and Brackish Water Marshes/Sheltered Scarps in Marsh/Mud
10A/8B/7	Salt and Brackish Water Marshes/Sheltered Scarps in Marsh/Mud/Exposed Tidal Flats (Sandy)
10A/8B/9	Salt and Brackish Water Marshes/Sheltered Scarps in Marsh/Mud/Sheltered Tidal Flats/Oyster Beds (Muddy)
10A/9	Salt and Brackish Water Marshes/Sheltered Tidal Flats/Oyster Beds (Muddy)
10A/9/10A	Salt and Brackish Water Marshes/Sheltered Tidal Flats/Oyster Beds (Muddy)/Salt and Brackish Water Marshes
10A/9/6A	Salt and Brackish Water Marshes/Sheltered Tidal Flats/Oyster Beds (Muddy)/Gravel (Shell) Beaches
10A/9/7	Salt and Brackish Water Marshes/Sheltered Tidal Flats/Oyster Beds (Muddy)/Exposed Tidal Flats (Sandy)
10B	Freshwater Marshes (Herbaceous Vegetation)
10B/6B	Freshwater Marshes (Herbaceous Vegetation)/Exposed Riprap Structures
10B/7	Freshwater Marshes (Herbaceous Vegetation)/Exposed Tidal Flats (Sandy)
10B/9	Freshwater Marshes (Herbaceous Vegetation)/Sheltered Tidal Flats/Oyster Beds (Muddy)
10B/9/7	Freshwater Marshes (Herbaceous Vegetation)/Sheltered Tidal Flats/Oyster Beds (Muddy)/Exposed Tidal Flats (Sandy)
10B/10C	Freshwater Marshes (Herbaceous Vegetation)/Freshwater Swamps (Woody Vegetation)
10C	Freshwater Swamps (Woody Vegetation)
10C/2A	Freshwater Swamps (Woody Vegetation)/Exposed Scarps in Clay
10C/7	Freshwater Swamps (Woody Vegetation)/Exposed Tidal Flats (Sandy)

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
10C/9	Freshwater Swamps (Woody Vegetation)/Sheltered Tidal Flats/Oyster Beds (Muddy)
10C/10A	Freshwater Swamps (Woody Vegetation)/Salt and Brackish-water Marshes
10C/10B	Freshwater Swamps (Woody Vegetation)/Freshwater Marshes (Herbaceous Vegetation)
U	Unranked

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:
ordered

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
P	Pier
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:**

1	SCDNR—Marine Resources Division
2	SCDNR—Water Resources Division
3	University of South Carolina’s Baruch Institute
4	Overflight
5	Digitize from Topo
6	Aerial Photographs
7	SCDNR—Land Resources Division
8	Index

**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
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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:

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:**

W	Water
L	Land

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE

DEFINITION SOURCE:

Research Planning, Inc.

5.1. DETAILED DESCRIPTION: FISH

The data layer FISH contains the polygons with fish species.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:
<u>GT-Polygons</u>	ID 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 POLY_LUT table. The POLY_LUT is a lookup table with two attributes: ID and RARNUM. ID is a concatenation of atlas number (34), element number (2), and record number. ID values of zero are holes in polygons and do not contain information. In the lookup table, the value of RARNUM is determined for each unique combination of ELEMENT, SPECIES_ID, SEASON_ID, and CONC and links to the biology table, BIORES. The items in BIORES are: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, and ELEMENT. 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 MEDIUM or HIGH. SEASON_ID contains a numeric value according to the monthly presence of the species. Usually, there is one seasonality per species, but occasionally the same species has different monthly presence or breeding activity. When this occurs, a new record with a different seasonality is referenced.

The following FISH species are found in the South Carolina ESI atlas:

SPECIES ID	NAME
65	Bluefish
81	Spiny dogfish
95	Mummichog

SPECIES ID	NAME
97	Tautog
101	Shortnose sturgeon
102	Atlantic sturgeon
107	Spotted seatrout
108	Summer flounder
109	Red drum
110	Black seabass
111	Southern flounder
114	Florida pompano
115	Atlantic menhaden
116	Striped mullet
121	Spot
122	Black drum
123	Atlantic croaker
124	Southern kingfish (whiting)
126	King mackerel
127	Spanish mackerel
134	Cobia
137	Sheepshead
138	Seatrout (weakfish)
142	Crevalle jack
143	Tarpon
214	Gulf kingfish
302	Gag grouper
315	Blacktip shark
318	Atlantic sharpnose shark
323	Atlantic stingray (stingaree)
331	Sharks
333	Herring and Shad
1,015	Rays
1,016	Skates
1,017	Grunts
1,018	Porgies
1,019	Snappers

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: HYDRO

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

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:
<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 coverage. This coverage 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 socio-economic 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:
W	Water
L	Land

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:

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE DEFINITION:

B	Breakwater
F	Flat
I	Index
M	Marsh
P	Pier
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:

1	SCDNR—Marine Resources Division
2	SCDNR—Water Resources Division
3	University of South Carolina’s Baruch Institute
4	Overflight
5	Digitize from Topo
6	Aerial Photographs
7	SCDNR—Land Resources Division
8	Index

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 boundaries for each quad/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 fraction 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 63.

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:

ordered

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

Research Planning, Inc.

ADAMS RUN, SC (1972)
AWENDAW, SC (1992)
BEAUFORT, SC (1979)
BENNETTES POINT, SC (1960)
BLUFFTON, SC (1972)
BROOKGREEN, SC (1973)
BUCKSVILLE, SC (1973)
BULL ISLAND, SC (1992)
CAINHOY, SC (1971)
CAPE ROMAIN, SC (1992)
CAPERS INLET, SC (1992)
CHARLESTON, SC (1983)
COOSAWHATCHIE, SC (1988)
CORDESVILLE, SC (1979)
DALE, SC (1988)
EDISTO BEACH, SC (1972)
EDISTO ISLAND, SC (1972)
FENWICK, SC (1960)
FORT MOULTRIE, SC (1979)
FORT PULASKI, GA-SC (1978)
FRIPPS INLET, SC (1979)
FROGMORE, SC (1956)
GEORGETOWN NORTH, SC (1973)
GEORGETOWN SOUTH, SC (1973)
HAND, SC (1984)
HILTON HEAD, SC (1971)
JAMES ISLAND, SC (1979)
JASPER, SC (1979)
JOHNS ISLAND, SC (1979)
KIAWAH ISLAND, SC (1971)
KITREDGE, SC (1979)
LADSON, SC (1979)
LAUREL BAY, SC (1962)
LEGAREVILLE, SC (1971)
LIMEHOUSE, SC-GA (1980)
LITTLE RIVER, SC (1990); CALABASH, NC-SC (1990)
MAGNOLIA BEACH, SC (1973)
McCLELLANVILLE, SC (1992)
MINIM ISLAND, SC (1973)
MYRTLE BEACH, SC (1984)
NORTH CHARLESTON, SC (1979)
NORTH ISLAND, SC (1973)

OCEAN FOREST, SC (1984)
 PARRIS ISLAND, SC (1979)
 PRITCHARDVILLE, SC (1971)
 RAVENEL, SC (1971)
 RIDGELAND, SC (1979)
 ROCKVILLE, SC (1971)
 SANTEE, SC (1973)
 SANTEE POINT, SC (1973)
 SAVANNAH, GA-SC (1978)
 SEWEE BAY, SC (1959)
 SHELDON, SC (1988)
 SPRING ISLAND, SC (1958)
 ST. HELENA SOUND, SC (1979)
 ST. PHILLIPS ISLAND, SC (1972)
 STALLSVILLE, SC (1979)
 SURFSIDE BEACH, SC (1984)
 TYBEE ISLAND NORTH, SC (1978)
 WADMALAW ISLAND, SC (1971)
 WAMPEE, SC (1990)
 WAVERLY MILLS, SC (1973); PLANTERSVILLE, SC (1973)
 WIGGINS, SC (1988)

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 at which the INDEX polygon 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

52,000

54,000

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

58,000

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 (usually negative) to rotate the final map product so that it is situated straight up and down.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

-1.360
-1.290
-1.220
-1.216
-1.147
-1.143
-1.077
-1.073
-1.070
-1.001
-0.998
-0.994
-0.932
-0.929
-0.926
-0.923
-0.857
-0.854
-0.786
-0.783
-0.715
-0.713
-0.647
-0.645

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

-0.583
-0.581
-0.579
-0.577
-0.575
-0.511
-0.509
-0.507
-0.506
-0.443
-0.441
-0.440
-0.438
-0.372
-0.371
-0.369
-0.304
-0.303
-0.302
-0.301
-0.236
-0.235
-0.234
-0.168
-0.167
-0.101
-0.100
-0.034
-0.033
0.00
0.033
0.034

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

5.1. DETAILED DESCRIPTION: MGT

The data layer MGT contains the managed lands polygons for human-use data.

5.1.1. ENTITY TYPES:

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

5.1.2. ATTRIBUTES:**5.1.2.1. ATTRIBUTE LABEL:**

SOCECON

5.1.2.2. ATTRIBUTE DEFINITION:

Identifies polygons with a socio-economic, or human-use, feature. This attribute allows direct access to the type of feature instead of linking to the more detailed SOC_DATA 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.

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

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. SOC_LUT is a lookup table with two attributes: ID and HUNUM. ID is a concatenation of atlas number (34), element number (11), and record number. HUNUM is the link to the socio-economic data found in the SOC_DATA table. The table SOC_DATA contains

the feature type, the name of the feature, the geographic source number, and the attribute source number.

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:

nominal

5.1. DETAILED DESCRIPTION: M_MAMMAL

The data layer M_MAMMAL contains the polygons with marine mammal species.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:
<u>GT-Polygons</u>	ID 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 POLY_LUT table. The POLY_LUT is a lookup table with two attributes: ID and RARNUM. ID is a concatenation of atlas number (34), element number (2), and record number. ID values of zero are holes in polygons and do not contain information. In the lookup table, the value of RARNUM is determined for each unique combination of ELEMENT, SPECIES_ID, SEASON_ID, and CONC and links to the biology table, BIORES. The items in BIORES are: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, and ELEMENT. 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 LOW, MEDIUM, or HIGH, or an actual count of the number of species present in the polygon. SEASON_ID contains a numeric value according to the monthly presence of the species. Usually, there is one seasonality per species, but occasionally the same species has different monthly presence or breeding activity. When this occurs, a new record with a different seasonality is referenced.

The following M_MAMMAL species are found in the South Carolina ESI atlas:

SPECIES ID	NAME
17	Bottlenose dolphin

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: NESTS

The data layer NESTS contains entity points representing nesting sites.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:
<u>GT-Polygons</u>	ID 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 PNTS_LUT table. The PNTS_LUT is a lookup table with two attributes: ID and RARNUM. ID is a concatenation of atlas number (34), element number (5), and record number. In the lookup table, the value of RARNUM is determined for each unique combination of ELEMENT, SPECIES_ID, SEASON_ID, and CONC and links to the biology table, BIORES. The items in BIORES are: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, and ELEMENT. SPECIES_ID is the numeric identifier of each species and is unique within each ELEMENT. CONC is the concentration of the species and contains a value for the number of nests. Blank concentration means it was not surveyed in 1995 and a value of zero indicates an empty nesting site when surveyed in 1995. SEASON_ID contains a numeric value according to the monthly presence of the species. Usually, there is one seasonality per species, but occasionally the same species has different monthly presence or breeding activity. When this occurs, a new record with a different seasonality is referenced.

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

SPECIES ID	NAME
8	Double-crested cormorant
45	Common tern

SPECIES ID	NAME
54	Great blue heron
76	Bald eagle
77	Osprey
86	Least tern
87	Little blue heron
88	Great egret
89	Snowy egret
90	Black-crowned night heron
91	Glossy ibis
93	Cattle egret
94	Tricolored heron
97	Green-backed heron
98	Laughing gull
115	White ibis
118	Brown pelican
120	Yellow-crowned night heron
121	Anhinga
132	Wood stork
133	Black skimmer
134	Gull-billed tern
135	Sandwich tern
137	Royal tern
152	American oystercatcher
154	Wilson's plover
155	Willet
280	Swallow-tailed kite
1,004	Wading birds

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: REPTILES

The data layer REPTILES contains the polygons with reptile species.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:
<u>GT-Polygons</u>	ID 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 POLY_LUT table. The POLY_LUT is a lookup table with two attributes: ID and RARNUM. ID is a concatenation of atlas number (34), element number (6), and record number. ID values of zero are holes in polygons and do not contain information. In the lookup table, the value of RARNUM is determined for each unique combination of ELEMENT, SPECIES_ID, SEASON_ID, and CONC and links to the biology table, BIORES. The items in BIORES are: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, and ELEMENT. 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 LOW, MEDIUM, HIGH, or VERY HIGH. For alligators, all concentration estimates are listed as "HIGH". For sea turtle nesting beaches, concentrations are based on nesting densities recorded during aerial surveys. Nesting densities are defined as follows: <10 nests/km = "LOW"; 10-30 nests/km = "MEDIUM"; 31-50 nests/km = "HIGH"; and >50 nests/km = "VERY HIGH". SEASON_ID contains a numeric value according to the monthly presence of the species. Usually, there is one seasonality per species, but occasionally the same species has different monthly presence or breeding activity. When this occurs, a new record with a different seasonality is referenced.

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

SPECIES ID	NAME
3	American alligator
6	Atlantic loggerhead sea turtle

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: SHELLFSH

The data layer SHELLFSH contains the polygons with shellfish species.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:
<u>GT-Polygons</u>	ID 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 POLY_LUT table. The POLY_LUT is a lookup table with two attributes: ID and RARNUM. ID is a concatenation of atlas number (34), element number (7), and record number. ID values of zero are holes in polygons and do not contain information. In the lookup table, the value of RARNUM is determined for each unique combination of ELEMENT, SPECIES_ID, SEASON_ID, and CONC and links to the biology table, BIORES. The items in BIORES are: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, and ELEMENT. 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 LOW, MEDIUM, HIGH, or VERY HIGH. For clams, concentrations are based on sampling densities recorded in the field. Clam densities are defined as follows: 1-5 clams/sq. yard = "LOW"; 6-10 clams/sq. yard = "MEDIUM"; 11-15 clams/sq. yard = "HIGH"; and 16+ clams/sq. yard = "VERY HIGH". SEASON_ID contains a numeric value according to the monthly presence of the species. Usually, there is one seasonality per species, but occasionally the same species has different monthly presence or breeding activity. When this occurs, a new record with a different seasonality is referenced.

The following SHELLFSH species are found in the South Carolina ESI atlas:

SPECIES ID	NAME
43	American oyster (eastern)
49	Blue crab
92	Penaeid shrimp
100	Quahog spp. (hard clam)

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: SOCECON

The data layer SOCECON contains the entity points 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>	SOCECON character
<u>Entity Points</u>	SOCECON character
	ID integer

5.1.2. ATTRIBUTES:**5.1.2.1. ATTRIBUTE LABEL:**

SOCECON

5.1.2.2. ATTRIBUTE DEFINITION:

Identifies a line or point with a socio-economic, or human-use, feature. This attribute allows direct access to the type of feature instead of linking to the more detailed SOC_DATA 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.

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

A	Airport (Point)
AQ	Aquaculture (Point)
B	Beach (Point)
BR	Boat Ramp (Point)
CG	Coast Guard (Point)
HS	Historic Site (Point)
M	Marina (Point)
MS	Marine Sanctuary (Point)
RF	Recreational Fishing (Point)
SB	State Border (Chain)
WI	Water Intake (Point)
WQ	Water Quality Station (Point)

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. SOC_LUT is a lookup table with two attributes: ID and HUNUM. ID is a concatenation of atlas number (34), element number (10), and record number. HUNUM is the link to the socio-economic data found in the SOC_DATA table. The table SOC_DATA contains the feature type, the name of the feature, the geographic source number, and the attribute source number.

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:

nominal

5.1. DETAILED DESCRIPTION: T_MAMMAL

The data layer T_MAMMAL contains the polygons with terrestrial mammal species.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:
<u>GT-Polygons</u>	ID 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 POLY_LUT table. The POLY_LUT is a lookup table with two attributes: ID and RARNUM. ID is a concatenation of atlas number (34), element number (9), and record number. ID values of zero are holes in polygons and do not contain information. In the lookup table, the value of RARNUM is determined for each unique combination of ELEMENT, SPECIES_ID, SEASON_ID, and CONC and links to the biology table, BIORES. The items in BIORES are: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, and ELEMENT. 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 LOW, MEDIUM, or HIGH, or an actual count of the number of species present in the polygon. SEASON_ID contains a numeric value according to the monthly presence of the species. Usually, there is one seasonality per species, but occasionally the same species has different monthly presence or breeding activity. When this occurs, a new record with a different seasonality is referenced.

The following T_MAMMAL species are found in the South Carolina ESI atlas:

SPECIES ID	NAME
8	River otter
36	Beaver
37	Muskrat
38	Mink
44	Northern raccoon

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:

Robert Pavia

6.1.1.2. CONTACT ORGANIZATION:

NOAA

6.1.4. CONTACT ADDRESS

6.1.4.1. ADDRESS TYPE:

Physical Address

6.1.4.2. ADDRESS:

7600 Sand Point Way N.E., Bin C15700

6.1.4.3. CITY:

Seattle

6.1.4.4. STATE OR PROVINCE:

WA

6.1.4.5. POSTAL CODE:

98115

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 South 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:

19960625

7.2. METADATA REVIEW DATE:

19970508

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 HMRAD

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., Bin C15700

7.4.4.3. CITY:

Seattle

7.4.4.4. STATE OR PROVINCE:

Washington

7.4.4.5. POSTAL CODE:

98115

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

7.5. METADATA STANDARD NAME:

Content Standards for Digital Geospatial Metadata

7.6. METADATA STANDARD VERSION:

19940608

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