

ST. JOHNS RIVER, FLORIDA
ENVIRONMENTAL SENSITIVITY
INDEX METADATA

June 1997

Prepared By:
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FILE DESCRIBES: Digital data for 1997 St. Johns River, Florida Environmental Sensitivity Index. Data were compiled and digitized at Research Planning, Inc., Columbia, South Carolina.

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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:

Florida Department of Environmental Protection (FDEP), Florida Marine Research Institute (FMRI), 100 Eighth Avenue S.E., St. Petersburg, Florida 33701; and Research Planning, Inc. (RPI), 1121 Park Street, Post Office Box 328, Columbia, South Carolina 29202

1.1.2. PUBLICATION DATE:

199705

1.1.4. TITLE:

Sensitivity of Shoreline Habitats and Wildlife to Spilled Oil: St. Johns River, Florida

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:

St. Johns River, Florida

1.1.8. PUBLICATION INFORMATION

1.1.8.1. PUBLICATION PLACE:

St. Petersburg, Florida

1.1.8.2. PUBLISHER:

Florida Department of Environmental Protection, Florida Marine Research Institute

1.1.9. OTHER CITATION DETAILS:

Prepared by Research Planning, Inc., Columbia, South Carolina for the Florida Department of Environmental Protection, Florida Marine Research Institute, St. Petersburg, Florida

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 the St. Johns River, Florida. ESI data characterize lacustrine and riverine 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 shoreline habitats were mapped during aerial and ground surveys conducted in December, 1996. The biological and human-use resources data were compiled by regional biologists in 1996 and 1997. 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:

-81.875

1.5.1.2. EAST BOUNDING COORDINATE:

-81.125

1.5.1.3. NORTH BOUNDING COORDINATE:

30.250

1.5.1.4. SOUTH BOUNDING COORDINATE:

28.750

1.6 KEYWORDS

1.6.1. THEME

1.6.1.1. THEME KEYWORD THESAURUS:

None

1.6.1.2. THEME KEYWORD:

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

1.6.2. PLACE

1.6.2.1. THESAURUS:

None

1.6.2.2. PLACE KEYWORD:

Florida, to encompass the lacustrine and riverine areas of the St. Johns River, from Jacksonville, Florida to Sanford, Florida

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 this data.

Acknowledgment of the FDEP and other contributing sources would be appreciated in products derived from these data

1.11. DATA SET CREDIT:

This project was supported by the FDEP, Florida Marine Research Institute (FMRI). Henry Norris, with FMRI's Coastal and Marine Resource Assessment section, served as contract manager and contributed significantly to the project.

Much of the biological data included on the maps were provided by scientists and resource managers from the Florida Game and Fresh Water Fish Commission (FGFWFC) and FDEP. Contributions and helpful suggestions were also provided by individuals with the U.S. Fish and Wildlife Service (USFWS), the Florida Museum of Natural History, University of Florida, and the U.S.

Geological Survey (USGS), Biological Resources Division. Digital data for the shoreline, wetlands, aquatic vegetation, and other land-use/land-cover features were provided by the St. Johns River Water Management District (SJRWMD). Digital data and hardcopy maps for a variety of resources were provided by the FGFWFC and Florida Natural Areas Inventory (FNAI). Glenn Reynolds (FGFWFC), Randy Kautz (FGFWFC), and Lance Peterson (FNAI) assisted with data transfer. Digital data for managed areas were provided by FDEP .

At RPI, Mark White and Scott Zengel were the project managers. Shoreline mapping was conducted by Miles O. Hayes. Biological and human-use data were collected and compiled by Scott Zengel. Mark White, Lee Diveley, Christopher Locke, Kara Hastings, Zach Nixon, and William Holton entered the data and produced the final maps, under the supervision of Joanne Halls. 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: bio_obs.e00, biores.e00, birds.e00, breed.e00, esi.e00, fish.e00, habitats.e00, hydro.e00, index.e00, invert.e00, mgt.e00, m_mammal.e00, nests.e00, reptiles.e00, seasonal.e00, soc_data.e00, socecon.e00, sources.e00, species.e00, status.e00, and t_mammal.e00. The entire data set is approximately 55 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. Existing digital shoreline and wetlands data are integrated into a study-wide basemap. In order to facilitate digitizing, the entire study area is split into individual quadrangles using the INDEX coverage. The first layer of information digitized is the ESI shoreline classification. The ESI habitat ranking is compiled onto 1:24,000 USGS topographic quadrangles by a geomorphologist. The hardcopy maps are then digitized and then checked using both on-screen and hardcopy reviews. The edited maps are updated, checked once again for completeness and topological and logical consistency. Any errors in the shoreline classification are updated prior to digitization of the biological and human-use layers. All layers use the shoreline as the geographic reference so that there are no slivers in the geographic coordinates.

The hardcopy biological information is compiled onto 1:24,000 USGS topographic quadrangles by a biological expert using data from regional specialists in the form of maps, tables, charts, written descriptions of wildlife distributions, and personal intervals. Concurrently, digital data sources are imported, projected, checked for quality control, and integrated into the data structure. The hardcopy data are digitized, checked using both digital and on-screen procedures, integrated with existing data, 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:

Shoreline habitats for the St. Johns River were mapped during overflights conducted in December 1996 (maps #1-6 from East Florida were mapped during overflights conducted in May 1993). Overflights were conducted using fixed-wing aircraft, flying at elevations of 300-500 feet and slow air speed. An experienced geomorphologist segmented and classified the shoreline habitats directly onto hardcopy maps which contained shoreline and wetlands data and scanned basemap images from 1:24,000 USGS topographic maps. Where appropriate, multiple habitats were delineated for each shoreline segment. Where there were complex changes in the shoreline, the most current aerial photographs were used to update shoreline position and type.

Vertical aerial photographs were provided by the SJRWMD for use in shoreline mapping. Wetlands data were obtained from existing land-use/ land-cover data provided by the SJRWMD, classified using a modified version of the Florida Land Use, Cover, and Forms Classification System (Florida Department of Transportation, 1985). The various wetlands classes were collapsed into three categories for the ESI maps and databases. Freshwater marshes and selected wet prairies were collapsed into the ESI freshwater marsh category (ESI=10B). Wetland hardwood forests, wetland coniferous forests, and wetland forested mixed were collapsed into the ESI swamp category (ESI=10C). Mixed scrub-shrub wetlands were categorized as ESI scrub-shrub (ESI=10D).

Prediction of the behavior and persistence of oil on shoreline habitats is based on an understanding of the dynamics of riverine and lacustrine environments, not just the substrate type and grain size. The sensitivity of a particular shoreline habitat is an integration of the following factors:

- 1) Shoreline type (substrate, grain size, elevation, origin)

- 2) Exposure to current, 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 shoreline 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 river currents, wave action, boat wakes, and tidal action 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 river currents or waves, and low biological activity, rank low on the ESI 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. Seven major categories, or ELEMENTs, of biological resources were considered during data compilation: birds, fish, habitats and plants of concern, marine mammals, reptiles and amphibians, invertebrates, and terrestrial mammals.

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 data layer (BIO_OBS, BIRDS, FISH, HABITATS, INVERT, M_MAMMAL, NESTS, and T_MAMMAL) is linked to the Biological Resources table (BIORES) using the item RARNUM. RARNUM is the resources at risk number and is determined for each unique combination of SPECIES_ID, SEASON_ID, CONC, G_SOURCE, S_SOURCE,

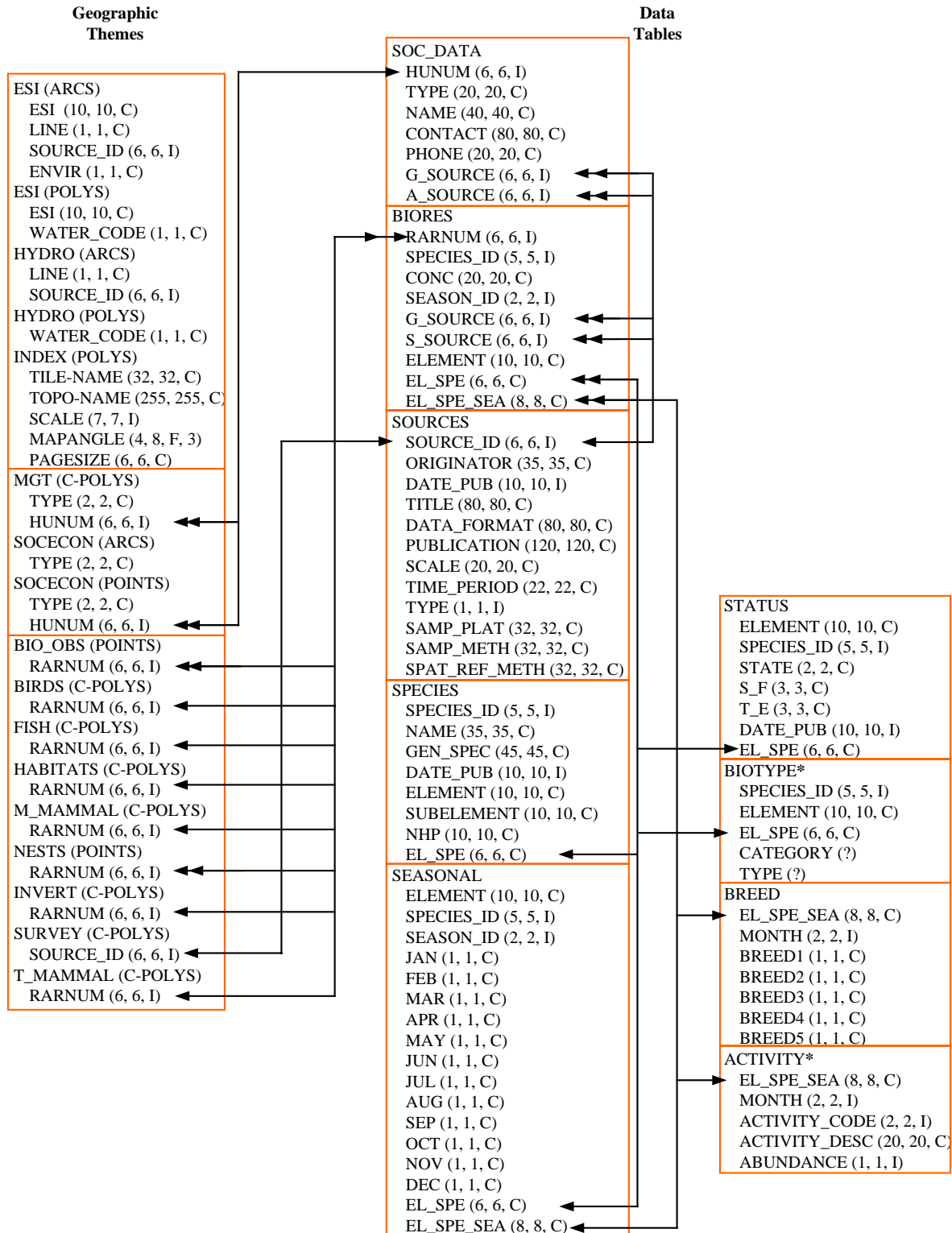


FIGURE 1. Relationships between biology coverages and attribute files. NOTE: BIOTYPE and ACTIVITY are not included in this data set but are elements of the Gulf-Wide Information System database.

and ELEMENT. The items in BIORES are: 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 LOW, MEDIUM, or HIGH, or an actual count of the number of individuals or nests associated with a polygon or point. 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.

G_SOURCE contains the SOURCE_ID for geographic information and S_SOURCE contains the SOURCE_ID for seasonality information. Both items link to the SOURCES data table. EL_SPE is a concatenation of ELEMENT and SPECIES_ID and links to other data tables (primarily the SPECIES table) and EL_SPE-SEA is a concatenation of ELEMENT, SPECIES_ID, and SEASON_ID and links to the SEASONAL and BREED data tables.

The SPECIES data table contains the SPECIES_ID (described above), common name (NAME), scientific name (GEN_SPEC), date the list was published (DATE_PUB), biological element (ELEMENT), biological subelement (SUBELEMENT), and the Natural Heritage Program (NHP) rank. The item SUBELEMENT refers to the grouping of the species:

ELEMENT	SUBELEMENT
BIRD	diving
	gull_tern
	passerine
	raptor
	wading
	waterfowl
FISH	anadromous
	special
MARINE MAMMAL	manatee
HABITAT	fav
	rare plant
INVERTEBRATE	crab
	crayfish
	gastropod

ELEMENT	SUBELEMENT
INVERTEBRATE	mussel
	shrimp
REPTILE	amphibian
	lizard
	snake
	turtle
INVERTEBRATE	crab
	crayfish
	gastropod
	mussel
	shrimp
TERRESTRIAL MAMMAL	bear
	mustelid

The STATUS data table contains records for each species that is threatened or endangered on state or federal lists. The items include: ELEMENT, SPECIES_ID, STATE (two-letter state abbreviations), S_F (state or federal status), T_E (threatened or endangered status), DATE_PUB, and EL_SPE.

The SEASONAL data table stores the monthly presence of each species where each species is defined as three-character monthly abbreviations. The BIORES table is linked to the SEASONAL table using either the combination of SPECIES_ID, ELEMENT, and SEASON_ID items, or the item EL_SPE_SEA, which contains the concatenation of these items.

The BREED data table contains the life stage or life history data for each unique combination of ELEMENT, SPECIES_ID, and SEASON_ID (or EL_SPE_SEA), and up to 12 records (corresponding to each month of the year) can have different attributes and therefore separate records. The categories for each element of the items BREED1 through BREED5 are:

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

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

The SOURCES data table contains metadata for each biological and human-use source listed in the ESI atlas. The items in SOURCES are: SOURCE_ID, ORIGINATOR (author), DATE_PUB (date of publication), TITLE (title of the data set), DATA_FORMAT (digital type, hardcopy maps, etc.), PUBLICATION (additional citation), SCALE (source scale denominator), TIME_PERIOD (beginning and ending dates of data collection), TYPE (surveyed or interred), SAMP_PLAT (sampling platform), SAMP_METH (sampling method), and SPAT_REF_METH (spatial referencing method). The SOURCES data table is linked to all biological and human-use data at the feature-level and is also a primary link to the SURVEY data layer, which contains the boundaries or limits of the data source.

Human-Use Resources:

Several human-use, or socioeconomic, features are included in ESI atlases. Entity points and complete chains are digitized into the coverage SOCECON. In the St. Johns River ESI, managed lands and archaeological/historical sites were collected and digitized as complex polygons (regions) in the coverage MGT. The coverage is linked to the data table SOC_DATA using the item HUNUM.

The data table SOC_DATA contains the HUNUM, TYPE (the feature type), NAME (name of the feature), CONTACT (contact person), PHONE (phone number of contact person), and G_SOURCE and A_SOURCE (geographic and attribute sources) for the features.

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:

Data layer or theme name: BIO_OBS

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
NOAA, SEA Division	1992	Estuarine Living Marine Resources (ELMR) Database	Text	Database Contact: Mark Monaco	N/A	1989-1991
Kale, H.W. and D.S. Maehr	1990	Florida's Birds: A Handbook and Reference	Text	Pineapple Press, Inc., Sarasota, Fla., 288 pp.	N/A	N/A
Deyrup, M. and R. Franz (Eds.)	1994	Rare and Endangered Biota of Florida, Volume IV, Invertebrates	Text	University Press of Florida, Gainesville, Fla., 798 pp.	N/A	1994
Florida Game and Fresh Water Fish Commission–Nongame Wildlife Program	N/A	Wildlife Observation Database	Digital points (ASCII)	Database Contact: Glenn Reynolds	N/A	1997
Florida Natural Areas Inventory	N/A	Rare and Endangered Element Occurrence Database	Digital points	Database Contact: Lance Peterson	N/A	1997
Butler, R. U.S. Fish and Wildlife Service	N/A	Rare Mussels for the St. Johns River	Expert knowledge	N/A	N/A	Varies
Florida Museum of Natural History	N/A	Records for Rare and Endangered Fish Species	Text	N/A	N/A	Varies

2.5.1. SOURCE INFORMATION:

Data layer 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
Doonan, T. Florida Game and Fresh Water Fish Commission	N/A	River Otter and Other Wildlife Areas for the St. Johns River	Expert knowledge	N/A	N/A	1997
Reynolds, G. Florida Game and Fresh Water Fish Commission	N/A	Distribution of Diving Birds for Florida's Atlantic Coast	Expert knowledge	N/A	N/A	1995
Kale, H.W. and D.S. Maehr	1990	Florida's Birds: A Handbook and Reference	Text	Pineapple Press, Inc., Sarasota, Fla., 288 pp.	N/A	N/A
Brakhage, D. Florida Game and Fresh Water Fish Commission	N/A	Regional Waterfowl Concentration Areas	Expert knowledge	N/A	N/A	1995
Florida Game and Fresh Water Fish Commission—Environmental Services	N/A	Potential Foraging Areas for Wading Birds (Waderhot)	Hardcopy maps	Database Contact: Randy Kautz	300000	Unknown
Florida Game and Fresh Water Fish Commission—Environmental Services	N/A	Potential Woodstork Foraging Areas (Stork)	Hardcopy maps	Database Contact: Randy Kautz	300000	Unknown
Florida Game and Fresh Water Fish Commission—Waterfowl Management Services	N/A	Mid-winter Waterfowl Surveys for Lake George and the Upper St. Johns River	Hardcopy text and maps	N/A	N/A	1988-1997

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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, L. U.S. Fish and Wildlife Service	N/A	Birds and Terrestrial Mammals for Lake Woodruff NWR	Expert knowledge	N/A	N/A	1997
Runde, D., P. Southall, and J. Hovis	1990	Recent Records and Survey Methods for the Black Rail in Florida	Text	Florida Field Naturalist 18(2), pp. 33-35	N/A	1989
Florida Natural Areas Inventory	N/A	Rare and Endangered Element Occurrence Database	Digital points	Database Contact: Lance Peterson	N/A	1997

2.5.1. SOURCE INFORMATION:

Data layer 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
St. Johns River Water Management District	N/A	St. Johns River Water Management District Land Use/Land Cover Database	Digital polygons and points	St. Johns Water Management District, GIS Division, Palatka, Fla.	24000	1986-1990
Research Planning, Inc.	N/A	ESI Shorelines	Hardcopy maps	N/A	24000	1997

2.5.1. SOURCE INFORMATION:

Data layer 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
Florida Museum of Natural History	N/A	Records for Rare and Endangered Fish Species	Text	N/A	N/A	Varies
Florida Natural Areas Inventory	N/A	Rare and Endangered Element Occurrence Database	Digital points	Database Contact: Lance Peterson	N/A	1997

2.5.1. SOURCE INFORMATION:

Data layer or theme name: HABITATS

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
Doonan, T. Florida Game and Fresh Water Fish Commission	N/A	River Otter and Other Wildlife Areas for the St. Johns River	Expert knowledge	N/A	N/A	1997
Florida Natural Areas Inventory	N/A	Rare and Endangered Element Occurrence Database	Digital points	Database Contact: Lance Peterson	N/A	1997
St. Johns River Water Management District	N/A	St. Johns River Water Management District Lane Use/Land Cover Database	Digital polygons and points	St. Johns River Water Management District, GIS Division, Palatka, Fla.	24000	1986-1990

2.5.1. SOURCE INFORMATION:

Data layer 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
St. Johns River Water Management District	N/A	St. Johns River Water Management District Land Use/Land Cover Database	Digital polygons and points	St. Johns Water Management District, GIS Division, Palatka, Fla.	24000	1986-1990

2.5.1. SOURCE INFORMATION:

Data layer 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 St. Johns River shoreline	Digital polygons	Lee Diveley, GIS Coordinator	24000	1996

2.5.1. SOURCE INFORMATION:

Data layer or theme name: INVERT

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
NOAA, SEA Division	1992	Estuarine Living Marine Resources (ELMR) Database	Text	Database Contact: Mark Monaco	N/A	1989-1991

ST. JOHNS RIVER, FLORIDA 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
Steele, P. FDEP-FMRI (St. Pete)	N/A	Shrimp and Blue Crab Distributions for Florida	Expert knowledge	N/A	Unknown	1996
Demort, C.L.	1991	The St. Johns River System	Text	Chapter 7: in The Rivers of Florida: R.J. Livingston (Ed.), Springer-Verlag, New York	N/A	1991
NOAA, SEA Division	1985	Gulf of Mexico Coastal and Ocean Zones Strategic Assessment Data Atlas	Hardcopy maps	NOAA, Strategic Assessment Branch, Ocean Assessment Division, Rockville, Maryland	4000000	1981-1983
Franz, R. FMNH, University of Florida	N/A	Distribution of the Black Creek Crayfish in the St. Johns River Drainage	Expert knowledge	N/A	N/A	1997
Deyrup, M. and R. Franz (Eds.)	1994	Rare and Endangered Biota of Florida, Volume IV, Invertebrates	Text	University Press of Florida, Gainesville, Fla., 798 pp.	N/A	1994
Florida Natural Areas Inventory	N/A	Rare and Endangered Element Occurrence Database	Digital points	Database Contact: Lance Peterson	N/A	1997
Butler, R. U.S. Fish and Wildlife Service	N/A	Rare Mussels for the St. Johns River	Expert knowledge	N/A	N/A	Varies

2.5.1. SOURCE INFORMATION:

Data layer 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
Florida Bureau of Archaeological Research	N/A	Florida Archaeological Site File	Hardcopy maps	Florida Department of State, Bureau of Archaeological Research, Tallahassee, Fla.	24000	1997
U.S. Fish and Wildlife Service	1991	Lake Woodruff National Wildlife Refuge	Hardcopy maps	U.S. Fish and Wildlife Service, Realty Division, Atlanta, Ga.	100000	1991
Florida Marine Research Institute	N/A	Managed Lands for the St. Johns River	Digital polygons	Database Contact: Henry Norris	Varies	Varies

2.5.1. SOURCE INFORMATION:

Data layer 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
Brooks, W. Florida Department of Environmental Protection	N/A	Manatee Aerial Surveys for the St. Johns River	Hardcopy maps	Database Contact: Brad Weigle	24000	1993-1994
Beeler, I.E. and T.J. O'Shea	1988	Distribution and Mortality of the West Indian Manatee in the S.E. U.S., Volume 1	Text	National Ecology Research Center, Report No. 88-09, Gainesville, Fla.	N/A	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
Bengtson, J.L.	1981	Ecology of Manatees (<i>Trichechus manatus</i>) in the St. Johns River, Fla.	Hardcopy text and maps	Graduate Thesis, University of Minnesota, 126 pp.	N/A	1979-1980
Brooks, W. Florida Department of Environmental Protection	N/A	Additional Manatee Areas for the St. Johns River	Expert knowledge	N/A	N/A	1997

2.5.1. SOURCE INFORMATION:

Data layer 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
Kale, H.W. and D.S. Maehr	1990	Florida's Birds: A Handbook and Reference	Text	Pineapple Press, Inc., Sarasota, Fla., 288 pp.	N/A	N/A
Florida Game and Fresh Water Fish Commission–Nongame Wildlife Program	N/A	Wildlife Observation Database	Digital points (ASCII)	Database Manager: Glenn Reynolds	N/A	1997
Florida Natural Areas Inventory	N/A	Rare and Endangered Element Occurrence Database	Digital points	Database Contact: Lance Peterson	N/A	1997
Florida Game and Fresh Water Fish Commission–Nongame Wildlife Program	N/A	Bald Eagle Nesting Database	Digital points (ASCII)	Database Contact: Glenn Reynolds	N/A	1997

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, L. U.S. Fish and Wildlife Service	N/A	Birds and Terrestrial Mammals for Lake Woodruff NWR	Expert knowledge	N/A	N/A	1997
Runde, D.E., J.A. Gore, J.A. Hovis, etc.	1991	Florida Atlas of Breeding Sites for Herons and Their Allies, Update 1986-1989	Hardcopy maps	Florida Game and Fresh Water Fish Commission, Nongame Wildlife Program, Technical Report No. 10, 147 pp.	250000	1976-1989

2.5.1. SOURCE INFORMATION:

Data layer 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
Deloach, N.	1993	Diving Guide to Underwater Florida	Text and hardcopy maps	New World Publications, Jacksonville, Fla., 324 pp.	N/A	1993
Delorme Mapping Company	1989	Florida Atlas and Gazetteer	Hardcopy maps	Delorme Mapping, Freeport, Maine, 127 pp.	150000	Unknown
U.S. Geological Survey	N/A	USGS 7.5 Minute Topographic Quadrangles	Hardcopy maps	U.S. Geological Survey, Reston, Va.	24000	Varies
Zengel, S.A. Research Planning, Inc.	N/A	Recreational Fishing Sites	Expert knowledge	N/A	N/A	1994
Florida Power and Light Company	1996	Power Plant Facility Response Plans	Hardcopy maps	N/A	Varies	1995-1996

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
St. Johns River Water Management District	N/A	St. Johns River Water Management District Lane Use/Land Cover Database	Digital polygons and points	St. Johns River Water Management District, GIS Division, Palatka, Fla.	24000	1986-1990
Research Planning, Inc.	N/A	Boat Ramps and Marinas from Aerial Photographs and Over-flights	Hardcopy maps	N/A	24000	1997
Seminole Electric Cooperative, Inc.	1978	Location Map of Proposed Intake/ Discharge Structures for Seminole Power Station	Hardcopy maps	N/A	1 in = 3,334 ft.	1978
Brown, A. U.S. Fish and Wildlife Service	N/A	Location of Aquaculture and Water Intakes for Welaka National Fish Hatchery	Expert knowledge	N/A	N/A	1997

2.5.1. SOURCE INFORMATION:

Data layer or theme name: SURVEY

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.	1997	Survey boundaries for ESI data sources	Digital polygons	N/A	24000	1997

2.5.1. SOURCE INFORMATION:

Data layer 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
Doonan, T. Florida Game and Fresh Water Fish Commission	N/A	River Otter and Other Wildlife Areas for the St. Johns River	Expert knowledge	N/A	N/A	1997
Florida Natural Areas Inventory	N/A	Rare and Endangered Element Occurrence Database	Digital points	Database Contact: Lance Peterson	N/A	1997
Florida Game and Fresh Water Fish Commission– Environmental Services	N/A	Potential Habitat for the Florida Black Bear Along the St. Johns River	Hardcopy maps	Database Contact: Randy Kautz	300000	Unknown
Rhodes, L. U.S. Fish and Wildlife Service	N/A	Birds and Terrestrial Mammals for Lake Woodruff NWR	Expert knowledge	N/A	N/A	1997

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 is the shoreline with ESI classification. This layer was created using SJRWMD shoreline and wetlands data, and original data interpreted by RPI geologists from aerial photographs and overflight observations. The digital shoreline was updated, checked for completeness, topological and logical consistency, and edited for any error using the original overflight maps. Any errors in the shoreline classification were updated prior to digitization of the biological

and human-use layers. Much of the biological and human-use 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 data from regional specialists in the form of maps, tables, charts, and written descriptions of wildlife distributions. Concurrently, all digital data was imported, merged into the spatial data structure, and checked for completeness. The hardcopy data were digitized, merged with existing digital data, checked using both digital and on-screen procedures, plotted, checked by the biological expert, edited to remove any errors, and plotted for review by the regional specialists. The reviewed 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 validated for all relationships.

2.5.2.3. PROCESS DATE:

199705

2.5.2.6. PROCESS CONTACT

2.5.2.6.1. CONTACT PERSON PRIMARY

2.5.2.6.1.1. CONTACT PERSON:

Joanne Halls

2.5.2.6.1.2. CONTACT ORGANIZATION:

Research Planning, Inc.

2.5.2.6.3. CONTACT POSITION:

Director, GIS Department

2.5.2.6.4. CONTACT ADDRESS

2.5.2.6.4.1. ADDRESS TYPE:
Physical Address

2.5.2.6.4.2. ADDRESS:
1121 Park Street

2.5.2.6.4.3. CITY:
Columbia

2.5.2.6.4.4. STATE OR PROVINCE:
SC

2.5.2.6.4.5. POSTAL CODE:
29201

2.5.2.6.5. CONTACT VOICE TELEPHONE:

(803) 256-7322

2.5.2.6.7. CONTACT FACSIMILE TELEPHONE:

(803) 254-6445

2.5.2.6.8. CONTACT ELECTRONIC MAIL ADDRESS:

joanne@researchplanning.com

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	G-Polygons	Area Points	Complete Chains	Line Segments	Label Points	Entity Points	Nodes
BIO_OBS								492	
BIRDS	1	19	587	587	1,054	137,917			849
ESI	1		13,002	13,002	20,890	681,612			17,839
FISH	1	6	27	27	68	18,937			65
HABITATS	1	2	1,134	1,134	1,143	44,682			1,134
HYDRO	1		3,435	3,435	3,955	166,799	252		3,846
INDEX	1		31	31	84	84			54
INVERT	1	13	196	196	431	94,252			399
MGT	1	7	355	355	436	36,720			381
M_MAMMAL	1	8	148	148	380	95,156			348
NESTS								236	
SOCECON					25	47		171	60
SURVEY	1	39	367	367	1,023	141,386			819
T_MAMMAL	1	10	347	347	671	123,391			528

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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:

ALBERS

4.1.2.1.2. MAP PROJECTION PARAMETERS :

4.1.2.1.2.1. 1ST STANDARD PARALLEL:
24.0

4.1.2.1.2.2. 2ND STANDARD PARALLEL:
31.5

4.1.2.1.2.3. CENTRAL MERIDIAN:
-84.0

4.1.2.1.2.4. LATITUDE OF PROJECTION ORIGIN:
24.0

4.1.2.1.2.5. FALSE EASTING:
400,000

4.1.2.1.2.6. FALSE NORTHING:
0

4.1.2.1.2.7. SCALE FACTOR AT CENTRAL
MERIDIAN:
Unknown

4.1.2.4. PLANAR COORDINATE INFORMATION

4.1.2.4.1. PLANAR COORDINATE ENCODING METHOD:
Coordinate Pair

4.1.2.4.2. COORDINATE REPRESENTATION:

4.1.2.4.2.1. ABSCISSA RESOLUTION:
50 feet

4.1.2.4.2.2. ORDINATE RESOLUTION:
50 feet

4.1.4. GEODETIC MODEL

4.1.4.1. HORIZONTAL DATUM NAME:
North American Datum of 1983

4.1.4.2. ELLIPSOID NAME:
GRS 1980

4.1.4.3. SEMI-MAJOR AXIS:

Unknown

4.1.4.4. DENOMINATOR OF FLATTENING RATIO:

Unknown

5.0. ENTITY AND ATTRIBUTE INFORMATION

5.1. DETAILED DESCRIPTION: BIO_OBS

The data layer BIO_OBS contains the entity points representing observation or occurrence sites for rare and endangered birds, fish, habitats, invertebrates, reptiles and amphibians, and terrestrial mammals. These data may include NHP element occurrence records, wildlife observations sites, museum or other field records for rare and endangered species, etc. These data are typically recorded as point locations which may not fully represent the actual distribution or actual extent of the resources. In some cases, additional information or interpretation by resource experts allowed the areal extent of a record to be estimated, thus these data may also be represented as regions (complex polygons) in the various biological data layers where polygons were created. The point locations were still retained in the BIO_OBS data layer to provide a complete set of records for the study area. Note that for birds, BIO_OBS locations represent nesting sites also stored in the NESTS data layer.

Birds are divided into several species subgroups based on taxonomy, morphology, life-history, and behavior relative to 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 special protection status as threatened or endangered. The major bird types emphasized for the St. Johns River include wading birds, waterfowl, and certain raptors, including the bald eagle.

Colonial nesting sites are mapped for wading birds (and other associated species).

Raptors, including bald eagle, osprey, American swallow-tailed kite, and Northern harrier are included in the atlas. These species can be present throughout the St. Johns River study area, typically associated with wetland and aquatic habitats. Special emphasis was placed on mapping bald eagle nests, based on data provided by FGFWFC. There are great numbers of bald eagle nests present throughout the atlas, with the Lake George area standing out as one of the largest bald eagle nesting concentrations in the state and nation. Though other raptors (such as osprey) may be highly abundant throughout the study area, or abundant locally or seasonally, only a few locations are mapped

based on observation and occurrence records maintained by local resource managers, FGFWFC, and FNAI.

Waterfowl and diving birds (cormorant, anhinga, pelicans) are usually at greatest risk during oil spills because they spend a great deal of time on the water surface. Waterfowl can also become oiled through contact with oiled marsh vegetation. Wading birds primarily become oiled on the legs and bill while wading for prey. They may also be oiled on the upper body and feathers by coming in contact with oiled marsh vegetation. Gulls and some raptors (bald eagle) may be at risk because they are often attracted to and will prey on sick or injured prey which is contaminated. This behavior may result in oiling of feathers and ingestion of oil. Terns and other types of raptors (osprey) may also be oiled while diving for prey.

Oiling of birds reduces the buoyancy, water repellency, and insulation provided by feathers, and may result in death by drowning or hypothermia. Preening of oiled feathers and scavenging may also result in ingestion of oil resulting in irritation, sickness, or death. Oil brought back to the nest by contaminated adults can have severe impacts on the survival of eggs and young. Bird oiling, particularly waterfowl and wading birds, may continue even after the floating oil slicks have been removed, depending on the extent of oiled vegetation.

Emergency and expert contacts for birds in the St. Johns River include: the FGFWFC Hazardous Spill Coordinator, 904/921-5982; the FGFWFC Waterfowl Management Section, 904/488-5878; the FGFWFC Northeast Region Nongame Biologist, 904/758-0656; and the FGFWFC Central Region Nongame Biologist, 352/732-1225.

Fish included in the St. Johns River atlas are limited to protected and/or rare anadromous and freshwater species. A variety of other fish, many of commercial or recreational importance, were not included as a part of this project. Species depicted in this atlas include shortnose sturgeon, Atlantic sturgeon, bluenose shiner, dusky shiner, river goby, and snail bullhead. These species were mapped using occurrence records from FNAI and specimen records from the Florida Museum of Natural History, University of Florida. Important commercial species for the St. Johns River may include American eel, channel catfish, and white catfish. Estuarine species are also commercially harvested, including various drums and striped mullet. Major recreational species include

largemouth bass, bluegill, and black crappie, as well as a variety of estuarine species. Many species of commercial/recreational interest use portions of the St. Johns River as nursery habitat during juvenile life stages. Anadromous species such as American shad, hickory shad, blueback herring (in addition to sturgeon) also use portions of the river or its tributaries for spawning. Fish are primarily at risk when oil becomes mixed into the water column or accumulates in shallow areas. Smaller fish which are restricted to certain locations or habitats, including juvenile and larval stages of commercial or recreational species, are typically at greater risk during spills. It should be noted that some species of conservation interest are vulnerable or imperiled largely because they are found in only a single or a few locations. Particular areas of concern during spills would include small creeks and backwater wetland areas with restricted water circulation. An expert contact for freshwater fish and fisheries on the St. Johns River is the FGFWFC Fisheries Office, 904/985-7880. Additional contacts for protected and rare species include the Florida Museum of Natural History, University of Florida, 352/392-1721. An expert contact for marine and estuarine fish and fisheries is the FDEP, Florida Marine Research Institute, 813/896-8626.

Protected and rare plants are included in the St. Johns River atlas wherever FNAI occurrence data indicated their presence. In many cases, especially for terrestrial species, these plants may not be directly at risk to waterborne spills. The main concern with rare plants is site disturbance which can be associated with response activities such as equipment staging, use of heavy machinery and large work crews, and access to the shoreline. This is especially true for rare or endangered plants which may only be known from a few locations in the state or world-wide. An expert contact for protected and/or rare plants is the FNAI, 904/224-8207.

Shellfish included in the St. Johns River atlas include crustaceans and mollusks. Species of conservation are depicted, including imperiled or rare crayfish, freshwater snails, and freshwater mussels. Similar to the fish, shellfish are mainly at risk if oil becomes mixed into the water column or accumulates in shallow areas. It should be noted that some species of conservation interest are vulnerable or imperiled largely because they are found in only a single or a few locations. Small creeks and backwater wetland areas with restricted water circulation would be major areas of concern, for both juvenile fisheries species

and several species of conservation interest. Contacts for species of conservation interest include the Florida Museum of Natural History, University of Florida, 352/392-1721.

Reptiles and amphibians depicted in the St. Johns River atlas include sea turtles and a variety of other protected and/or rare aquatic and terrestrial species including snakes, lizards, turtles, and frogs. American alligators are not depicted on the maps due to widespread abundance and an assumed low sensitivity to oil spills. Alligators may be present in many freshwater areas, especially those associated with marshes and swamps. Alligators may also be present in estuarine areas where access to freshwater is locally available. For more information on American alligators, contact the FGFWFC, Wildlife Research Laboratory, 352/955-2230.

Other reptiles and amphibians included in the St. Johns River atlas include the gopher tortoise, spotted turtle, Eastern indigo snake, Florida pine snake, Florida scrub lizard, and Florida gopher frog. These species may be of conservation interest due to their protected and/or rare status. These species were only depicted in the atlas where FGFWFC or FNAI observation or occurrence data indicated their presence. Most of the species mapped are not directly at risk to oil spilled on the St. Johns River. However, disturbance related to spill response and cleanup could affect these species in some locations, as could spills into other water bodies or onto land. It should be noted that a variety of other reptile and amphibian species are likely to occur throughout the St. Johns River and associated wetland areas, and could be at risk during spills.

In general, aquatic reptile species are usually at greater risk during oil spills. Additional attributes which place some reptiles at risk are reproductive: eggs and nesting behavior. Similar to bird eggs, reptiles eggs are very sensitive to oil contamination. Reptile eggs can also be quite vulnerable to spills, because many species bury their eggs in the substrate. Small amounts of oil directly contacting egg surfaces, and oil overlying nesting cavities, have both been shown to effect hatching success and embryonic development in reptiles. Additionally, in the event of land-based spills, terrestrial reptiles which use burrows (e.g., gopher tortoise, Eastern indigo snake, Florida pine snake) may be at high risk. Amphibians are generally at great risk during oil spills, due to their permeable skin and the reliance of most species on aquatic and wetland habitats, especially

for reproduction and juvenile life stages. Juvenile (and adult) life stages relying on gills for respiration are particularly at risk from oil which becomes mixed into the water column or accumulates in shallow, stagnant, backwater areas. Species or life stages relying on moist skin for respiration are also at high risk, as are terrestrial species that use burrows. An expert contact for protected and/or rare reptiles and amphibians is the FGFWFC, Wildlife Research Laboratory, 352/955-2230.

Round-tailed muskrats are only depicted in the atlas where FGFWFC or FNAI observation or occurrence data indicated their presence. It is possible that their distribution is wider than that depicted. Round-tailed muskrats prefer shallow (<50 cm depth) marshes, particularly those containing maiden-cane and pickerelweed vegetation and soft, deep substrates for burrowing (Lefebvre, 1992). Similar to river otters, muskrats could be severely impacted by coming into contact with oil stranded on the water surface or on marsh vegetation. Oil which penetrated the soil through muskrat burrows could be particularly damaging to the animals and the marsh, and could present a long-term contamination problem. Round-tailed muskrat are considered a rare species of conservation interest due to potentially low population size.

Florida black bear are only depicted in the atlas where potential habitat data from FGFWFC indicated large tracts of land with the highest habitat scores, located adjacent to the shoreline or in large areas of wooded swamp connected to the river or its tributaries. It was assumed that impacts to bears from waterborne spills would be more likely in such areas. In several locations, FGFWFC and FNAI observation or occurrence records may also be shown. The actual or potential distribution of black bears in the study area is likely to be much wider than that depicted in this atlas. Bears could potentially be at risk to spills because they use both wetland and aquatic habitats, making extensive use of forested swamps. Black bears in Florida are listed as threatened by the state, and are of conservation interest due to low population size, low reproductive rate, habitat loss, and habitat fragmentation.

Florida long-tailed weasels were only depicted where FGFWFC or FNAI observation or occurrence data indicated their presence. Weasels use a variety of habitats, including wetlands, but would not be expected to be at great risk during spills. Weasels are rare in Florida and therefore may be of conservation interest.

Emergency and expert contacts for terrestrial mammals in the St. Johns River study area include: the FGFWFC Hazardous Spill Coordinator, 904/921-5982; the FGFWFC Northeast Region Nongame Biologist, 904/758-0656; and the FGFWFC Central Region Nongame Biologist, 352/732-1225.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:
<u>Entity Points</u>	RARNUM integer

5.1.2. ATTRIBUTES:

5.1.2.1. ATTRIBUTE LABEL:

RARNUM

5.1.2.2. ATTRIBUTE DEFINITION:

An identifier that links to the BIORES table. The value of RARNUM is determined for each unique combination of SPECIES_ID, SEASON_ID, CONC, G_SOURCE, S_SOURCE, and ELEMENT.

The following species are found in the BIO_OBS coverage of the St. Johns River, Florida atlas:

ELEMENT	SPECIES ID	NAME
BIRD	8	Double-crested cormorant
	54	Great blue heron
	76	Bald eagle
	77	Osprey
	86	Least tern
	87	Little blue heron
	88	Great egret
	89	Snowy egret
	93	Cattle egret
	94	Tricolored heron

ELEMENT	SPECIES ID	NAME
BIRD	115	White ibis
	120	Yellow-crowned night heron
	121	Anhinga
	150	Black rail
	280	American swallow-tailed kite
	295	Florida scrub jay
	305	Red-cockaded woodpecker
	306	Limpkin
	309	Florida sandhill crane
	1,004	Wading birds
FISH	101	Shortnose sturgeon
	102	Atlantic sturgeon
	339	Bluenose shiner
	340	Dusky shiner
	341	River goby
	342	Snail bullhead
	HABITAT	149
226		Ashe's savory
227		Bartram's ixia
228		Chapman's sedge
229		Curtiss' milkweed
230		Fall-flowering pleat-leaf
231		Florida bonamia
232		Gulf hammock indian plantain
233		Florida mountain-mint
234		Florida three-awned grass
235		Florida willow
236		Florida hartwrightia
237		Lake-side sunflower
238		Large-flowered grass-of-parnassus
239		Ocala vetch
240		Okeechobee gourd
241		Piedmont jointgrass
242		Pond spice
243		Scrub bay
244		Scrub holly
245		Slender-leaved dragon-head
246	Green milkweed	
247	Catesby's lily	
248	Spoon-flower	
249	St. John's susan	
250	Yellow star anise	
251	Variable-leaf crownbeard	

ELEMENT	SPECIES ID	NAME
REPTILE	21	Gopher tortoise
	24	Eastern indigo snake
	29	Florida gopher frog
	30	Florida pine snake
	31	Florida scrub lizard
	32	Spotted turtle
SHELLFISH	109	Black Creek crayfish
	110	Big-cheeked cave crayfish
	111	Blue Spring hydrobe
	112	Blue Spring siltsnail
	113	Dense hydrobe
	114	Enterprise siltsnail
	116	Silver Glen Springs cave crayfish
	117	St. Johns elephantear
TERRESTRIAL	118	Florida lance
	103	Florida black bear
MAMMAL	104	Florida long-tailed weasel
	105	Round-tailed muskrat

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 to BIORES data table

**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: 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:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:
<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 biology data layers. The value for RARNUM is determined for each unique combination of SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, and 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:
1-N	Unique number to link to data layers

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 identified for each species and is unique within each element and refers to a nationwide species number list maintained at RPI

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:

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 is available

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:

Free text

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 which determines the seasonality (monthly presence and breeding characteristics) for each species at each locations. Usually, there is more than one seasonality per species. When this happens, a new SEASON_ID is given which links to a different record in the associated data tables

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:

G_SOURCE

5.1.2.2. ATTRIBUTE DEFINITION:

Geographic source identifier which 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:

S_SOURCE

5.1.2.2. ATTRIBUTE DEFINITION:

Seasonality source identifier which 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

Birds
Fish
Habitats and Plants of Concern
Invertebrates
Marine Mammals

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
REPTILE T_MAMMAL	Reptiles and Amphibians Terrestrial Mammals

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 SPECIES_ID value

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:
EL_SPE_SEA

5.1.2.2. ATTRIBUTE DEFINITION:
Concatenation of the first character of the ELEMENT and SEASON_ID value

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. DETAILED DESCRIPTION: BIRDS

The data layer BIRDS contains regions (polygons) for bird species.

Birds are divided into several species subgroups based on taxonomy, morphology, life-history, and behavior relative to oil spill vulnerability and sensitivity. Species were included either because of their likelihood of impact by an oil spill or special protection status as threatened or endangered. The major bird types emphasized for the St. Johns River include wading birds, waterfowl, and certain raptors, including the bald eagle.

Major potential wader foraging areas are also mapped, identified using maps and expert knowledge provided by FGFWFC. Wading birds, including wood storks, limpkins, ibis, and various herons and egrets, can be found throughout the St. Johns River, particularly in wetland and shallow aquatic habitats. In addition to general wading bird foraging areas, foraging areas for wood storks were emphasized. Limpkin foraging sites were also emphasized in a few specific locations.

Wintering and migratory waterfowl concentrations were mapped based on data collected during FGFWFC mid-winter waterfowl surveys and surveys conducted at Lake Woodruff National Wildlife Refuge by the USFWS. Waterfowl are often associated with wetland and aquatic habitats, including open-water areas. Waterfowl concentrations may at times be linked to the abundance of submerged aquatic vegetation (SAV), including hydrilla. In some locations, SAV may be so abundant that areas which appear on the maps as open or deep water may provide habitat for large numbers of dabbling ducks which are typically associated with shallow vegetated areas. Waterfowl generally increase in abundance moving south along the St. Johns River. The area from the southern portion of the atlas to the headwaters of the river (south of the study area) has been recognized as a “waterfowl habitat area of major concern” in the North American Waterfowl Management Plan (USFWS, 1994).

Waterfowl and diving birds (cormorant, anhinga, pelicans) are usually at greatest risk during oil spills because they spend a great deal of time on the water surface. Waterfowl can also become oiled through contact with oiled marsh vegetation. Wading birds primarily become oiled on the legs and bill while wading for prey. They may also be oiled on the upper body and feathers by coming in contact

with oiled marsh vegetation. Gulls and some raptors (bald eagle) may be at risk because they are often attracted to and will prey on sick or injured prey which is contaminated. This behavior may result in oiling of feathers and ingestion of oil. Terns and other types of raptors (osprey) may also be oiled while diving for prey.

Oiling of birds reduces the buoyancy, water repellency, and insulation provided by feathers, and may result in death by drowning or hypothermia. Preening of oiled feathers and scavenging may also result in ingestion of oil resulting in irritation, sickness, or death. Oil brought back to the nest by contaminated adults can have severe impacts on the survival of eggs and young. Bird oiling, particularly waterfowl and wading birds, may continue even after the floating oil slicks have been removed, depending on the extent of oiled vegetation.

Emergency and expert contacts for birds in the St. Johns River include: the FGFWFC Hazardous Spill Coordinator, 904/921-5982; the FGFWFC Waterfowl Management Section, 904/488-5878; the FGFWFC Northeast Region Nongame Biologist, 904/758-0656; and the FGFWFC Central Region Nongame Biologist, 352/732-1225.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:
<u>GT-Polygon</u>	RARNUM integer

5.1.2. ATTRIBUTES:

5.1.2.1. ATTRIBUTE LABEL:

RARNUM

5.1.2.2. ATTRIBUTE DEFINITION:

An identifier that links to the BIORES table. The value of RARNUM is determined for each unique combination of SPECIES_ID, SEASON_ID, CONC, G_SOURCE and S_SOURCE.

The following species are found in the BIRDS data layer of the St. Johns River, Florida atlas:

SPECIES ID	NAME
1	Common loon
8	Double-crested cormorant
17	Northern pintail
18	Green-winged teal
20	Northern shoveler
21	Canvasback
23	Lesser scaup
26	Bufflehead
33	Red-breasted merganser
34	American coot
54	Great blue heron
76	Bald eagle
77	Osprey
87	Little blue heron
88	Great egret
89	Snowy egret
91	Glossy ibis
94	Tricolored heron
97	Green-backed heron
115	White ibis
118	Brown pelican
120	Yellow-crowned night heron
121	Anhinga
124	Redhead
132	Wood stork
148	Ruddy duck
150	Black rail
162	Gadwall
169	American wigeon
179	Pied-billed grebe
180	Ring-necked duck
181	Northern harrier
190	Blue-winged teal
191	Wood duck
192	Common moorhen
198	Hooded merganser
211	Mottled duck
216	Belted kingfisher
267	Fluvous whistling-duck
306	Limpkin
307	Merganser
1,004	Wading birds

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 link to BIORES table

**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: BREED

The data table BREED identifies the life stages for each species included in the ESI atlas.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:
<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 and SEASON_ID value; 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.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
1-N	Unique number to link to data layers

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 calendar month where each species for a particular seasonality. 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 = calving

There are no breeding activities for HABITAT or T_MAMMAL elements. Only BIRDS, FISH, and INVERTS have BREED1 occurring in this ESI atlas

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:
Y	Occurring in month
N	Not occurring in month

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 = pupping
 Only INVERTS have BREED2 activities occurring in this atlas

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:
Y	Occurring in month
N	Not occurring in month

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 = internesting;
 if EL_SPE_SEA contains "M" then BREED3 = molting
 Only FISH and INVERTS have BREED3 activities occurring in
 this atlas

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED
DOMAIN VALUE:**

Y
N

**5.1.2.4.1.2. ENUMERATED DOMAIN
VALUE DEFINITION:**

Occurring in month
Not occurring in month

**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 = juvenile;
 if EL_SPE_SEA contains "I" then BREED4 = juvenile
 Only FISH and INVERTS have BREED4 activities occurring in
 this atlas

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:
Y	Occurring in month
N	Not occurring in month

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
Only FISH and INVERTS have BREED5 activities occurring in this atlas

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:
Y	Occurring in month
N	Not occurring in month

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 Chain) and polygon (GT-Polygon) features for the ESI habitat classification. The classification of the features is based upon *Environmental Sensitivity Index Guidelines* (Halls, J., J. Michel, S. Zengel, and J. Dahlin, 1997, Hazardous Materials Response and Assessment Division, NOAA). The ESI classification was performed in December, 1996. The digital shoreline and wetlands polygons were provided by FMRI.

5.1.1. ENTITY TYPES:

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

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. In many cases, the shorelines are also ranked with multiple codes such as 10B/8B. The first number is the most landward shoreline type, freshwater marsh, with sheltered, solid man-made structures being the shoreline type closest to the water. The St. Johns River, Florida shoreline types are listed below.

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:
1B	Exposed, Solid Man-made Structures (chains)
1B/6B	Exposed, Solid Man-made Structures/Riprap (chains)

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
1B/10B	Exposed, Solid Man-made Structures/Freshwater Marshes (chains)
1B/10C	Exposed, Solid Man-made Structures/Freshwater Swamps (chains)
3A	Eroding Scarps in Unconsolidated Sediments (chains)
6B	Riprap (chains)
6B/10B	Riprap/Freshwater Marshes (chains)
8B	Sheltered, Solid Man-made Structures (chains)
8B/10B	Sheltered, Solid Man-made Structures/Freshwater Marshes (chains)
8B/10C/10B	Sheltered, Solid Man-made Structures/Freshwater Swamps/Freshwater Marshes (chains)
9B	Vegetated Low Banks (chains)
9B/10B	Vegetated Low Banks/Freshwater Marshes (chains)
9B/10C	Vegetated Low Banks/Freshwater Swamps (chains)
10B	Freshwater Marshes (chains and polygons)
10B/8B	Freshwater Marshes/Sheltered, Solid Man-made Structures (chains)
10B/9B	Freshwater Marshes/Vegetated Low Banks (chains)
10C	Freshwater Swamps (chains and polygons)
10C/8B	Freshwater Swamps/Sheltered, Solid Man-made Structures (chains)
10C/9B	Freshwater Swamps/Vegetated Low Banks (chains)
10C/10B	Freshwater Swamps/Freshwater Marshes (chains)
10C/10D	Freshwater Swamps/Scrub-shrub Wetlands (chains)
10D	Scrub-shrub Wetlands (chains and polygons)
10D/10C	Scrub-shrub Wetlands/Freshwater Swamps (chains)
U	Unranked (chains and polygons)

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 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:**

H	Hydrography
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:**

1	Digital
3	Aerial Photography
5	Digitized from Scanned Topos

**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:

Shoreline habitat classification 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:**

L	Lacustrine
R	Riverine
U	Unclassified

**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:

ordered

5.1. DETAILED DESCRIPTION: FISH

The data layer FISH contains the regions (complex polygons) for fish species.

Fish included in the St. Johns River atlas are limited to protected and/or rare anadromous and freshwater species. A variety of other fish, many of commercial or recreational importance, were not included as a part of this project. Species depicted in this atlas include shortnose sturgeon, Atlantic sturgeon, bluenose shiner, dusky shiner, river goby, and snail bullhead. These species were mapped using occurrence records from FNAI and specimen records from the Florida Museum of Natural History, University of Florida. Important commercial species for the St. Johns River may include American eel, channel catfish, and white catfish. Estuarine species are also commercially harvested, including various drums and striped mullet. Major recreational species include largemouth bass, bluegill, and black crappie, as well as a variety of estuarine species. Many species of commercial/ recreational interest use portions of the St. Johns River as nursery habitat during juvenile life stages. Anadromous species such as American shad, hickory shad, blueback herring (in addition to sturgeon) also use portions of the river or its tributaries for spawning. Fish are primarily at risk when oil becomes mixed into the water column or accumulates in shallow areas. Smaller fish which are restricted to certain locations or habitats, including juvenile and larval stages of commercial or recreational species, are typically at greater risk during spills. It should be noted that some species of conservation interest are vulnerable or imperiled largely because they are found in only a single or a few locations. Particular areas of concern during spills would include small creeks and backwater wetland areas with restricted water circulation. An expert contact for freshwater fish and fisheries on the St. Johns River is the FGFWFC Fisheries Office, 904/985-7880. Additional contacts for protected and rare species include the Florida Museum of Natural History, University of Florida, 352/392-1721. An expert contact for marine and estuarine fish and fisheries is the FDEP, Florida Marine Research Institute, 813/896-8626.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:
GT-Polygons	RARNUM integer

5.1.2. ATTRIBUTES:

5.1.2.1. ATTRIBUTE LABEL:

RARNUM

5.1.2.2. ATTRIBUTE DEFINITION:

An identifier that links to the BIORES table. The value of RARNUM is determined for each unique combination of SPECIES_ID, SEASON_ID, CONC, G_SOURCE, and S_SOURCE.

The following species are found in the FISH data layer of the St. Johns River ESI atlas:

SPECIES ID	NAME
339	Bluenose shiner
340	Dusky shiner
342	Snail bullhead

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 to BIORES table
-----	-----------------------------

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: HABITATS

The data layer HABITATS contains the regions (complex polygons) with aquatic habitats and rare plants.

Aquatic habitats depicted for the St. Johns River atlas include floating aquatic vegetation (FAV). FAV in this atlas may include fully floating plants, rooted aquatic plants with floating leaves, and some plants which may be classified elsewhere as emersed aquatics. FAV may include species such as water lettuce, spatterdock, water hyacinth, and water lily. SAV is not depicted in this atlas, though it is quite widespread and abundant. Spatial data for SAV was not available for the study area. Current studies by SJRWMD to map the distribution of SAV are on-going. SAV may include a variety of species, including *Vallisneria* (a dominant native species) and hydrilla in freshwater portions of the study area. Widgeon grass (*Ruppia maritima*) may also occur in estuarine areas. A variety of different resource types, including fish, shellfish, amphibians, reptiles, birds, and manatees may be associated with or concentrated around FAV and/or SAV beds, taking cover or feeding in these habitats. Certain species of both FAV and SAV, especially exotic species such as water hyacinth and hydrilla, are considered nuisance or pest species, and may be managed using various harvest and control techniques. Both FAV and abundant SAV may also pose unique spill response problems such as trapping oil among floating or exposed plant parts and hindering boat and equipment access or operations. An expert contact for aquatic vegetation is the Center for Aquatic Plants, University of Florida, 352/392-9613. Control and management of nuisance and invasive aquatic plants on the St. Johns River is coordinated by the U.S. Army Corps of Engineers (in navigable waters), 904/328-1002, and SJRWMD, 904/329-4276.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE
LABEL:

5.1.1.2. ENTITY TYPE
DEFINITION:

GT-Polygon

RARNUM

integer

5.1.2. ATTRIBUTES:

5.1.2.1. ATTRIBUTE LABEL:

RARNUM

5.1.2.2. ATTRIBUTE DEFINITION:

An identifier that links to the BIORES table. The value of RARNUM is determined for each unique combination of SPECIES_ID, SEASON_ID, CONC, G_SOURCE, and S_SOURCE.

The following habitat types and plants are found in the HABITATs data layer of the St. Johns River, Florida atlas:

SPECIES ID	NAME
214	Rare plant
221	Floating aquatic vegetation

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 to BIORES table

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 some rivers and streams. This coverage was created using the digital shoreline provided by FMRI. 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.

5.1.1. ENTITY TYPES:

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

5.1.2. ATTRIBUTES:

5.1.2.1. ATTRIBUTE LABEL:

LINE

5.1.2.2. ATTRIBUTE DEFINITION:

Type of 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:
H	Hydrography
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:**

1	Digital
3	Aerial Photography
5	Digitized from Scanned Topos

**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

5.1. DETAILED DESCRIPTION: INDEX

The data layer INDEX contains the polygonal 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-Polygon</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

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 values for each polygon

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:

TOPO-NAME

5.1.2.2. ATTRIBUTE DEFINITION:

USGS 1:24,000 topographic map name. All map names and the date (latest or revised) of the USGS maps are included in this field

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

ALEXANDER SPRINGS, FLA. (1972)
ARLINGTON, FLA. (1992)
ASTOR, FLA. (1983)
BAYARD, FLA. (1993)
CRESCENT CITY, FLA. (1983)
EASTPORT, FLA. (1992)
FLEMING ISLAND, FLA. (1992)
GREEN COVE SPRINGS, FLA. (1991)
HASTINGS, FLA. (1992)
JACKSONVILLE, FLA. (1992)
JACKSONVILLE BEACH, FLA. (1992)
JACKSONVILLE HEIGHTS, FLA. (1993)
JUNIPER SPRINGS, FLA. (1972)
LAKE WOODRUFF, FLA. (1993)
MAYPORT, FLA. (1992)
MIDDLEBURG, FLA. (1993)
ORANGE CITY, FLA. (1980)
ORANGE PARK, FLA.
ORANGEDALE, FLA. (1993)
OSTEEN, FLA. (1980)
PALATKA, FLA. (1992)
PICOLATA, FLA. (1991)
PINE LAKES, FLA. (1988)
RIVERDALE, FLA. (1991)
SALT SPRINGS, FLA. (1983)
SAN MATEO, FLA. (1980)
SANFORD, FLA. (1988)
SATSUMA, FLA. (1980)
TROUT RIVER, FLA. (1992)
WELAKA S.E., FLA. (1993)
WELAKA, FLA. (1980)

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 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:

50,000

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:

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

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

-1.307

-1.249

-1.191

-1.133

-1.075

-1.017

0

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:

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: INVERT

The data layer INVERT contains the regions (complex polygons) for shellfish species.

Shellfish included in the St. Johns River atlas include crustaceans and mollusks. Species of conservation, commercial, and recreational importance are depicted, including shrimp and blue crab (fisheries species) and imperiled or rare crayfish, freshwater snails, and freshwater mussels. Similar to the fish, shellfish are mainly at risk if oil becomes mixed into the water column or accumulates in shallow areas. It should be noted that some species of conservation interest are vulnerable or imperiled largely because they are found in only a single or a few locations. Small creeks and backwater wetland areas with restricted water circulation would be major areas of concern, for both juvenile fisheries species and several species of conservation interest. For shrimp and blue crab, general distributions are mapped, as well as a few specific nursery areas known to have exceptionally high concentrations of juveniles. An expert contact for commercial and recreational fisheries species in the St. Johns River is the FDEP, Florida Marine Research Institute, 813/896-8626. Contacts for species of conservation interest include the Florida Museum of Natural History, University of Florida, 352/392-1721.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:
<u>GT-Polygon</u>	RARNUM integer

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

RARNUM

5.1.2.2. ATTRIBUTE DEFINITION:

An identifier that links to the BIORES table. The value of RARNUM is determined for each unique combination of SPECIES_ID, SEASON_ID, CONC, G_SOURCE, and S_SOURCE.

The following species are found in the INVERT data layer of the St. Johns River, Florida atlas:

SPECIES ID	NAME
4	Pink shrimp
49	Blue crab
50	White shrimp
51	Brown shrimp
74	Stone crab
109	Black Creek crayfish
111	Blue Spring hydrobe
112	Blue Spring siltsnail
113	Dense hydrobe
117	St. Johns elephantear
118	Florida lance

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 to BIORES table

**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 regions (complex polygons) for managed lands and archaeological/historical site data.

5.1.1. ENTITY TYPES:

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

5.1.2. ATTRIBUTES:

5.1.2.1. ATTRIBUTE LABEL:

TYPE

5.1.2.2. ATTRIBUTE DEFINITION:

Identifies the feature type. 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.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
AS	Archaeological/ Historical Site
P	State Park
WR	Wildlife Refuge/ Aquatic Preserve

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:

HUNUM

5.1.2.2. ATTRIBUTE DEFINITION:

An identifier that links to the SOC_DATA table

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

1

59

75

76

77

78

79

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: M_MAMMAL

The data layer M_MAMMAL contains the regions (complex polygons) with marine mammal species.

Manatees are depicted for the St. Johns River atlas. Bottlenose dolphins are not depicted on the maps due to widespread abundance and an assumed low sensitivity to oil spills. Dolphins are likely to be present throughout the estuarine portion of the lower river. An emergency contact for dolphins in Florida is the National Marine Fisheries Service, Protected Species Management Branch, 813/570-5312.

Manatees can be present throughout all inshore and nearshore waters of Florida, including the entire St. Johns River. The maps, however, emphasize higher concentration areas where manatees are most likely to be found. Concentration areas are often associated with estuaries, river banks, and wintering or cold-weather aggregation sites. When feeding, manatees may also concentrate in areas with submerged or floating aquatic vegetation. In the St. Johns River, major concentration areas and calving activity tend to occur in calm backwater areas, such as in protected coves or creek mouths. Specific calving areas were not indicated beyond the description given above. Manatees may give birth anytime during the year, although calving is more common in spring and summer months. The major winter aggregation site for manatees in the St. Johns River is Blue Spring, which is also a state park. Eighty or more manatees may be found in Blue Spring during wintering months.

Little is known concerning the potential impacts of oil on manatees. They may be vulnerable to oiling since they spend a great deal of time at or just below the water surface, and must surface to breathe. Likely impacts would include eye, mucous membrane, and respiratory tract irritation, although these impacts are not expected to be severe. One scenario that could result in more severe effects would be if large accumulations of oil became stranded in an area among floating or submerged vegetation. Manatees feeding on or surfacing to breathe through the vegetation could ingest or aspirate large quantities of oil.

In addition to direct oil spill vulnerability, spill responders (boat operators in particular) should be aware of manatee concentration areas in order to avoid boat collisions or other activities which could injure, kill, or disturb manatees. As

part of the Florida Manatee Sanctuary Act, signs may be posted in critical manatee areas requiring “slow” or “idle” boat speeds during certain times of year. Also of concern, heavy boat traffic or other response-related disturbance in the vicinity of manatee wintering sites could cause the animals to leave the area, exposing them to cold temperatures that could result in severe stress or death. Emergency contacts for manatees in the St. Johns River are: the Florida Marine Patrol, 800/DIAL-FMP; the FDEP Marine Mammal Pathobiology Laboratory, 813/893-2904; and Blue Spring State Park, 904/775-3663.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:
<u>GT-Polygon</u>	RARNUM integer

5.1.2. ATTRIBUTES:

5.1.2.1. ATTRIBUTE LABEL:

RARNUM

5.1.2.2. ATTRIBUTE DEFINITION:

An identifier that links to the BIORES table. The value of RARNUM is determined for each unique combination of SPECIES_ID, SEASON_ID, CONC, G_SOURCE, and S_SOURCE.

The following species are found in the M_MAMMAL data layer of the St. Johns River, Florida atlas:

SPECIES ID	NAME
10	West Indian manatee

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 to BIORES table

**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: NESTS

The data layer NESTS contains entity points representing bird nesting sites.

Birds are divided into several species subgroups based on taxonomy, morphology, life-history, and behavior relative to oil spill vulnerability and sensitivity. Species were included either because of their likelihood of impact by an oil spill or special protection status as threatened or endangered. The major bird types emphasized for the St. Johns River include wading birds, waterfowl, and certain raptors, including the bald eagle.

Colonial nesting sites are mapped for wading birds (and other associated species).

Raptors, including bald eagle, osprey, American swallow-tailed kite, and Northern harrier are included in the atlas. These species can be present throughout the St. Johns River study area, typically associated with wetland and aquatic habitats. Special emphasis was placed on mapping bald eagle nests, based on data provided by FGFWFC. There are great numbers of bald eagle nests present throughout the atlas, with the Lake George area standing out as one of the largest bald eagle nesting concentrations in the state and nation. Though other raptors (such as osprey) may be highly abundant throughout the study area, or abundant locally or seasonally, only a few locations are mapped based on observation and occurrence records maintained by local resource managers, FGFWFC, and FNAI.

Waterfowl and diving birds (cormorant, anhinga, pelicans) are usually at greatest risk during oil spills because they spend a great deal of time on the water surface. Waterfowl can also become oiled through contact with oiled marsh vegetation. Wading birds primarily become oiled on the legs and bill while wading for prey. They may also be oiled on the upper body and feathers by coming in contact with oiled marsh vegetation. Gulls and some raptors (bald eagle) may be at risk because they are often attracted to and will prey on sick or injured prey which is contaminated. This behavior may result in oiling of feathers and ingestion of oil. Terns and other types of raptors (osprey) may also be oiled while diving for prey.

Oiling of birds reduces the buoyancy, water repellency, and insulation provided by feathers, and may result in death by drowning or hypothermia. Preening of

oiled feathers and scavenging may also result in ingestion of oil resulting in irritation, sickness, or death. Oil brought back to the nest by contaminated adults can have severe impacts on the survival of eggs and young. Bird oiling, particularly waterfowl and wading birds, may continue even after the floating oil slicks have been removed, depending on the extent of oiled vegetation.

Emergency and expert contacts for birds in the St. Johns River include: the FGFWFC Hazardous Spill Coordinator, 904/921-5982; the FGFWFC Waterfowl Management Section, 904/488-5878; the FGFWFC Northeast Region Nongame Biologist, 904/758-0656; and the FGFWFC Central Region Nongame Biologist, 352/732-1225.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:
<u>Entity Point</u>	RARNUM integer

5.1.2. ATTRIBUTES:

5.1.2.1. ATTRIBUTE LABEL:

RARNUM

5.1.2.2. ATTRIBUTE DEFINITION:

An identifier that links to the BIORES table. The value of RARNUM is determined for each unique combination of SPECIES_ID, SEASON_ID, CONC, G_SOURCE, and S_SOURCE.

The following bird species are found in the NESTS data layer of the St. Johns River, Florida atlas:

SPECIES ID	NAME
8	Double-crested cormorant
54	Great blue heron
76	Bald eagle
77	Osprey
86	Least tern
87	Little blue heron
88	Great egret
93	Cattle egret
115	White ibis
121	Anhinga

SPECIES ID	NAME
280	American swallow-tailed kite
295	Florida scrub jay
1,004	Wading birds

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 to BIORES table

**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: SEASONAL

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

5.1.1. ENTITY TYPES:**5.1.1.1. ENTITY TYPE LABEL:**Attributes**5.1.1.2. ENTITY TYPE DEFINITION:**

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	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.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

BIRD
FISH
HABITAT
INVERT
M_MAMMAL
REPTILE
T_MAMMAL

5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:

Birds
Fish
Habitats and Plants of Concern
Invertebrates
Marine Mammals
Reptiles and Amphibians
Terrestrial Mammals

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 identified for each species and is unique within each element and refers to a nationwide species number list maintained at RPI

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:

Seasonality number

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 in January

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 in February

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 in March

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.

**5.1.2.4.1.1. ENUMERATED
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN
VALUE DEFINITION:**

X

Present in April

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 in May

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 in June

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 in July

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.

**5.1.2.4.1.1. ENUMERATED
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN
VALUE DEFINITION:**

X

Present in August

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:

SEP

5.1.2.2. ATTRIBUTE DEFINITION:

Present in September

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 in September

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 in October

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.

**5.1.2.4.1.1. ENUMERATED
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN
VALUE DEFINITION:**

X

Present in November

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:

DEC

5.1.2.2. ATTRIBUTE DEFINITION:

Present in December

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 in 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:

EL_SPE

5.1.2.2. ATTRIBUTE DEFINITION:

Concatenation of the first character of the ELEMENT and SPECIES_ID value

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 which links to BIORES, SPECIES, and STATUS data 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:

EL_SPE_SEA

5.1.2.2. ATTRIBUTE DEFINITION:

Concatenation of the first character of the ELEMENT and SPECIES_ID value

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 which links to BIORES and
BREED data 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. DETAILED DESCRIPTION: SOC_DATA

The data table SOC_DATA contains the human-use attributes linked to the data layers MGT and SOCECON.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:
<u>Attributes</u>	HUNUM TYPE NAME CONTACT PHONE G_SOURCE A_SOURCE
	integer character character character character integer 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 data layers MGT and SOCECON

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:

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:**

AIRPORT	Airport
AQUACULTURE	Aquaculture Site
ARCHAEOLOGICAL SITE	Archaeological/Historical Site
BOAT RAMP	Boat Ramp
DIVING	Diving Site
FACTORY	Water Supply/Treatment Facility
LOCK AND DAM	Lock and Dam
MARINA	Marina
RECREATIONAL FISHING	Recreational Fishing
STATE PARK	State Park
WATER INTAKE	Water Intake
WILDLIFE REFUGE	Wildlife Refuge/Aquatic Preserve

**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:

Airport
 Aquaculture Ponds
 Aquaculture Sites
 Archaeological/Historic Site
 Blue Spring State Park
 Boat Ramp
 Diving

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

Fish Hatchery
Hontoon Island State Park
Jacksonville Naval Air Station
Lake Woodruff National Wildlife Refuge
Landing Strip
Lower Wekiva River State Reserve
Marina
Putnam Power Plant
Ravine State Gardens
Recreational Fishing
Reynolds Airpark
Sanford Power Plant
Seminole Power Station
Sewage Treatment Plants
St. Johns Lock
U.S. Naval Air Station
Water Supply Plants
Wekiva River Aquatic Preserve
Welaka National Fish Hatchery (WNFH)
WNFH Beecher Spring Unit

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.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

Alan Brown
Jim Pittman
Plant Supervisor

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:

PHONE

5.1.2.2. ATTRIBUTE DEFINITION:

Telephone number

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

(407) 668-8625
(904) 325-9061
(904) 328-9255
(904) 467-2374

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 which 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:

S_SOURCE

5.1.2.2. ATTRIBUTE DEFINITION:

Attribute source identifier which 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: 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 Chain</u>	TYPE	character
<u>Entity Point</u>	TYPE HUNUM	character integer

5.1.2. ATTRIBUTES:

5.1.2.1. ATTRIBUTE LABEL:

TYPE

5.1.2.2. ATTRIBUTE DEFINITION:

Identifies the feature type of a line or point. This attribute allows direct access to the type of feature instead of linking to the more detailed SOC_DATA 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:
A	Airport – Points
AQ	Aquaculture Site - Points
BR	Boat Ramp – Points
DV	Diving Site – Points
F2	Water Supply/ Treatment Facility - Points
LD	Lock and Dam - Points
M	Marina – Points
R	Bridge - Chains
RF	Recreational Fishing Site - Points
WI	Water Intake – Points

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:

HUNUM

5.1.2.2. ATTRIBUTE DEFINITION:

An identifier that links to the SOC_DATA table

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 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. DETAILED DESCRIPTION: SOURCES

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

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:
<u>Attributes</u>	SOURCE_ID integer ORIGINATOR character DATE_PUB integer TITLE character DATA_FORMAT character PUBLICATION character SCALE character TIME_PERIOD character TYPE integer SAMP_PLAT character SAMP_METH character SPAT_REF_METH 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, A_SOURCE, and the data layer SURVEY

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 to link to data layers

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.

**5.1.2.4.1.1. ENUMERATED
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN
VALUE DEFINITION:**

Free text

**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:

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

Where—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

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:

Free text

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:

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:

Hardcopy map
 Digital map
 Hardcopy table
 Digital table
 Text description
 Expert knowledge

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.

**5.1.2.4.1.1. ENUMERATED
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN
VALUE DEFINITION:**

Free text

**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:

Map scale

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:**

Source scale denominator

**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:

TIME_PERIOD

5.1.2.2. ATTRIBUTE DEFINITION:

Date(s) of data collection

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN
VALUE DEFINITION:**

Beginning and ending dates

**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:

TYPE

5.1.2.2. ATTRIBUTE DEFINITION:

Sampling 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:**

1
2

Survey
Inferred

**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:

SAMP_PLAT

5.1.2.2. ATTRIBUTE DEFINITION:

Sampling platform

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

None
Overflight
Foot
Boat
Vehicle
Satellite

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:

SAMP_METH

5.1.2.2. ATTRIBUTE DEFINITION:

Sampling method

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

Model
Extrapolation
Anecdotal
Visual Observation
Photointerpretation
Image Processing
Trawls
Seine
Traps

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

Dredges
Passive Sonar
Remote Tracking
Lease Boundary Maps

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:

SPAT_REF_METH

5.1.2.2. ATTRIBUTE DEFINITION:

Spatial reference method

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

Landmark (map reference)
Compass Triangulation
Aerial
Satellite Imagery
Surveying
Public Land Survey
LORANC
GPS

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: SPECIES

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

5.1.1. ENTITY TYPES:**5.1.1.1. ENTITY TYPE LABEL:**

Attributes

5.1.1.2. ENTITY TYPE DEFINITION:

SPECIES_ID	integer
NAME	character
GEN_SPEC	character
DATE_PUB	integer
ELEMENT	character
SUBELEMENT	character
NHP	character
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 and is unique within each element and refers to a nationwide species number list maintained at RPI

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:

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:

American chaffseed
American coot
American swallow-tailed kite
American wigeon
Anhinga
Ashes savory
Atlantic sturgeon
Bald eagle
Bartrams ixia
Belted kingfisher
Big-cheeked cave crayfish
Black Creek crayfish
Black rail
Blue Spring hydrobe
Blue Spring siltsnail
Blue crab
Blue-winged teal
Bluenose shiner
Brown pelican
Brown shrimp
Bufflehead
Canvasback
Catesbys lily
Cattle egret
Chapmans sedge
Common loon
Common moorhen
Curtiss milkweed
Dense hydrobe
Double-crested cormorant
Dusky shiner
Eastern indigo snake

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

Enterprise siltsnail
Fall-flowering pleat-leaf
Floating aquatic vegetation
Florida black bear
Florida bonamia
Florida gopher frog
Florida hartwrightia
Florida lance
Florida long-tailed weasel
Florida mountain-mint
Florida pine snake
Florida sandhill crane
Florida scrub jay
Florida scrub lizard
Florida three-awned grass
Florida willow
Fulvous whistling-duck
Gadwall
Glossy ibis
Gopher tortoise
Great blue heron
Great egret
Green milkweed
Green-backed heron
Green-winged teal
Gulf hammock indian plantain
Hooded merganser
Lake-side sunflower
Large-flowered grass-of-parnassus
Least tern
Lesser scaup
Limpkin
Little blue heron
Merganser
Mottled duck
Northern harrier
Northern pintail
Northern river otter

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

Northern shoveler
Ocala vetch
Okeechobee gourd
Osprey
Pied-billed grebe
Piedmont jointgrass
Pink shrimp
Pond spice
Rare plants
Red-breasted merganser
Red-cockaded woodpecker
Redhead
Ring-necked duck
River goby
Round-tailed muskrat
Ruddy duck
Scrub bay
Scrub holly
Shortnose sturgeon
Silver Glen Springs cave crayfish
Slender-leaved dragon-head
Snail bullhead
Snowy egret
Spoon-flower
Spotted turtle
St. Johns susan
St. Johns elephantear
Stone crab
Tricolored heron
Variable-leaf crownbeard
Wading birds
West Indian manatee
White ibis
White shrimp
Wood duck
Wood stork
Yellow star anise
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 oxyrhynchus
Aix sponsa
Ameiurus brunneus
Anas acuta
Anas americana
Anas clypeata
Anas crecca
Anas discors
Anas fulvigula
Anas strepera
Anhinga anhinga
Aphaostracon asthenes
Aphaostracon pycnus
Aphelocoma coerulescens
Aramus guarauna
Ardea herodias
Aristida rhizomophora
Asclepias curtissii
Asclepias viridula
Awaous tajasica
Aythya affinis
Aythya americana
Aythya collaris
Aythya valisineria

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

Bonamia grandiflora
Bubulcus ibis
Bucephala albeola
Butorides striatus
Calamintha ashei
Callinectes sapidus
Carex chapmanii
Casmerodius albus
Ceryle alcyon
Cincinnatia monroensis
Cincinnatia parva
Circus cyaneus
Clemmys guttata
Coelorachis tuberculosa
Cucurbita okeechobeensis
Dendrocygna bicolor
Drymarchon corais couperi
Egretta caerulea
Egretta thula
Egretta tricolor
Elanoides forficatus
Elliptio monroensis
Elliptio waltoni
Eudocimus albus
Fulica americana
Gallinula chloropus
Gavia immer
Gopherus polyphemus
Grus canadensis pratensis
Haliaeetus leucocephalus
Hartwrightia floridana
Hasteola robertiorum
Helianthus carnosus
Ilex opaca
Illicium parviflorum
Laterallus jamaicensis
Lilium catesbaei
Litsea aestivalis

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

Lophodytes cucullatus
Lutra canadensis
Menippe spp.
Mergus serrator
Mustela frenata peninsulae
Mycteria americana
Nemastylis floridana
Neofiber alleni
Notropis cummingsae
Nyctanassa violacea
Oxyura jamaicensis
Pandion haliaetus
Parnassia grandifolia
Pelecanus occidentalis
Peltandra sagittifolia
Penaeus aztecus
Penaeus duorarum
Penaeus setiferus
Persea humilis
Phalacrocorax auritus
Physostegia leptophylla
Picoides borealis
Pituophis melanoleucus mugitus
Plegadis falcinellus
Podilymbus podiceps
Procambarus attiguus
Procambarus delicatus
Procambarus pictus
Pteronotropis welaka
Pycnanthemum floridanum
Rana capito aesopus
Rudbeckia nitida
Salix floridana
Sceloporus woodi
Schwalbea americana
Sphenostigma coelestina
Sterna antillarum
Trichechus manatus

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

Ursus americanus floridanus
 Verbesina heterophylla
 Vicia ocalensis

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:

DATE_PUB

5.1.2.2. ATTRIBUTE DEFINITION:

Date of NHP listing

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

0
 121996

5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:

Not listed by NHP
 Date of NHP list

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:**

BIRD
FISH
HABITAT
INVERT
M_MAMMAL
REPTILE
T_MAMMAL

**5.1.2.4.1.2. ENUMERATED DOMAIN
VALUE DEFINITION:**

Birds
Fish
Habitats and Plants of Concern
Invertebrates
Marine Mammals
Reptiles and Amphibians
Terrestrial Mammals

**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:

amphibian
anadromous
bear
crab
crayfish
diving
fav
gastropod
gull_tern
lizard
manatee
mussel
mustelid
passerine
raptor
rare plant

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

rodent
shrimp
snake
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:

Natural Heritage Program global ranking

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

NHP

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:

G1	Critically imperiled
G1G2	Critically imperiled to imperiled
G1T1	Critically imperiled
G2	Imperiled
G2?	Imperiled, inexact rank
G2G3	Imperiled to vulnerable
G3	Vulnerable
G3G4	Vulnerable to apparently secure
G4	Apparently secure
G4?	Apparently secure, inexact rank
G4G5	Apparently secure to secure
G4T3	Apparently secure, this subspecies is vulnerable
G5	Secure
G5T2	Secure, this subspecies is imperiled
G5T2T3	Secure, this subspecies is imperiled to vulnerable
G5T3	Secure, this subspecies is vulnerable
G5T3?	Secure, this subspecies is vulnerable, subspecies rank is inexact

5.1.2.4.1.3. ENUMERATED DOMAIN VALUE

DEFINITION SOURCE:

NHP

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:

ordered

5.1.2.1. ATTRIBUTE LABEL:

EL_SPE

5.1.2.2. ATTRIBUTE DEFINITION:

Concatenation of the first character of the ELEMENT and SPECIES_ID value

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

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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 FISH HABITAT INVERT M_MAMMAL REPTILE T_MAMMAL	Birds Fish Habitats and Plants of Concern Invertebrates Marine Mammals Reptiles and Amphibians Terrestrial Mammals

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 species number list maintained at RPI

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:

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:

FL

5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:

Florida

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:

S
S/F

5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:

State listed
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:

E
E/E
E/T

T
T/T

T/T

5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:

State endangered
Endangered on Federal and State lists
Endangered on State list and threatened on Federal list
State threatened
Threatened on State list and endangered on Federal list
Threatened on Federal and State 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:

Date of NHP listing

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:

41996

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 SPECIES_ID value

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 which links to BIORES, SPECIES, and SEASONAL data 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. DETAILED DESCRIPTION: SURVEY

The data layer SURVEY contains the regions (complex polygons) which depict survey boundaries covered by the data sources. Survey boundaries are based on the best available data and should be used with the SOURCES data table to identify the type of survey performed.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:
<u>GT-Polygon</u>	SOURCE_ID integer

5.1.2. ATTRIBUTES:

5.1.2.1. ATTRIBUTE LABEL:

SOURCE_ID

5.1.2.2. ATTRIBUTE DEFINITION:

Data 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:

1-N

5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:

Unique link to SOURCES data table

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: T_MAMMAL

The data layer T_MAMMAL contains regions (complex polygons) with terrestrial mammal species.

River otters are likely to occur in and around nearly all inland water-bodies, especially where wetlands are present. In the atlas, river otters are depicted in and along smaller, relatively undeveloped streams and creeks which are bordered by large tracts of wooded swamp. These locations are considered highly sensitive habitats, and are also expected to hold the largest concentrations of river otter. River otters and other semi-aquatic fur-bearing mammals can be severely impacted by swimming through oil slicks or coming into contact with oiled wetland vegetation. Impacts from matting of the fur can include loss of buoyancy and insulation resulting in sickness, hypothermia, or death. Impacts from the grooming of oiled fur can include oil ingestion leading to irritation, sickness, or death.

Florida black bear are only depicted in the atlas where potential habitat data from FGFWFC indicated large tracts of land with the highest habitat scores, located adjacent to the shoreline or in large areas of wooded swamp connected to the river or its tributaries. It was assumed that impacts to bears from waterborne spills would be more likely in such areas. In several locations, FGFWFC and FNAI observation or occurrence records may also be shown. The actual or potential distribution of black bears in the study area is likely to be much wider than that depicted in this atlas. Bears could potentially be at risk to spills because they use both wetland and aquatic habitats, making extensive use of forested swamps. Black bears in Florida are listed as threatened by the state, and are of conservation interest due to low population size, low reproductive rate, habitat loss, and habitat fragmentation.

Emergency and expert contacts for terrestrial mammals in the St. Johns River study area include: the FGFWFC Hazardous Spill Coordinator, 904/921-5982; the FGFWFC Northeast Region Nongame Biologist, 904/758-0656; and the FGFWFC Central Region Nongame Biologist, 352/732-1225.

5.1.1. ENTITY TYPES:

5.1.1.1. ENTITY TYPE LABEL:	5.1.1.2. ENTITY TYPE DEFINITION:
GT-Polygon	RARNUM integer

5.1.2. ATTRIBUTES:

5.1.2.1. ATTRIBUTE LABEL:

RARNUM

5.1.2.2. ATTRIBUTE DEFINITION:

An identifier that links to the BIORES table. The value of RARNUM is determined for each unique combination of SPECIES_ID, SEASON_ID, CONC, G_SOURCE, and S_SOURCE.

The following T_MAMMAL species are found in the St. Johns River, Florida atlas:

SPECIES ID	NAME
8	River otter
103	Florida black bear

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 link to BIORES data table

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:

Joanne Halls

6.1.1.2. CONTACT ORGANIZATION:

Research Planning, Inc.

6.1.4. CONTACT ADDRESS

6.1.4.1. ADDRESS TYPE:

Physical Address

6.1.4.2. ADDRESS:

1121 Park Street

6.1.4.3. CITY:

Columbia

6.1.4.4. STATE OR PROVINCE:

SC

6.1.4.5. POSTAL CODE:

29201

6.1.5. CONTACT VOICE TELEPHONE:

(803) 256-7322

6.1.7. CONTACT FACSIMILE TELEPHONE:

(803) 254-6445

6.2. RESOURCE DESCRIPTION:

ESI Atlas for St. Johns River, Florida

6.3. DISTRIBUTION LIABILITY:

Although this data has been processed successfully on a computer system at RPI, no warranty, expressed or implied, is made by RPI regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. RPI 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 Research Planning, Inc. for distribution options (see 6.1.1.).

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7.0. METADATA REFERENCE INFORMATION

7.1. METADATA DATE:

19970530

7.2. METADATA REVIEW DATE:

19941115

7.4. METADATA CONTACT

7.4.1. CONTACT PERSON PRIMARY

7.4.1.1. CONTACT PERSON:

Joanne Halls

7.4.1.2. CONTACT ORGANIZATION:

Research Planning, Inc.

7.4.3. CONTACT POSITION:

Director, GIS Department

7.4.4. CONTACT ADDRESS

7.4.4.1. ADDRESS TYPE:

Physical Address

7.4.4.2. ADDRESS:

1121 Park Street

7.4.4.3. CITY:

Columbia

7.4.4.4. STATE OR PROVINCE:

South Carolina

7.4.4.5. POSTAL CODE:

29201

7.4.5. CONTACT VOICE TELEPHONE:

(803) 256-7322

7.4.7. CONTACT FACSIMILE TELEPHONE:

(803) 254-6445

7.4.8. CONTACT ELECTRONIC MAIL ADDRESS:

joanne@researchplanning.com

7.5. METADATA STANDARD NAME:

Content Standards for Digital Geospatial Metadata

7.6. METADATA STANDARD VERSION:

19940608

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