

**NORTHERN CALIFORNIA  
ENVIRONMENTAL SENSITIVITY  
INDEX  
METADATA**

**April 2000**

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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:

National Oceanic and Atmospheric Administration (NOAA),  
National Ocean Service, Office of Response and Restoration,  
Hazardous Materials Response Division, Seattle, Washington and the  
State of California, Department of Fish and Game, Office of Spill  
Prevention and Response, Sacramento, California

#### 1.1.2. PUBLICATION DATE:

200004

#### 1.1.4. TITLE:

Sensitivity of Coastal Environments and Wildlife to Spilled Oil:  
Northern California

#### 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:

Northern California

#### 1.1.8. PUBLICATION INFORMATION

##### 1.1.8.1. PUBLICATION PLACE:

Seattle, Washington

##### 1.1.8.2. PUBLISHER:

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

#### 1.1.9. OTHER CITATION DETAILS:

Prepared by Research Planning, Inc., Columbia, South Carolina for  
the National Oceanic and Atmospheric Administration (NOAA),  
National Ocean Service, Office of Response and Restoration,  
Hazardous Materials Response Division, Seattle, Washington and the  
State of California, Department of Fish and Game, Office of Spill  
Prevention and Response, Sacramento, California

**1.1.10 ONLINE LINKAGE:**

Not available

**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 northern California. ESI data characterize coastal environments and wildlife by their sensitivity to spilled oil. The ESI data include information for three main components: shoreline habitats; sensitive biological resources; and human-use resources

**1.2.2. PURPOSE:**

The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response. The Clean Water Act with amendments by the Oil Pollution Act of 1990 requires response plans for immediate and effective protection of sensitive resources

**1.3. TIME PERIOD OF CONTENT**

**1.3.1. TIME PERIOD INFORMATION**

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

The intertidal habitats were mapped during aerial and ground surveys conducted from 20-26 October 1992. The biological and human-use resources data were compiled by regional biologists in 1994. 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:**

-124.50°

**1.5.1.2. EAST BOUNDING COORDINATE:**

-122.71°

**1.5.1.3. NORTH BOUNDING COORDINATE:**

42.00°

**1.5.1.4. SOUTH BOUNDING COORDINATE:**

38.00°

**1.6 KEYWORDS**

**1.6.1. THEME**

**1.6.1.1. THEME KEYWORD THESAURUS:**

None

**1.6.1.2. THEME KEYWORD:**

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

**1.6.2. PLACE**

**1.6.2.1. THESAURUS:**

None

**1.6.2.2. PLACE KEYWORD:**

Northern California: from the California/Oregon border to  
Point Reyes

**1.7. ACCESS CONSTRAINTS:**

None

**1.8. USE CONSTRAINTS:**

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

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

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

**1.11. DATA SET CREDIT:**

This project was supported by the National Oceanic and Atmospheric  
Administration (NOAA), National Ocean Service, Office of Response and

Restoration, Hazardous Materials Response Division, Seattle, Washington and the State of California, Department of Fish and Game, Office of Spill Prevention and Response, Sacramento, California.

**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 pre-release) 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_lut.e00	biofile.e00	biores.e00
birds.e00	breed.e00	breed_dt.e00
esi.e00	experts.e00	fish.e00
habitats.e00	hydro.e00	index.e00
invert.e00	m_mammal.e00	nests.e00
seasonal.e00	soc_dat.e00	soc_lut.e00
socecon.e00	species.e00	status.e00
t_mammal.e00		

The entire data set is approximately 56 megabytes.

**1.14. CROSS REFERENCE:**

The Northern and Central California coasts were previously mapped for the Minerals Management Service (Pacific Outer Continental Shelf Region, Los Angeles), by Woodward-Clyde Consultants, (Environmental Systems Division, San Francisco) in November, 1982

## **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. 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. Upon completion of digitization, the data are checked for completeness and topological and logical consistency, and then plotted and checked by the mapping geologists. Any errors in the shoreline classification are updated prior to digitization of the biological and socioeconomic layers. All layers use the shoreline as the geographic reference so that there are no slivers in the geographic coordinates. The hardcopy biological information is compiled onto 1:24,000 U.S. Geological Survey (USGS) topographic quadrangles by a biological expert using data from regional specialists in the form of maps, tables, charts, and written descriptions of wildlife distributions. The data are digitized, checked using both digital and on-screen procedures, plotted, and sent out for review by the regional specialists. The edited maps are updated, checked once again, and the final product plotted (at approximately 1:50,000 scale). A team of specialists reviews the entire series of maps, checks all data, and makes final edits. The data are then merged to form the study-wide layers. The data-merging includes a final quality control check where labels, chains, and polygons are checked for attribute accuracy.

To finalize the data checking process, each coverage is checked using a standardized form by two Geographic Information System (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 and programs are run to generate the unique IDs and associated lookup tables.

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

ESI data are also processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and a MARPLOT ESI product are also included on the CDs for ease of use of the ESI data. The database files are also distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats. Section 3.0, outlining Spatial Data Organization, refers to the source files in ARC export format only.

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

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

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

- 1) Shoreline type (substrate, grain size, tidal elevation, origin)
- 2) Exposure to wave and tidal energy
- 3) Biological productivity and sensitivity
- 4) Ease of cleanup

All of these factors are used to determine the relative sensitivity of intertidal habitats. Key to the sensitivity ranking is an understanding of the relationships between: physical processes; substrate; shoreline type; product type; fate and effect; and sediment transport patterns. The intensity of energy expended upon a shoreline by wave action, tidal currents, and river currents directly affects the persistence of stranded oil. The need for shoreline cleanup activities is determined, in part, by the slowness of natural processes in removal of oil stranded on the shoreline.

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

#### Sensitive Biological Resources:

Regional biologists compiled the biological data. These data denote the key biological resources that are most likely at risk in the event of an oil spill. Six major categories, or ELEMENTS, of biological resources were considered during data compilation: birds, fish, habitats/rare plants, invertebrates, marine mammals, 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, EXPERTS, SPECIES, and STATUS, that are used to store the complex biological data (Fig. 1). Each biological coverage is linked to the Biological Resources table (BIORES) using the unique ID and the lookup table BIO\_LUT, or it can be linked directly using RARNUM. The ID is a unique combination of the atlas number (for Northern California this is 7), an element specific number (birds are layer 1, fish are layer 2, etc.), and a unique record number. The items in BIORES include: RARNUM, SPECIES\_ID, CONC, SEASON\_ID, G\_SOURCE, S\_SOURCE, ELEMENT, EL\_SPE, and EL\_SPE\_SEA. SPECIES\_ID is the numeric identifier of each species and is unique within each ELEMENT. CONC is the concentration of the species and can be descriptive (LOW, MEDIUM, HIGH, etc.) or an actual count of the number of individuals or nests associated with a polygon or point. 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.

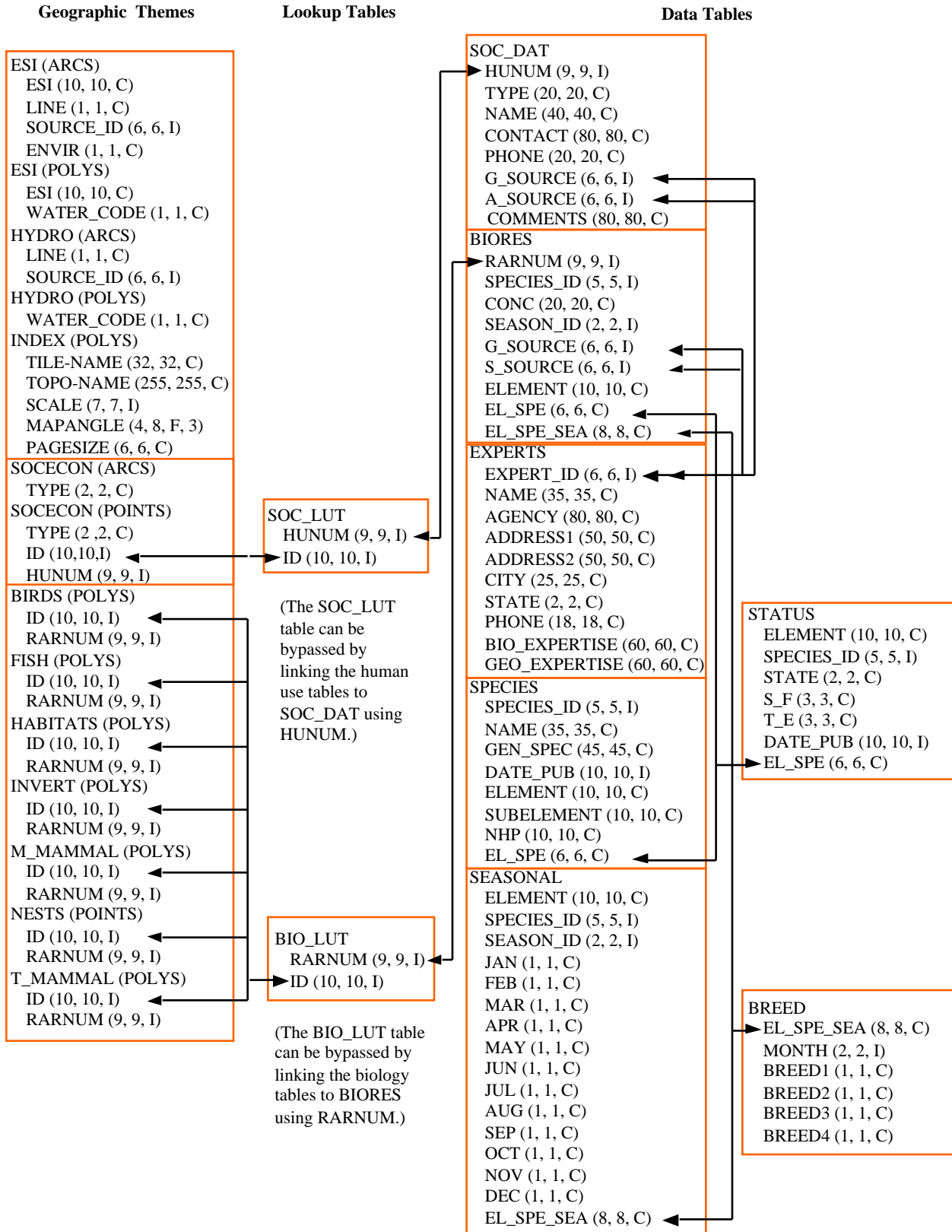


FIGURE 1. Relationship between biology data layers and attribute files.

G\_SOURCE and S\_SOURCE both hold the link to the EXPERTS data table. These items are duplicated with the G\_SOURCE and S\_SOURCE naming convention to mimic the current relational data structure. EL\_SPE is a concatenation of ELEMENT and SPECIES\_ID, and links to the SPECIES and STATUS tables. 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 of Natural Heritage Program (NHP) ranks was published (DATE\_PUB), biological element (ELEMENT), biological subelement (SUBELEMENT), and the NHP global conservation status rank. The item SUBELEMENT refers to the grouping of the species:

ELEMENT	SUBELEMENT
BIRD	Alcid
	Diving Coastal Bird
	Gull/Tern
	Passerine
	Pelagic
	Raptor
	Shorebird
	Wading Bird Waterfowl
FISH	Anadromous
	Beach Spawner
	Kelp Spawner
	Reef Fish
	Special Concentration
HABITAT	Marsh
	Submerged aquatic vegetation (sav)
	Shrub
INVERT	Abalone
	Cephalopod
	Clam
	Conch/Whelk
	Echinoderm
	Gastropod
	Mussel
	Oyster
	Scallop
	Squid/Octopus Crab



INVERT <i>continued</i>	Lobster
	Shrimp
MARINE MAMMAL	Dolphin
	Manatee
	Sea Lion
	Sea Otter
	Seal
	Whale
TERRESTRIAL MAMMAL	Bear
	Deer
	Mustelid
	Rodent
REPTILE	Alligator/Crocodile
	Sea Turtle

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 BREED4 are:

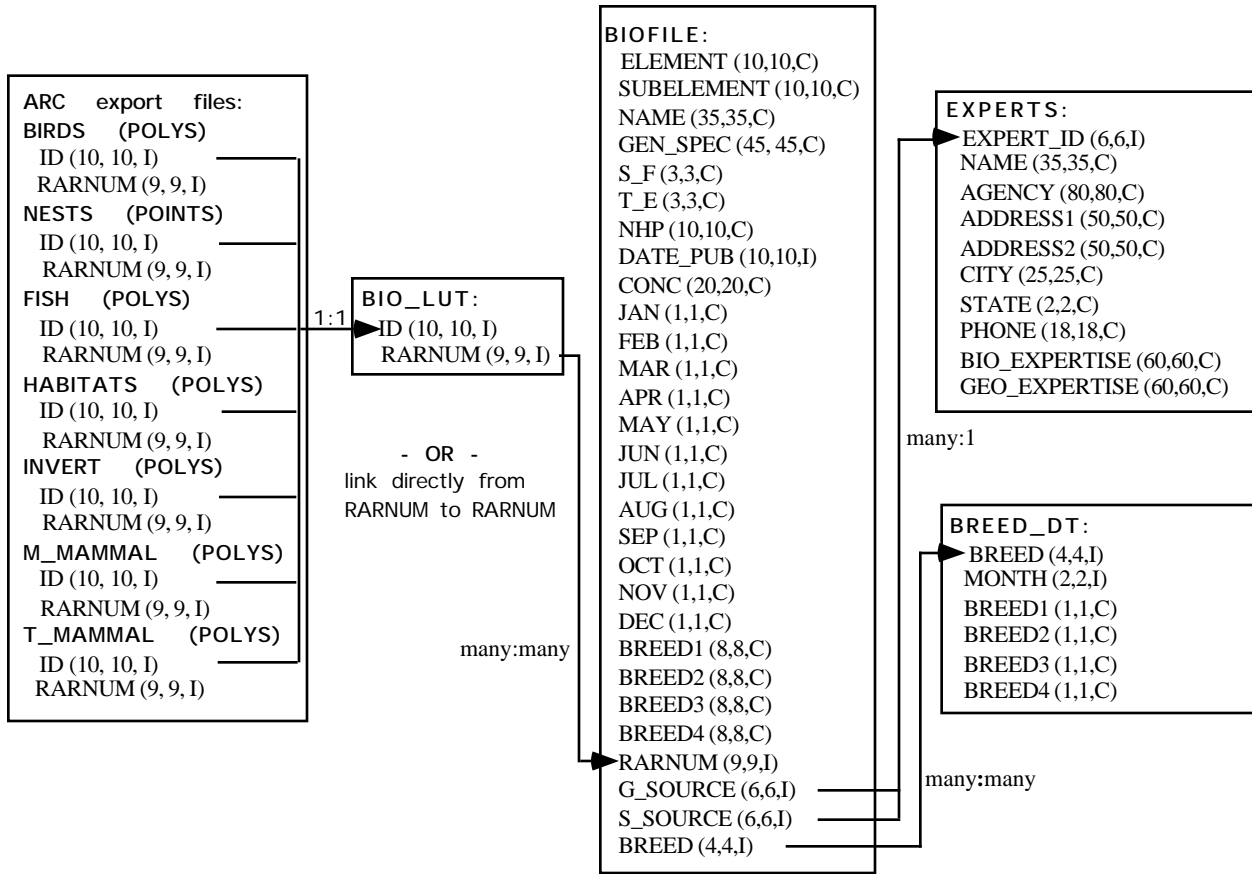
ELEMENT	BREED 1	BREED 2	BREED 3	BREED 4
BIRD	nesting	laying	hatching	fledging
FISH	spawning	outmigration		
INVERT	mating	spawning		
M_MAMMAL	mating	calving	pupping	

NOTE: There are no BREED variables for HABITAT and TERRESTRIAL MAMMALS.

The EXPERTS data table contains detailed contact and source information for many of the entries in BIORES and the flat BIOFILE (see Fig. 2 below). The EXPERTS table is linked to these tables through EXPERT\_ID from either the G\_SOURCE or S\_SOURCE item. If there is no expert information available, G\_SOURCE and S\_SOURCE will be set to zero (0). The items in EXPERTS are: EXPERT\_ID, NAME (primary expert and/or contact for the resource), AGENCY (affiliation of the listed expert), ADDRESS1, ADDRESS2, CITY, STATE, PHONE, BIO\_EXPERTISE (biological expertise of the expert), and GEO\_EXPERTISE (geographic extent of expert's expertise).

Due to the complexity of the relational database model, the biological data items are post processed into a flat file format. This file is entitled BIOFILE and it may be used in place of the relational files to ease simple data queries. The items in the flat file are ELEMENT, SUBELEMENT, NAME, GEN\_SPEC, S\_F, T\_E, NHP, DATE\_PUB, CONC, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC, BREED1, BREED2, BREED3, BREED4, RARNUM, G\_SOURCE, S\_SOURCE and BREED. All of these items are the same as their counterparts in the individual files described above, except the item BREED and the BREED1–BREED4 items. BREED is a newly generated variable used to link to the BREED\_DT file, a modified, more compact version of the aforementioned BREED file. Breed1–Breed4 give a text summary of when each life stage occurs within that polygon. The life stages referred to are the same as those listed in the previous table. The link to the BIOFILE may be made through BIO\_LUT using ID to link to RARNUM, or it may be linked directly to the RARNUM in each of the biology cover's attribute files. As mentioned, BREED\_DT is an auxiliary support file to the flat file structure, which allows the user to do searches based on month for seasonal breeding activities. The link from the flat file to BREED\_DT is the BREED item. A second supporting data file is EXPERTS. This is the same as the EXPERTS file described above and the link from the flat file is both G\_SOURCE and S\_SOURCE.

It should be noted that although the flat file eases data query, it is not a normalized database structure, and actual updates performed by the states and other responsible agencies should be done using the relational files.



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

Human-Use Resources:

Several human-use, or socioeconomic, features are included in ESI atlases. Entity points and complete chains (arcs) are digitized into the data layer SOCECON. This data set is linked to the data table SOC\_DAT using the SOC\_LUT lookup table and the items HUNUM and ID. ID is a concatenation of atlas number (7), element number (SOCECON = 10), and unique record number.

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

Entity Points		Complete Chains	
Feature	TYPE	Feature	TYPE
Access	A2	Indian Reservation	IR
Airport	A	International Border	IB
Aquaculture	AQ	Marine Sanctuary	MS
Archaeological Site	AS	National Park	NP
Beach	B	Park	P
Boat Ramp	BR	Pipeline	PL
Campground	CP	Regional or State Park	SP
Coast Guard	CG	State Border	SB
Commercial Fishing	CF	State Beach	B / RB
Factory	F2	Wildlife Refuge	WR
Historical Site	HS		
Hoist	H		
Log Storage	LS		
Marina	M		
Marine Sanctuary	MS		
Mining	M2		
National Park	NP		
Oil Facilities	OF		
Platforms	PF		
Recreational Fishing	RF		
State Park	SP		
Subsistence Fishing	S		
Village	V		
Water Intake	WI		
Wildlife Refuge	WR		

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

## 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 using regional experts who estimate concentration areas. Unlike shorelines, which maintain relative spatial stability through time, the biological data by nature migrate across the landscape. Therefore, the 1:24,000 USGS

quadrangles are used as a base map in gathering the data but the data have “fuzzy” boundaries that must be understood when utilizing this information.

## 2.5. LINEAGE

### 2.5.1. SOURCE INFORMATION:

Coverage or theme name: BIRDS and 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
David Church, Lisa Burns, and Rich Murphy, San Luis Obispo Dept. of Planning and Building	1992	Coastal Resources Inventory, Biological Resource Distributions	Digital, Hardcopy map, Book	Unknown	Varies	Unknown
UC Davis, Dan Anderson, 916/752-3576	1990	Brown Pelican Roosting Areas	Digital, Point	None	Unknown	Unknown
Eric Kauffman, State of California, State Land Commission	1993	Seabird Colonies of the California Coast	Digital, Entity Points	None	24,000	1989-1990
California Department of Fish and Game	1980	Atlas of California Coastal Marine Resources	Map	Unknown	24,000	1970's
Ecological Consulting, Inc. M.L. Bonnell	1992	Mendocino County-Atlas of Living Marine Resources	Map	Unknown	125,000	1971-1987
Arthur Sowls, Anthony DeGange, Jay Nelson, and Gary Lester	1980	Catalog of California Seabird Colonies	Digital, Entity Points Provided by Calif. State Land Comm., Ted Fukushima (contact), 916-322-7813	Bureau of Land Management, U.S. Fish and Wildlife Service, Report No. FWS/OBS-80/7	24,000	Unknown

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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
U.S. Fish and Wildlife Service	1993	Western Snowy Plover Distribution	Map	Unknown	24,000	Unknown
A.D. Beccasio, J.S. Isakson, A.E. Redfield, Dames & Moore	1981	Pacific Coast Ecological Inventory - San Luis Obispo, California	Map, a report accompanies the map series	Biological Services Program, USFWS, Slidell, La. Report No. FWS/OBS-81/30, 159 pp.	250,000	1921-1981
H.R. Carter <i>et al.</i>	1992	Breeding Populations of Seabirds on the Northern California Coast	Book	U.S. Fish and Wildlife Service, Point Reyes Bird Observatory, and Minerals Management Office	None	1989-1991
S.W. Harris	1991	North-western California Birds, Vol. II, Part 2	Book	Unknown	None	1940-1987
BLM and U.S. Fish and Wildlife Service, prepared by Jones and Stokes Assoc., Sacramento, Calif.	1981	An Ecological Characterization of the Central and Northern California Coastal Region	Book	Unknown	None	Unknown
Morro Coast Audubon Society, Inc.	1985	The Birds of San Luis Obispo County, California	Book	Unknown	None	Unknown
Center for Marine Studies	1983	Marine Mammals and Seabirds of Central and Northern California	Book	Study prepared for MMS	None	1980-1983

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<b>2.5.1.1.1</b> <b>Originator</b>	<b>2.5.1.1.2</b> <b>Publication Date</b>	<b>2.5.1.1.4</b> <b>Title</b>	<b>2.5.1.1.6</b> <b>Geospatial Data Presentation Form</b>	<b>2.5.1.1.8</b> <b>Publication Information</b>	<b>2.5.1.2</b> <b>Source Scale Denominator</b>	<b>2.5.1.4</b> <b>Source Time Period</b>
William S. Leet, Christopher Dewees, and Charles Haugen	1992	California Living Marine Resources and Their Utilization	Book	Unknown	None	Unknown
California Department of Fish and Game, Natural Heritage Division	1993	State and Federal Endangered and Threatened Animals of California	Book	Unknown	None	1993
David Zeiner	1990	California's Wildlife: Vol. 2. Birds	Book	Unknown	None	1980's
Sarah Allen, National Park Service	None	Natural History Information on the State of California	Personal Knowledge	None	None	1994
Paul Kelly, California Department of Fish and Game - Office of Oil Spill Prevention and Response	None	Natural History Information on Seabirds, Shorebirds, and Waterfowl	Personal Knowledge	None	None	1994
Terry Palmisno, California Department of Fish and Game	None	Inlands, Wetlands, and Riparian	Personal Knowledge	None	None	1994
Tom Eddell, Morro Coast Audubon Society, 805/995-1691	None	Birds of San Luis Obispo County, Distributions and Densities	Personal Knowledge	None	None	1994
Bruce Elliott, California Department of Fish and Game, Wildlife Division, 408/649-2890	None	Locations of Bird Rookeries & Sensitive Nesting Sites	Personal Knowledge	None	None	1994

**2.5.1. SOURCE INFORMATION:**

Coverage or theme name: FISH

**2.5.1.1. SOURCE CITATION**

<b>2.5.1.1.1</b> <b>Originator</b>	<b>2.5.1.1.2</b> <b>Publication Date</b>	<b>2.5.1.1.4</b> <b>Title</b>	<b>2.5.1.1.6</b> <b>Geospatial Data Presentation Form</b>	<b>2.5.1.1.8</b> <b>Publication Information</b>	<b>2.5.1.2</b> <b>Source Scale Denominator</b>	<b>2.5.1.4</b> <b>Source Time Period</b>
David Church, Lisa Burns, and Rich Murphy, San Luis Obispo Department of Planning and Building	1992	Coastal Resources Inventory, Biological Resource Distributions	Digital map, Hard-copy map, book	Unknown	Varies	Unknown
Bob Tasto, California Department of Fish and Game-Environmental Services Division	1977	Environmental Impacts on Herring, Bivalves, and Commercial Fisheries	Map	California Coastal Commission	24,000	Unknown
California Department of Fish and Game	1980	Atlas of California Coastal Marine Resources	Map	Unknown	24,000	1970's
Ecological Consulting, Inc. M.L. Bonnell	1992	Mendocino County-Atlas of Living Marine Resources	Map	Unknown	125,000	1971-1987
A.D. Beccasio, J.S. Isakson, and A.E. Redfield, Dames & Moore	1981	Pacific Coast Ecological Inventory - San Luis Obispo, California	Map, a report accompanies the map series	Biological Services Program, USFWS Slidell, La. Report No. FWS/OBS-81/30, 159 pp.	250,000	1921-1981
W.S. Leet, C.M. Dewees, and C.W. Haugen (Eds.)	1992	California's Living Marine Resources and Their Utilization	Book	Unknown	None	Unknown



NORTHERN CALIFORNIA META DATA

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
BLM and U.S. Fish and Wildlife Service, prepared by Jones and Stokes Assoc., Sacramento, Calif.	1981	An Ecological Characterization of the Central and Northern California Coastal Region	Book	Unknown	None	Unknown
Robert G. Titus, Report to California Department of Fish and Game	1992	Status of California Steelhead in Coastal Drainages South of San Francisco Bay	Book	Unknown	None	1991
Peter Moyle, Jack Williams, and Eric Wikramanayake	1989	Fish Species of Special Concern of California	Book	Unknown	None	Unknown
William S. Leet, Christopher Dewees, and Charles Haugen	1992	California Living Marine Resources and Their Utilization	Book	Unknown	None	Unknown
California Department of Fish and Game, Natural Heritage Division	1993	State and Federal Endangered and Threatened Animals of California	Book	Unknown	None	Unknown
R.L. Emmett, S.L. Stone, S.A. Hintor, and M.E. Monaco	1991	Distribution and Abundance of Fishes and Invertebrates in West Coast Estuaries - Volume II: Species Life History Summaries	Book	ELMR Rep. No. 8, NOAA/NOS Strategic Environmental Assessments Division, Rockville, Md., 329 pp.	None	Info compiled from historical and current literature and expert personal comm. and knowledge

NORTHERN CALIFORNIA METADATA

<b>2.5.1.1.1</b> <b>Originator</b>	<b>2.5.1.1.2</b> <b>Publication Date</b>	<b>2.5.1.1.4</b> <b>Title</b>	<b>2.5.1.1.6</b> <b>Geospatial Data Presentation Form</b>	<b>2.5.1.1.8</b> <b>Publication Information</b>	<b>2.5.1.2</b> <b>Source Scale Denominator</b>	<b>2.5.1.4</b> <b>Source Time Period</b>
Diane Watters, California Department of Fish and Game	None	Status and Location in San Francisco Bay of Herring	Personal Knowledge	None	None	1994
Bill Cox, California Department of Fish and Game–Inland Fisheries Division	None	Distribution, Abundance, Species, and Activity of Streams	Personal Knowledge	None	None	1994
Ken Oda, California Department of Fish and Game–Marine Resource Division	None	Distribution and Abundance of Smelt and Herring	Personal Knowledge	None	None	1994
Jim Hardwick, California Department of Fish and Game–Office of Oil Spill Prevention and Response	None	Squid, Herring, and Rockfish	Personal Knowledge	None	None	1994
Weldon Jones, California Department of Fish and Game–Inland Fisheries Division	None	Distribution, Abundance, Species, and Activity of Streams	Personal Knowledge	None	None	1994
Tom Moore, California Department of Fish and Game–Marine Resources Division, 707/875-2521	None	Abundance and Distri- bution of Herring	Personal Knowledge	None	None	1994
Dave Thomas, California Department of Fish and Game	None	Status and Life History of Rockfish	Personal Knowledge	None	None	1994

NORTHERN CALIFORNIA META DATA

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
Sandy Owen, California Department of Fish and Game	None	Fisheries, Local Knowledge	Personal Knowledge	None	None	1994
Bob Hardy, California Department of Fish and Game, 805/772-3011	None	Fisheries and Marine Resources in San Luis Obispo Co.	Personal Knowledge	None	None	1994
Susan McBride, California Sea Grant, 707/443-8369	None	Locations of Commercial Species	Personal Knowledge	None	None	1994
Karen Worcester, Regional Water Quality Control Board, 805/549- 3333	None	Fishes (esp. tidewater goby) Within San Luis Obispo Co. Creeks and Morro Bay	Personal Knowledge	None	None	1994
David Ven Tresca, California Department of Fish and Game, Marine Resources Division, 408/649-2881	None	Marine Fisheries, Rockfishes	Personal Knowledge	None	None	1994
Jennifer Nelson, California Department of Fish and Game, Fisheries Division, 408/649-7153	None	Spawning Streams for Steelhead Trout and Salmon spp.	Personal Knowledge	None	None	1994

**2.5.1. SOURCE INFORMATION:**

Coverage or theme name: HABITATS

**2.5.1.1. SOURCE CITATION**

<b>2.5.1.1.1</b> <b>Originator</b>	<b>2.5.1.1.2</b> <b>Publication Date</b>	<b>2.5.1.1.4</b> <b>Title</b>	<b>2.5.1.1.6</b> <b>Geospatial Data Presentation Form</b>	<b>2.5.1.1.8</b> <b>Publication Information</b>	<b>2.5.1.2</b> <b>Source Scale Denominator</b>	<b>2.5.1.4</b> <b>Source Time Period</b>
David Church, Lisa Burns, and Rich Murphy, San Luis Obispo Dept. Planning and Building	1992	Coastal Resources Inventory, Biological Resource Distributions	Digital map, Hard-copy map, book	Unknown	Varies	Unknown
A.D. Beccasio, J.S. Isakson, and A.E. Redfield, Dames & Moore	1981	Pacific Coast Ecological Inventory - San Luis Obispo, California	Map, a report accompanies the map series	Biological Services Program, USFWS Slidell, La., Report No. FWS/OBS-81/30, 159 pp.	250,000	Data for map series compiled from many sources 1921-1981
William S. Leet, Christopher Dewees, and Charles Haugen	1992	California Living Marine Resources and Their Utilization	Book	Unknown	None	Unknown
Tom Moore, California Department of Fish and Game-Marine Resources Division	None	Abundance and Distribution of Eelgrass	Personal Knowledge	None	None	1994
Deborah Hillyard, California Department of Fish and Game	None	Species and Location in Monterey County and Santa Cruz Counties	Personal Knowledge	None	None	1994

**2.5.1. SOURCE INFORMATION:**

Coverage or theme name: INDEX

**2.5.1.1. SOURCE CITATION**

<b>2.5.1.1.1</b>	<b>2.5.1.1.2</b>	<b>2.5.1.1.4</b>	<b>2.5.1.1.6</b>	<b>2.5.1.1.8</b>	<b>2.5.1.2</b>	<b>2.5.1.4</b>
<b>Originator</b>	<b>Publication Date</b>	<b>Title</b>	<b>Geospatial Data Presentation Form</b>	<b>Publication Information</b>	<b>Source Scale Denominator</b>	<b>Source Time Period</b>
Research Planning, Inc.		Map Index	Complex polygons	NOAA	24000	1998

**2.5.1. SOURCE INFORMATION:**

Coverage or theme name: INVERT

**2.5.1.1. SOURCE CITATION**

<b>2.5.1.1.1</b>	<b>2.5.1.1.2</b>	<b>2.5.1.1.4</b>	<b>2.5.1.1.6</b>	<b>2.5.1.1.8</b>	<b>2.5.1.2</b>	<b>2.5.1.4</b>
<b>Originator</b>	<b>Publication Date</b>	<b>Title</b>	<b>Geospatial Data Presentation Form</b>	<b>Publication Information</b>	<b>Source Scale Denominator</b>	<b>Source Time Period</b>
David Church, Lisa Burns, and Rich Murphy, San Luis Obispo Dept. Planning and Building	1992	Coastal Resources Inventory, Biological Resource Distributions	Digital, Hardcopy map, book	Unknown	Varies	Unknown
California Dept. of Fish and Game	1980	Atlas of California Coastal Marine Resources	Map	Unknown	24,000	1970's
Ecological Consulting, Inc., M.L. Bonnell	1992	Mendocino County-Atlas of Living Marine Resources	Map	Unknown	125,000	1971-1987
A.D. Beccasio, J.S. Isakson, and A.E. Redfield, Dames & Moore	1981	Pacific Coast Ecological Inventory - San Luis Obispo, California	Map, a report accompanies the map series	Biological Services Program, USFWS Slidell, La., Report No. FWS/OBS-81/30, 159 pp.	250,000	Data for map series compiled from many sources 1921-1981

NORTHERN CALIFORNIA 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
BLM and U.S. FWS, prepared by Jones and Stokes Assoc., Sacramento, Calif.	1981	An Ecological Characterization of the Central and Northern California Coastal Region	Book	Unknown	None	Unknown
William S. Leet, Christopher Dewees, and Charles Haugen	1992	California Living Marine Resources and Their Utilization	Book	Unknown	None	Unknown
R.L. Emmett, S.L. Stone, S.A. Hintor, and M.E. Monaco	1991	Distribution and Abundance of Fishes and Invertebrates in West Coast Estuaries - Volume II: Species Life History Summaries	Book	ELMR Rept. No. 8, NOAA/NOS Strategic Environmental Assessments Division, Rockville, Md., 329 pp.	None	Info compiled from the historical and current literature and expert personal comm. and knowledge
Tom Moore, California Department of Fish and Game-Marine Resources Division	None	Abundance and Distribution of Bivalves	Personal Knowledge	None	None	1994
Frank Henry, California Department of Fish and Game	None	Gastropods and Echinoderms	Personal Knowledge	None	None	1994
Sandy Owen, California Department of Fish and Game, 805/772-3011	None	Pismo Clams	Personal Knowledge	None	None	1994

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
Jerry Spratt, California Department of Fish and Game, Marine Division, 408/649-2880	None	Bivalves, Gastropods, and Marine Invertebrates	Personal Knowledge	None	None	1994
Deborah Hillyard, California Department of Fish and Game	Unknown	Species and Location in Monterey County and Santa Cruz County	Personal Knowledge	None	None	1994
Susan McBride, California Sea Grant, 707/443-8369	None	Commercial Fisheries, Locations by Species	Personal Knowledge	None	None	1994

**2.5.1. SOURCE INFORMATION:**

Coverage or theme name: M\_MAMMALS and T\_MAMMALS

**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
David Church, Lisa Burns, and Rich Murphy, San Luis Obispo Dept. of Planning and Building	1992	Coastal Resources Inventory, Biological Resource Distributions	Digital map, Hard-copy map, book	Unknown	Varies	Unknown
UC Davis, Dan Anderson, 916/752-3576	1991	Sea Otter Sightings by Aerial Survey	Digital, Point	None	Unknown	1990
California Department of Fish and Game	1980	Atlas of California Coastal Marine Resources	Map	Unknown	24,000	1970's

NORTHERN CALIFORNIA 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
Ecological Consulting, Inc., M.L. Bonnell	1992	Mendocino County-Atlas of Living Marine Resources	Map	Unknown	125,000	1971-1987
A.D. Beccasio, J.S. Isakson, and A.E. Redfield, Dames & Moore	1981	Pacific Coast Ecological Inventory - San Luis Obispo, California	Map, a report accompanies the map series	Biological Services Program, USFWS Slidell, La., Report No. FWS/OBS-81/30, 159 pp.	250,000	Data for map series compiled from many sources 1921-1981
Center for Marine Studies	1983	Marine Mammals and Seabirds of Central and Northern California	Book	Study prepared for MMS	None	1980-1983
William S. Leet, Christopher Dewees, and Charles Haugen	1992	California Living Marine Resources and Their Utilization	Book	Unknown	None	Unknown
David Zeiner	1990	California's Wildlife: Vol. 3. Mammals	Book	Unknown	None	1980's
Doyle Hanan, California Department of Fish and Game-Marine Resources Division	None	Distribution, Life History, and Abundance of Harbor Seals and Pinnipeds	Personal Knowledge	None	None	1994
Jack Ames, California Department of Fish and Game-Office of Oil Spill Prevention and Response, 408/649-2893	None	Distribution, Abundance, and Life History of Sea Otters	Personal Knowledge	None	None	1994



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
Terry Palmisno, California Department of Fish and Game	None	Inland, Wetlands, and Riparian	Personal Knowledge	None	None	1994
Dr. Aryan Roest, California Polytechnic State University, 805/528-4404	None	Marine Mammals-Distribution Within San Luis Obispo County	Personal Knowledge	None	None	1994
Brian Hatfield, U.S. Fish and Wildlife Service, 805/927-3893	None	Sea Otters, Elephant Seals and Other Marine Mammal Densities and Distributions	Personal Knowledge	None	None	1994
Fred Wendell, California Department of Fish and Game, 805/772-1714	None	Sea Otters	Personal Knowledge	None	None	1994

**2.5.1. SOURCE INFORMATION:**

Coverage or theme name: SOCECON

**2.5.1.1. SOURCE CITATION**

2.5.1.1.1 Originator	2.5.1.1.2 Publication Date	2.5.1.1.4 Title	2.5.1.1.6 Geospatial Data Presentation Form	2.5.1.1.8 Publication Information	2.5.1.2 Source Scale Denominator	2.5.1.4 Source Time Period
Bob Tasto, California Department of Fish and Game-Environmental Services Division	1977	Environmental Impacts on Herring, Bivalves, and Commercial Fisheries	Map	Unknown	24,000	Unknown
State Water Resources Control Board	1976	Areas of Special Biological Significance	Map	Unknown	2-5" = 1 mile	Unknown

NORTHERN CALIFORNIA 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
Emil Smith and Thom Johnson	1974	The Marine Life Refuges and Reserves of California	Map	Unknown	1" = 2 miles	Unknown
California Coastal Commission	1987	California Coastal Resource Guide	Book	Unknown	None	1980's
California Coastal Commission	1991	California Coastal Access Guide	Book	unknown	None	1980's
Rob Collins, California Department of Fish and Game-Marine Resources Division	1993	State Aquaculture Leases	Book	Unknown	None	Unknown
Karen Worcester, Regional Water Quality Control Board, 805/549-3333	None	Fisheries Within San Luis Obispo creeks & Morro Bay	Personal Knowledge	None	None	1994
Bob Hardy, California Department of Fish and Game, 805/772-3011	None	Fisheries and Marine Resources in San Luis Obispo Co.	Personal Knowledge	None	None	1994
Mickey Burke, Tribal Member, 707/487-7055	None	Location and Species of Native American and Subsistence Fishing Areas	Personal Knowledge	None	None	1994
Ted Kuipen, Kuipen Mariculture, 707/822-9057	None	Locations Off-the-ground Culture of Commercial Oyster Aquaculture	Personal Knowledge	None	None	1994
Susan McBride, California Sea Grant, 707/443-8369	None	Commercial Fisheries, Locations by Species	Personal Knowledge	None	None	1994

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
Craig Codd, Coast Oyster, 707/442-2974	None	Locations On-the-ground Culture of Commercial Oyster Aquaculture	Personal Knowledge	None	None	1994
David Ven Tresca, California Department of Fish and Game,- Marine Resources Division, 408/649-2881	None	Marine Fisheries and Resources, Locations of Ecological Reserves	Personal Knowledge	None	None	1994
Jerry Spratt, CDF&G, Marine Division, 408/649-2880	None	Centers of Sport, Commercial, and Commercial Sport Fishing Activity	Personal Knowledge	None	None	1994

**2.5.2. PROCESS STEP**

**2.5.2.1. PROCESS DESCRIPTION:**

The digitization of shoreline types, biological resources, and human-use resources is a complex and highly quality-controlled process. In order to facilitate digitizing, the entire study area is split into individual quadrangles using the INDEX data layer. The first layer of information digitized is the ESI shoreline classification. Upon completion of digitization, the data are checked for completeness and topological and logical consistency, and are then plotted and checked by the overflight/field specialists. Any errors in the shoreline classification are updated prior to digitization of the biological and socioeconomic layers. All data use the shoreline as the geographic reference so that there are no slivers in the geographic layers. The biological information is compiled onto 1:24,000 USGS topographic quadrangles by an in-house biological and GIS expert using the data from

regional specialists in the form of maps, tables, charts, and written descriptions of wildlife distributions. The data are digitized, checked using both digital and on-screen procedures, plotted, and sent out for review by the regional specialists. The edited maps are updated on the computer, checked once again, and plotted at final map scale. A team of specialists reviews the entire series of maps, checks all data, and makes final edits. The data are merged to form the study-wide layers that are described in this document. The data-merging includes a final quality control check where topological consistency, rules for geography, and database to geography are checked and reported to the GIS manager.

**2.5.2.3. PROCESS DATE:**

199409

**2.5.2.6. PROCESS CONTACT**

**2.5.2.6.1. CONTACT PERSON PRIMARY**

**2.5.2.6.1.1. CONTACT PERSON:**

Jill Petersen

**2.5.2.6.1.2. CONTACT ORGANIZATION:**

NOAA, Office of Response and  
Restoration

**2.5.2.6.3. CONTACT POSITION:**

GIS Manager

**2.5.2.6.4. CONTACT ADDRESS**

**2.5.2.6.4.1. ADDRESS TYPE:**

Physical Address

**2.5.2.6.4.2. ADDRESS:**

7600 Sand Point Way N.E.

**2.5.2.6.4.3. CITY:**

Seattle

**2.5.2.6.4.4. STATE OR PROVINCE:**

WA

**2.5.2.6.4.5. POSTAL CODE:**

98115-6349

**2.5.2.6.5. CONTACT VOICE TELEPHONE:**

(206) 526-6944

2.5.2.6.7. CONTACT FACSIMILE TELEPHONE:

(206) 526-6329

2.5.2.6.8. CONTACT ELECTRONIC MAIL ADDRESS:

jill\_petersen@hazmat.noaa.gov.us

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**3.0. SPATIAL DATA ORGANIZATION INFORMATION**

**3.2. DIRECT SPATIAL REFERENCE METHOD:**

Vector

**3.3. POINT AND VECTOR OBJECT INFORMATION**

**3.3.1. SDTS TERMS DESCRIPTION:**

**3.3.1.1. SDTS POINT AND VECTOR OBJECT TYPE, and**

**3.3.1.2. POINT AND VECTOR OBJECT COUNT:**

Theme	Universe Polygon	GT-Polygons	Area Points	Complete Chains	Line Segments	Label Points	Entity Points	Nodes
BIRDS	1	159	159	479	95,857			386
ESI	1	515	515	3,373	135,796			3,248
FISH	1	1,944	1,944	2,088	74,291			2,049
HABITATS	1	3,422	3,422	3,614	112,663			3,566
HYDRO	1	7,064	7,064	8,726	319,327			8,964
INDEX	1	39	39	172	176			134
INVERT	1	4,563	4,563	4,815	136,593			4,749
M_MAMMAL	1	239	239	448	82,932			411
NESTS							127	
SOCECON				103	2,187		275	1,549
T_MAMMAL	1	2	2	5	814			5

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**4.0. SPATIAL REFERENCE INFORMATION**

**4.1. HORIZONTAL COORDINATE SYSTEM DEFINITION**

**4.1.1. GEOGRAPHIC**

**4.1.1.1. LATITUDE RESOLUTION:**

0.00005

**4.1.1.2. LONGITUDE RESOLUTION:**

0.00005

**4.1.1.3. GEOGRAPHIC COORDINATE UNITS:**

Decimal Degrees

**4.1.4. GEODETIC MODEL**

**4.1.4.1. HORIZONTAL DATUM NAME:**

North American Datum of 1927

**4.1.4.2. ELLIPSOID NAME:**

Clarke, 1866

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**5.0. ENTITY AND ATTRIBUTE INFORMATION**

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

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

**5.1.1. ENTITY TYPES:**

**5.1.1.1. ENTITY TYPE LABEL:**

**5.1.1.2. ENTITY TYPE DEFINITION:**

<u>Attributes</u>	integer	RARNUM
	integer	ID

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

RARNUM

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

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**5.1. DETAILED DESCRIPTION: BIOFILE**

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

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

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

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

ELEMENT

**5.1.2.2. ATTRIBUTE DEFINITION:**

Major categories of biological data

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

BIRD	Birds
FISH	Fish
HABITAT	Habitats and Rare Plants
INVERT	Invertebrates
M_MAMMAL	Marine Mammals
T_MAMMAL	Terrestrial Mammals

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

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:**

---

abalone  
 alcid  
 anadromous  
 beach\_sp  
 crab  
 diving  
 dolphin  
 echinoderm  
 gull\_tern  
 kelp\_sp

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

mustelid  
oyster  
pelagic  
raptor  
sav  
sea\_lion  
seal  
shorebird  
shrimp  
shrub  
special  
wading  
waterfowl  
whale

---

**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:**

---

Abalone  
Aleutian goose  
American avocet  
American bittern  
Ashy storm-petrel  
Bald eagle  
Bay ghost shrimp  
Beach layia  
Black brant  
Black oystercatcher  
Black rail

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

Black scoter (common)  
Black-crowned night heron  
Brandts cormorant  
Brown pelican  
Bull kelp  
California black rail  
California halibut  
California sea lion  
Canada goose  
Canvasback  
Cassins auklet  
Chinook salmon (king)  
Clover lupine  
Coho salmon (silver)  
Common loon  
Common murre  
Common Pacific littleneck clam  
Cutthroat trout  
Dalls porpoise  
Diving birds  
Double-crested cormorant  
Dungeness crab  
Eared grebe  
Eelgrass  
Eulachon  
Fork-tailed storm-petrel  
Gaper clam  
Giant kelp  
Gray whale  
Great blue heron  
Great egret  
Greater scaup  
Green sturgeon  
Gulls  
Harbor porpoise  
Harbor seal  
Harlequin duck  
Horned grebe  
Howells spineflower  
Leachs storm-petrel



**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

Marbled godwit  
 Marbled murrelet  
 Marin bent grass  
 Menzies wallflower  
 Minke whale  
 Native Pacific oyster  
 Night smelt  
 Northern (Steller) sea lion  
 Northern elephant seal  
 Northern phalarope  
 Northern shoveler  
 Osprey  
 Pacific herring  
 Pacific lamprey  
 Pacific razor clam  
 Pelagic cormorant  
 Peregrine falcon  
 Pied-billed grebe  
 Pigeon guillemot  
 Purple shore crab  
 Rainbow trout (steelhead)  
 Raptors  
 Red phalarope  
 Red sea urchin  
 Red-breasted merganser  
 Red-necked grebe  
 Redtail surfperch  
 Rhinoceros auklet  
 River otter  
 Rockfish  
 Salmon sp.  
 Salt marsh birds-beak  
 Sanderling  
 Shorebirds  
 Short-billed dowitcher  
 Snowy plover  
 Soft-shell clam  
 Sooty shearwater  
 Sora rail  
 Striped bass

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

Surf scoter  
Surf smelt  
Surfperch  
Terns  
Tidewater goby  
Tufted puffin  
Virginia rail  
Wading birds  
Washington butter clam  
Waterfowl  
Western grebe  
Western gull  
Western lily  
Whistling swan (tundra swan)  
White pelican  
White sturgeon  
White-winged scoter  
Willet

---

**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 medirostris  
Acipenser transmontanus  
Aechmophorus occidentalis  
Agrostis blasdalei marinensis  
Amphistichus rhodoterus  
Anas clypeata  
Ardea herodias

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

*Aythya marila*  
*Aythya valisineria*  
*Baleonoptera acutorostrata*  
*Botaurus lentiginosus*  
*Brachyramphus marmoratus*  
*Branta bernicla*  
*Branta canadensis*  
*Branta canadensis leucopareia*  
*Calidris alba*  
*Callianassa californiensis*  
*Cancer magister*  
*Casmerodius albus*  
*Catoptrophorus semipalmatus*  
*Cepphus columba*  
*Cerorhinca monocerata*  
*Charadrius alexandrinus*  
*Chorizanthe howellii*  
*Clupea harengus pallasii*  
*Cordylantus maritimus maritimus*  
*Embiotocidae*  
*Entosphenus tridentatus*  
*Erysimum menziesii*  
*Eschrichtius robustus*  
*Eucyclogobius newberryi*  
*Eumetopias jubatus*  
*Falco peregrinus*  
*Gavia immer*  
*Haematopus bachmani*  
*Haliaeetus leucocephalus*  
*Haliotis sp.*  
*Hemigrapsus nudus*  
*Histrionicus histrionicus*  
*Hypomesus pretiosus*  
*Larus occidentalis*  
*Laterallus jamaicensis*  
*Laterallus jamaicensis coturniculus*  
*Layia carnosus*  
*Lilium occidentale*  
*Limnodromus griseus*  
*Limosa fedoa*

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

Lunda cirrhata  
Lupinus tidestromii tidestromii  
Lutra canadensis  
Macrocystis pyrifera  
Melanitta deglandi  
Melanitta nigra  
Melanitta perspicillata  
Mergus serrator  
Mirounga angustirostris  
Morone saxatilis  
Mya arenaria  
Nereocystis luetkeana  
Nycticorax nycticorax  
Oceanodroma furcata  
Oceanodroma homochroa  
Oceanodroma leucorhoa  
Olor columbianus  
Oncorhynchus kisutch  
Oncorhynchus mykiss  
Oncorhynchus tshawytscha  
Ostrea lurida  
Pandion haliaetus  
Paralichthys californicus  
Pelecanus erythrorhynchos  
Pelecanus occidentalis  
Phalacrocorax auritus  
Phalacrocorax pelagicus  
Phalacrocorax penicillatus  
Phalaropus fulicarius  
Phalaropus lobatus  
Phoca vitulina  
Phocoena phocoena  
Phocoenoides dalli dalli  
Podiceps auritus  
Podiceps grisegena  
Podiceps nigricollis  
Podilymbus podiceps  
Porzana carolina  
Protothaca staminea  
Ptychoramphus aleuticus

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

Puffinus griseus  
 Rallus limicola  
 Recurvirostra americana  
 Salmo clarki  
 Saxidomus giganteus  
 Sebastes spp.  
 Siliqua patula  
 Spirinchus starksi  
 Strongylocentrotus franciscanus  
 Thaleichthys pacificus  
 Tresus nuttallii  
 Uria aalge  
 Zalophus californianus  
 Zostera marina

---

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

S\_F

**5.1.2.2. ATTRIBUTE DEFINITION:**

State and Federal status

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
 DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
 VALUE DEFINITION:**

---

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

---

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

USFWS, CDFG

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

T\_E

**5.1.2.2. ATTRIBUTE DEFINITION:**

Threatened and endangered status

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

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

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:  
USFWS, CDFG**

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

NHP

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

Not supplied with this atlas	
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**5.1.2.1. ATTRIBUTE LABEL:**

DATE\_PUB

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

Not supplied with this atlas

---

**5.1.2.1. ATTRIBUTE LABEL:**

CONC

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

JAN

**5.1.2.2. ATTRIBUTE DEFINITION:**

Present in January

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

X

Present

Not Present

---

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

FEB

**5.1.2.2. ATTRIBUTE DEFINITION:**

Present in February

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

X

Present

Not Present

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

MAR

**5.1.2.2. ATTRIBUTE DEFINITION:**

Present in March

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

X

Present

Not Present

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal



**5.1.2.1. ATTRIBUTE LABEL:**

APR

**5.1.2.2. ATTRIBUTE DEFINITION:**

Present in April

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

X

Present  
Not Present

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

MAY

**5.1.2.2. ATTRIBUTE DEFINITION:**

Present in May

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

X

Present  
Not Present

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

JUN

**5.1.2.2. ATTRIBUTE DEFINITION:**

Present in June

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

X

Present  
Not Present

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

JUL

**5.1.2.2. ATTRIBUTE DEFINITION:**

Present in July

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

X

Present  
Not Present

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

AUG

**5.1.2.2. ATTRIBUTE DEFINITION:**

Present in August

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

X

Present  
Not Present

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

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  
Not Present

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

OCT

**5.1.2.2. ATTRIBUTE DEFINITION:**

Present in October

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

X

Present

Not Present

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

NOV

**5.1.2.2. ATTRIBUTE DEFINITION:**

Present in November

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

X

Present

Not Present

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

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

Not Present

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

BREED1

**5.1.2.2. ATTRIBUTE DEFINITION:**

Species' breeding or life stage textual summary where:

if ELEMENT = BIRD then BREED1 = nesting;

if ELEMENT = FISH then BREED1 = spawning;

if ELEMENT = INVERT then BREED1 = mating;

if ELEMENT = M\_MAMMAL then BREED1 = mating

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

JUL-DEC

3 character abbreviation of start and end  
month of breed1 activities

-

Not Occurring

N/A

No breed1 activities for this element

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

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

BREED2

**5.1.2.2. ATTRIBUTE DEFINITION:**

Species' breeding or life stage textual summary where:

if ELEMENT = BIRD then BREED2 = laying;

if ELEMENT = FISH then BREED2 = outmigration;

if ELEMENT = INVERT then BREED2 = spawning;

if ELEMENT = M\_MAMMAL then BREED2 = calving

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

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

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

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

BREED3

**5.1.2.2. ATTRIBUTE DEFINITION:**

Species' breeding or life stage textual summary where:

if ELEMENT = BIRD then BREED3 = hatching;

if ELEMENT = M\_MAMMAL then BREED3 = pupping

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
JUL-DEC	3 character abbreviation of start and end month of breed3 activities
-	Not Occurring
N/A	No breed3 activities for this element

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

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

**5.1.2.1. ATTRIBUTE LABEL:**  
BREED4

**5.1.2.2. ATTRIBUTE DEFINITION:**  
Species' breeding or life stage textual summary where:  
if ELEMENT = BIRD then BREED4 = fledging;

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**  
NOAA

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

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

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

**5.1.2.1. ATTRIBUTE LABEL:**  
RARNUM

**5.1.2.2. ATTRIBUTE DEFINITION:**  
An identifier that links directly back to the biological data layers or to the BIO\_LUT lookup table

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

G\_SOURCE

**5.1.2.2. ATTRIBUTE DEFINITION:**

A link to EXPERT\_ID in the supplementary data table EXPERTS. Formerly called EXPERT\_ID. Item name has been changed to G\_SOURCE to maintain consistency with the latest ESI data structure.

**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:**

A duplicate link to EXPERT\_ID in the supplementary data table EXPERTS. The S\_SOURCE field has been added to maintain consistency with the latest ESI data structure.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

1-N

Unique number



**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

BREED

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

1-N

Unique number

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

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**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 BIO\_LUT table and directly back to the biology coverages

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

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

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

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

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

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

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

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

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1-N

Unique number

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

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

**5.1.2.1. ATTRIBUTE LABEL:**  
CONC

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

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

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

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

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

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

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

Unique number

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

G\_SOURCE

**5.1.2.2. ATTRIBUTE DEFINITION:**

A link to EXPERT\_ID in the supplementary data table EXPERTS. Formerly called EXPERT\_ID. Item name has been changed to G\_SOURCE to maintain consistency with the latest ESI data structure.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

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

Unique number

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

S\_SOURCE

**5.1.2.2. ATTRIBUTE DEFINITION:**

A duplicate link to EXPERT\_ID in the supplementary data table EXPERTS. The S\_SOURCE field has been added to maintain consistency with the latest ESI data structure.

**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  
T\_MAMMAL

Birds  
Fish  
Habitats and Rare Plants  
Invertebrates  
Marine Mammals  
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 the SPECIES\_ID that provides a link to the species table.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

EL\_SPE\_SEA

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

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**5.1. DETAILED DESCRIPTION: BIRDS**

The data layer BIRDS contains the polygons with bird species.

The following BIRDS species are found in the Northern California ESI data set:

<b>SPECIES ID</b>	<b>NAME</b>
1	Common loon
4	Red-necked grebe
5	Horned grebe
6	Eared grebe
7	Western grebe
8	Double-crested cormorant
9	Brandt's cormorant
10	Pelagic cormorant
11	Whistling swan (tundra swan)
12	Canada goose
13	Black brant
20	Northern shoveler
21	Canvasback
22	Greater scaup
28	Harlequin duck
29	White-winged scoter
30	Surf scoter
33	Red-breasted merganser
37	Western gull
46	Common murre
47	Pigeon guillemot
48	Marbled murrelet
49	Cassin's auklet
50	Rhinoceros auklet
51	Tufted puffin
53	Northern phalarope
54	Great blue heron
64	Short-billed dowitcher
67	Sanderling
68	Black oystercatcher
76	Bald eagle
77	Osprey
88	Great egret
90	Black-crowned night heron
96	Leach's storm-petrel
102	Fork-tailed storm-petrel
107	Peregrine falcon
118	Brown pelican
139	Snowy plover

SPECIES ID	NAME
141	American avocet
144	Ashy storm-petrel
150	Black rail
155	Willet
160	Red phalarope
173	White pelican
179	Pied-billed grebe
185	American bittern
187	Virginia rail
188	Sora rail
197	Black scoter (common)
200	Sooty shearwater
206	California black rail
210	Marbled godwit
215	Aleutian goose
1,001	Gulls
1,002	Shorebirds
1,003	Waterfowl
1,004	Wading birds
1,005	Raptors
1,006	Diving birds
1,008	Terns

**5.1.1. ENTITY TYPES:**

**5.1.1.1. ENTITY TYPE LABEL:**

GT-Polygons

**5.1.1.2. ENTITY TYPE DEFINITION:**

ID	integer
RARNUM	integer

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

A unique identifier that links to the BIO\_LUT table. ID is a concatenation of atlas number (7), element number (1), and record number. ID values of 9999 are holes in polygons and do not contain information.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

RARNUM

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

1-N

Unique number

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

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**5.1. DETAILED DESCRIPTION: BREED**

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

**5.1.1. ENTITY TYPES:**

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

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

EL\_SPE\_SEA

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

MONTH

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

<b>5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:</b>	<b>5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:</b>
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1	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 = mating;  
 if EL\_SPE\_SEA contains "M" then BREED1 = mating

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

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

---

N	Not occurring
Y	Occurring

---

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

Research Planning, Inc.

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

**5.1.2.1. ATTRIBUTE LABEL:**  
BREED2

**5.1.2.2. ATTRIBUTE DEFINITION:**  
Species' breeding or life stage information where:  
if EL\_SPE\_SEA contains "B" then BREED2 = laying;  
if EL\_SPE\_SEA contains "F" then BREED2 = outmigration;  
if EL\_SPE\_SEA contains "I" then BREED2 = spawning;  
if EL\_SPE\_SEA contains "M" then BREED2 = calving

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

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

N	Not occurring
Y	Occurring

---

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

Research Planning, Inc.

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

**5.1.2.1. ATTRIBUTE LABEL:**  
BREED3

**5.1.2.2. ATTRIBUTE DEFINITION:**  
Species' breeding or life stage information where:  
if EL\_SPE\_SEA contains "B" then BREED3 = hatching;  
if EL\_SPE\_SEA contains "M" then BREED3 = pupping

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

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

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

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:  
nominal

5.1.2.1. ATTRIBUTE LABEL:  
BREED4

5.1.2.2. ATTRIBUTE DEFINITION:  
Species' breeding or life stage information where:  
if EL\_SPE\_SEA contains "B" then BREED4 = fledging;

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:  
Research Planning, Inc.

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

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

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:  
nominal



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

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

**5.1.1. ENTITY TYPES:**

**5.1.1.1. ENTITY TYPE LABEL:**

**5.1.1.2. ENTITY TYPE DEFINITION:**

---

<u>Attributes</u>	BREED	integer
	MONTH	integer
	BREED1	character
	BREED2	character
	BREED3	character
	BREED4	character

---

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

BREED

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

1-N

Unique number

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

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

MONTH

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

---

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

---

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

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

BREED1

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

N  
Y  
-

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

Not occurring  
Occurring  
No Breed1 activity for this element

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

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

BREED2

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

N  
Y  
-

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

Not occurring  
Occurring  
No Breed2 activity for this element

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

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

BREED3

**5.1.2.2. ATTRIBUTE DEFINITION:**

Species' breeding or life stage information where:

if EL\_SPE\_SEA contains “B” then BREED3 = hatching;

if EL\_SPE\_SEA contains “M” then BREED3 = pupping

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

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

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

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

BREED4

**5.1.2.2. ATTRIBUTE DEFINITION:**

Species’ breeding or life stage information where:

if EL\_SPE\_SEA contains “B” then BREED4 = fledging;

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

N	Not occurring
Y	Occurring
-	No Breed4 activity for this element

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

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1. DETAILED DESCRIPTION: ESI**

The data layer ESI contains arc (Complete Chains) and polygonal (GT-Polygons) features for the ESI shoreline classification. The classification of the features is based upon *Guidelines for Developing Digital Environmental Sensitivity Index Atlases and Data-bases* (Michel, J. and J. Dahlin, 1993, Hazardous Materials Response and Assessment Division, NOAA). The ESI classification was performed 20-26 October 1992.

**5.1.1. ENTITY TYPES:**

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

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

ESI

**5.1.2.2. ATTRIBUTE DEFINITION:**

The item ESI contains values according to the ESI ranking of the shorelines and polygons. The ESI rankings progress from low to high susceptibility to oil spills. The northern California shoreline types are listed below. In many cases, the shorelines are also ranked with multiple codes such as 10/7. The first number is the most landward shoreline type, salt marsh, with exposed tidal flats being the shoreline type closest to the water.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
1A	Exposed Rocky Cliffs
1A/2	Exposed Rocky Cliffs/Wave Cut Rocky Platforms
1A/3	Exposed Rocky Cliffs/Fine- to Medium-Grained Sand Beaches

<b>5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:</b>	<b>5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:</b>
1B	Exposed Seawall
1C	Exposed Rocky Cliffs/Boulder Talus Base
2	Wave Cut Rocky Platforms
2/3	Wave Cut Rocky Platforms/Fine- to Medium-Grained Sand Beaches
2/5	Wave Cut Rocky Platforms/Mixed Sand and Gravel Beaches
3	Fine- to Medium-Grained Sand Beaches
3/2	Fine- to Medium-Grained Sand Beaches/Wave Cut Rocky Platforms
3/6A	Fine- to Medium-Grained Sand Beaches/Gravel Beaches
3/7	Fine- to Medium-Grained Sand Beaches/Exposed Tidal Flats
3/8A	Fine- to Medium-Grained Sand Beaches/Sheltered Rocky Shores
3/9	Fine- to Medium-Grained Sand Beaches/Sheltered Tidal Flats
4	Coarse-Grained Sand to Granule Beaches
4/2	Coarse-Grained Sand to Granule Beaches/Wave Cut Rocky Platforms
4/9	Coarse-Grained Sand to Granule Beaches/Sheltered Tidal Flats
5	Mixed Sand and Gravel Beaches
5/10	Mixed Sand and Gravel Beaches/Salt Marsh
5/2	Mixed Sand and Gravel Beaches/Wave Cut Rocky Platforms
5/3	Mixed Sand and Gravel Beaches/Fine- to Medium-Grained Sand Beaches
5/7	Mixed Sand and Gravel Beaches/Exposed Tidal Flats
5/8A	Mixed Sand and Gravel Beaches/Sheltered Rocky Shores
5/8A/9	Mixed Sand and Gravel Beaches/Sheltered Rocky Shores/Sheltered Tidal Flats
5/9	Mixed Sand and Gravel Beaches/Sheltered Tidal Flats
6A	Gravel Beaches
6A/2	Gravel Beaches/Wave Cut Rocky Platforms
6A/3	Gravel Beaches/Fine- to Medium-Grained Sand Beaches
6A/7	Gravel Beaches/Exposed Tidal Flats
6A/9	Gravel Beaches/Sheltered Tidal Flats
6B	Riprap
6B/10	Riprap/Salt Marsh
6B/2	Riprap/Wave Cut Rocky Platforms
6B/3	Riprap/Fine- to Medium-Grained Sand Beaches

<b>5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:</b>	<b>5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:</b>
6B/3/7	Riprap/Fine- to Medium-Grained Sand Beaches/Exposed Tidal Flats
6B/9	Riprap/Sheltered Tidal Flats
7	Exposed Tidal Flats
7/3	Exposed Tidal Flats/Fine- to Medium-Grained Sand Beaches
8A	Sheltered Rocky Shores
8A/3	Sheltered Rocky Shores/Fine- to Medium-Grained Sand Beaches
8A/5	Sheltered Rocky Shores/Mixed Sand and Gravel Beaches
8A/6A	Sheltered Rocky Shores/Gravel Beaches
8A/7	Sheltered Rocky Shores/Exposed Tidal Flats
8A/9	Sheltered Rocky Shores/Sheltered Tidal Flats
8B	Sheltered Man-Made Structures
8B/7	Sheltered Man-Made Structures/Exposed Tidal Flats
8B/9	Sheltered Man-Made Structures/Sheltered Tidal Flats
9	Sheltered Tidal Flats
9/10	Sheltered Tidal Flats/Salt Marshes
10	Salt Marsh
10/7	Salt Marsh/Exposed Tidal Flats
10/9	Salt Marsh/Sheltered Tidal Flats

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

ordinal

**5.1.2.1. ATTRIBUTE LABEL:**

LINE

**5.1.2.2. ATTRIBUTE DEFINITION:**

Type of geographic feature

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

<b>5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:</b>	<b>5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:</b>
F	Flat (line bounding a tidal flat)
M	Marsh (line bounding a 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:**

2

Digital

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

ENVIR

**5.1.2.2. ATTRIBUTE DEFINITION:**

Regional environment

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

E

Estuary

**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:**

W  
L

**5.1.2.4.1.2.**

**ENUMERATED DOMAIN  
VALUE DEFINITION:**

Water  
Land

**5.1.2.4.1.3.**

**ENUMERATED DOMAIN VALUE  
DEFINITION SOURCE:**

Research Planning, Inc.

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**5.1. DETAILED DESCRIPTION: EXPERTS**

The data table EXPERTS contains the primary contacts for resources 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>	EXPERT_ID	integer
	NAME	character
	AGENCY	character
	ADDRESS1	character
	ADDRESS2	character
	CITY	character
	STATE	character
	PHONE	character
	BIO_EXPERTISE	character
	GEO_EXPERTISE	character

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

EXPERT\_ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

Expert identifier that links to G\_SOURCE and S\_SOURCE in the BIORES and BIOFILE tables and to G\_SOURCE and A\_SOURCE in the SOC\_DAT table.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

1-N	Unique number
-----	---------------

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

NAME

**5.1.2.2. ATTRIBUTE DEFINITION:**

Primary expert and/or contact for resource

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

Allen, Sarah  
Breen, Bob  
Collier, Patrick  
Colwell, Mark  
Cox, Bill  
Curry, Mike  
Edell, Tom  
Fletcher, Grant  
Forester, Kevin  
Foster, Dr. Michael  
Fukushima, Linda  
Gallagher, Ken  
Grantham, Greg  
Haas, Jim  
Hanson, Linda  
Harvey, Dr. James  
Hillyard, Deborah  
Houck, Jake  
Imper, Dave  
Jones, Wendy  
Kalvass, Pete  
Karpov, Kon  
Karpov, Konstantin  
Kelly, John  
Klobas, John  
Knight, Jan  
Lintz, Jim  
McCleod, Dave  
Miller, Sheri  
Moore, Tom  
Nelson, Jennifer  
Oda, Ken  
Point Reyes Bird Observatory,  
Preston, Larry  
Quirollo, Larry

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

Rausch, Linda  
Roust, Aron  
Springer, Paul  
Tasto, Bob  
Thomas, Dave  
Ueber, Ed  
Wallace, Michael  
Warner, Ron  
Woodhouse, Dr. Charles  
Worcester, Karen

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**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

AGENCY

**5.1.2.2. ATTRIBUTE DEFINITION:**

Affiliation of the listed expert

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

Audubon Canyon Ranch  
Bureau of Land Management  
California Department of Fish and Game  
California Polytechnic State Univ. San Luis Obispo  
California State Parks  
College of the Redwoods  
Fitzgerald Marine Reserve  
Humboldt State University  
Morro Coas Audubon Society  
Moss Landing Marine Labs  
Native Plant Society  
NOAA Gulf of the Farallones National Marine Sanctuary  
North Coast Marine Mammal Care Center  
Point Reyes Bird Observatory  
Private  
Regional Water Quality Control Board  
Santa Barbara Museum of Natural History  
Sonoma Field Studies  
U. S. Department of Agriculture Redwood Science Lab  
U. S. Fish and Wildlife Service  
U. S. Fish and Wildlife Service Humboldt Bay NWR  
University of California - Berkeley

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**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

ADDRESS1

**5.1.2.2. ATTRIBUTE DEFINITION:**

Primary address of the expert

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

1125 16th Street  
1211 Del Mar Drive  
1610 Panorama Drive  
1700 Bayview Street  
1720 Ocean Drive  
19160 South Harbor Dr.  
20 Lower Ragsdale Dr.  
2559 Puesta Del Sol Road  
2800 Cottage Way  
3141 Highway 128  
411 Burgess Dr.  
424 Howe Drive  
46 8th Street  
4612 Lentell  
4990 Shoreline Highway  
5341 Ericson Way  
619 2nd Street  
7 Bridge Ct.  
81 Higuera Street  
Biological Sciences Department  
College of the Redwoods  
Cypress Grove Preserve  
Field Office and Lab  
Fort Mason  
Mad River Hatchery  
Mendocino District Head  
P. O. Box 2498  
P. O. Box 450  
P. O. Box 47  
San Mateo City Park District  
Wildlife Department

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**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

ADDRESS2

**5.1.2.2. ATTRIBUTE DEFINITION:**

Continuation of first address of expert

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

1211 Del Mar Dr.  
19160 S. Harbor Drive  
Building 201  
Hatchery Road  
Highway 1  
P. O. Box 808  
P. O. Box 451  
Room E-1803  
Suite 100  
Suite 200

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**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

CITY

**5.1.2.2. ATTRIBUTE DEFINITION:**

City of expert's address

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

Arcata  
Blue Lake  
Calistoga  
Cayucos  
Crescent City  
Eureka  
Fairfax  
Fort Bragg  
Ft. Bragg  
Loleta

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

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Marshall  
McKinleyville  
Mendocino  
Menlo Park  
Monterey  
Moss Beach  
Moss Landing  
Sacramento  
San Francisco  
San Luis Obispo  
Santa Barbara  
Sebastopol  
Stinson Beach  
Yountville

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**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

STATE

**5.1.2.2. ATTRIBUTE DEFINITION:**

State of expert's address

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

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CA

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**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

PHONE

**5.1.2.2. ATTRIBUTE DEFINITION:**

Phone number of expert

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

BIO\_EXPERTISE



**5.1.2.2. ATTRIBUTE DEFINITION:**

Biological expertise of expert

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

abalone  
 aleutian goose  
 Anadromous Fish: Salmon and Steelhead  
 Birds  
 Botany  
 Botany: plants  
 dungeness crab  
 eel grass  
 Fisheries: Herring, Environmental Input Analysis  
 Fisheries: Steelhead trout, Salmon  
 groundfish, rockfish  
 harbor seals, California sea lions  
 herring shrimp  
 Inland fisheries  
 Kelp forest ecology: kelp, seagrasses  
 m mammals  
 m mammals b. brant  
 m mammals birds  
 m mammals groundfish rock fish urchins herring  
 Mammals  
 marbled murrelet  
 Marine Mammals  
 Marine Mammals, Waterfowl, Seabirds, Shorebirds  
 Marine Mammals: harbor seals  
 Marine: Abalone, Sea Urchins  
 Marine: Sea Urchins  
 native plants  
 Naturalist  
 pinnipeds  
 Pinnipeds: Harbor Seals Elephant Seals  
 plants birds  
 salmon steelhead  
 salmon steelhead tidewater goby  
 Sanctuary Manager  
 Sea Urchins, Clams, Eel Grass, Abalone, Herring  
 smelt, ground fish, rockfish  
 Smelt, Herring  
 Waterfowl, Shorebirds, Raptors

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**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

GEO\_EXPERTISE

**5.1.2.2. ATTRIBUTE DEFINITION:**

Geographic extent of expert's expertise

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

Bodega; Point Reyes Farallon Islands; Tomales Bay  
California  
Central & Northern California  
Central California  
Central Coast, San Francisco Bay  
Central and Northern California  
Del Norte County  
Del Norte and Humboldt counties  
Farallones and Cordell Bank National Marine  
Sanctuaries  
Humboldt Bay  
Humboldt County  
Kings Range  
Klamath River  
Mendocino County  
Northern California  
Oregon border south to San Mateo county  
Pt. Arena to Punta Gorda  
Russian River  
S. F., San Mateo, Santa Cruz, Monterey, San Luis  
Obispo Cnty  
San Francisco, San Mateo, Santa Cruz, Monterey  
Counties  
San Luis Obispo  
San Luis Obispo County  
San Mateo County coast  
San Mateo and San Francisco Counties  
Santa Barbara  
Sonoma County  
Sonoma and Marin Counties  
Tomales Bay

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**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1. DETAILED DESCRIPTION: FISH**

The data layer FISH contains the polygons with fish species.

The following FISH species are found in the Northern California ESI atlas:

SPECIES ID	NAME
43	White sturgeon
44	Green sturgeon
45	Cutthroat trout
54	Redtail surfperch
66	Pacific herring
68	Chinook salmon (king)
69	Coho salmon (silver)
74	Rainbow trout (steelhead)
75	Surf smelt
77	Eulachon
83	Salmon sp.
104	Striped bass
219	Pacific lamprey
223	Rockfish
224	Surfperch
225	California halibut
226	Tidewater goby
228	Night smelt

**5.1.1. ENTITY TYPES:**

**5.1.1.1. ENTITY TYPE LABEL:**

GT-Polygons

**5.1.1.2. ENTITY TYPE DEFINITION:**

ID	integer
RARNUM	integer

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

A unique identifier that links to the BIO\_LUT table. ID is a concatenation of atlas number (7), element number (2), and record number. ID values of 9999 are holes in polygons and do not contain information.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

RARNUM

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

1-N

Unique number

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1. DETAILED DESCRIPTION: HABITATS (formerly PLANTS)**

The data layer HABITATS contains the polygons with plant species.

The following HABITATS species are found in the Northern California ESI atlas:

SPECIES ID	NAME
1	Eelgrass
2	Bull kelp
3	Menzies wallflower
4	Beach layia
5	Salt marsh bird's-beak
6	Western lily
8	Clover lupine
9	Giant kelp
69	Marin bent grass
71	Howells spineflower

**5.1.1. ENTITY TYPES:**

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

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

A unique identifier that links to the BIO\_LUT table. ID is a concatenation of atlas number (7), element number (3), and record number. ID values of 9999 are holes in polygons and do not contain information.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

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

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

RARNUM

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

1-N

Unique number

---

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

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1. DETAILED DESCRIPTION: HYDRO**

The data layer HYDRO contains polygonal water and land features, as well as linear features for rivers/streams that are tidally influenced. This layer was created using the digital shoreline provided by the California State Land Office.

**5.1.1. ENTITY TYPES:**

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

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

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

WATER\_CODE

**5.1.2.2. ATTRIBUTE DEFINITION:**

Specifies a polygon as either water or land

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

W	Water
L	Land

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

LINE

**5.1.2.2. ATTRIBUTE DEFINITION:**

Type of geographic feature

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

H	Hydro
I	Index for map/quad boundary
S	Shoreline

---

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

Research Planning, Inc.

**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:**

---

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

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal



**5.1. DETAILED DESCRIPTION: INDEX**

The data layer INDEX contains the map boundaries for each quad/map in the atlas.

**5.1.1. ENTITY TYPES:**

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

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

TILE-NAME

**5.1.2.2. ATTRIBUTE DEFINITION:**

The TILE-NAME contains the map number according to the specified layout of the atlas. During the map production process, the value of TILE-NAME is plotted on the map product to order the maps in a coherent manner. The values for each polygon are unique and range from 1 through 41.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

TOPO-NAME

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

- 
- ARCATA NORTH, CALIF. (1972); TYEE CITY, CALIF. (1972)
  - ARCATA SOUTH, CALIF. (1972)
  - ARCHED ROCK, CALIF. (1977); FORT ROSS, CALIF. (1978)
  - BEAR HARBOR, CALIF. (1969)
  - BODEGA HEAD, CALIF. (1972)

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

CANNIBAL ISLAND, CALIF. (1972)  
CAPETOWN, CALIF. (1969); CAPE MENDOCINO, CALIF. (1969)  
CHILDS HILL, CALIF. (1975); SISTER ROCKS, CALIF. (1966)  
COOSKIE CREEK, CALIF. (1969)  
CRANNELL, CALIF. (1975); TRINIDAD, CALIF. (1978)  
CRESCENT CITY CALIF. (1978)  
DRAKES BAY, CALIF. (1976)  
DUNCANS MILL, CALIF. (1979)  
ELK, CALIF. (1960); ALBION, CALIF. (1960)  
EUREKA, CALIF. (1972)  
FERN CANYON, CALIF. (1966)  
FERNDALE, CALIF. (1972)  
FIELDS LANDING, CALIF. (1972)  
FORT BRAGG, CALIF. (1978)  
HALES GROVE, CALIF. (1970); MISTAKE POINT, CALIF. (1969)  
INGLENOOK, CALIF. (1976)  
INVERNESS, CALIF. (1976); POINT REYES NE, CALIF. (1976)  
MALLO PASS CREEK, CALIF. (1977)  
MENDOCINO, CALIF. (1978)  
ORICK, CALIF. (1975)  
PETROLIA, CALIF. (1969)  
PLANTATION, CALIF. (1977)  
POINT ARENA, CALIF. (1978)  
REQUA, CALIF. (1966)  
SAUNDERS REEF, CALIF. (1977)  
SHELTER COVE, CALIF. (1969)  
SHUBRICK PEAK, CALIF. (1969)  
SMITH RIVER, CALIF.-OREGON (1966)  
STEWARTS POINT, CALIF. (1978)  
STEWARTS POINT, CALIF. (1978); GUALALA, CALIF. (1977)  
TOMALES, CALIF. (1976)  
TRINIDAD, CALIF. (1978); RODGERS PEAK, CALIF. (1966)  
VALLEY FORD, CALIF. (1971)  
WESTPORT, CALIF. (1977)

---

**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:**

---

46,500

50,000

---

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

MAPANGLE

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

-0.10

0.00

0.10

0.15

0.30

0.35

0.43

0.45

0.47

0.50

0.57

0.65

0.70

0.75

0.80

0.83

0.85

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

PAGESIZE

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

11,17

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1. DETAILED DESCRIPTION: INVERT (formerly SHELLFISH)**

The data layer INVERT contains the polygons with invertebrate species.

The following INVERT species are found in the Northern California ESI atlas:

SPECIES ID	NAME
14	Dungeness crab
21	Washington butter clam
24	Gaper clam
25	Soft-shell clam
28	Pacific razor clam
29	Common Pacific littleneck clam
38	Native Pacific oyster
60	Abalone
69	Bay ghost shrimp
70	Purple shore crab
86	Red sea urchin

**5.1.1. ENTITY TYPES:**

**5.1.1.1. ENTITY TYPE LABEL:**

GT-Polygons

**5.1.1.2. ENTITY TYPE DEFINITION:**

ID integer

RARNUM integer

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

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

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

RARNUM

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

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1-N

Unique number

---

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

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

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

The data layer M\_MAMMAL contains the polygons with marine mammal species.

The following M\_MAMMAL species are found in the Northern California ESI atlas:

SPECIES ID	NAME
1	Northern (Steller) sea lion
2	Harbor seal
6	Harbor porpoise
12	Minke whale
22	California sea lion
24	Northern elephant seal
26	Gray whale
47	Dall's porpoise
48	Sperm whale

**5.1.1. ENTITY TYPES:**

**5.1.1.1. ENTITY TYPE LABEL:**

GT-Polygons

**5.1.1.2. ENTITY TYPE DEFINITION:**

ID	integer
RARNUM	integer

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

A unique identifier that links to the BIO\_LUT table. ID is a concatenation of atlas number (7), element number (4), and record number. ID values of 9999 are holes in polygons and do not contain information.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

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

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

RARNUM

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

1-N

Unique number

---

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

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal



**5.1. DETAILED DESCRIPTION: NESTS**

The data layer NESTS contains entity points representing nesting sites.

The following species are found in the NESTS data layer of the Northern California ESI atlas:

SPECIES ID	NAME
8	Double-crested cormorant
9	Brandt's cormorant
10	Pelagic cormorant
37	Western gull
46	Common murre
47	Pigeon guillemot
49	Cassin's auklet
50	Rhinoceros auklet
51	Tufted puffin
68	Black oystercatcher
96	Leach's storm-petrel
102	Fork-tailed storm-petrel
144	Ashy storm-petrel

**5.1.1. ENTITY TYPES:**

**5.1.1.1. ENTITY TYPE LABEL:**

Entity Points

**5.1.1.2. ENTITY TYPE DEFINITION:**

ID	integer
RARNUM	integer

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

A unique identifier that links to the BIO\_LUT table. ID is a concatenation of (7), element number (5), and record number.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

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

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

RARNUM

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

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1-N

Unique number

---

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

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1. DETAILED DESCRIPTION: SEASONAL**

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

**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
	SEASON_ID	integer
	JAN	character
	FEB	character
	MAR	character
	APR	character
	MAY	character
	JUN	character
	JUL	character
	AUG	character
	SEP	character
	OCT	character
	NOV	character
	DEC	character
	EL_SPE_SEA	character

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

ELEMENT

**5.1.2.2. ATTRIBUTE DEFINITION:**

Major categories of biological data

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

BIRD	Birds
FISH	Fish
HABITAT	Habitats and Rare Plants
INVERT	Invertebrates
M_MAMMAL	Marine Mammals
T_MAMMAL	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 that is unique within each element and refers to a nationwide ESI species list maintained by NOAA.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

1-N

Unique number

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

SEASON\_ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

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

1-N

Unique number

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

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:  
nominal

5.1.2.1. ATTRIBUTE LABEL:  
JAN

5.1.2.2. ATTRIBUTE DEFINITION:  
Present in January

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:  
Research Planning, Inc.

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

Present  
(blank) Not present

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

5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:  
nominal

5.1.2.1. ATTRIBUTE LABEL:  
FEB

5.1.2.2. ATTRIBUTE DEFINITION:  
Present in February

5.1.2.3. ATTRIBUTE DEFINITION SOURCE:  
Research Planning, Inc.

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

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

- 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.

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

- 5.1.2.4.1.3. ENUMERATED DOMAIN VALUE DEFINITION SOURCE:**
- Research Planning, Inc.
- 5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**  
nominal
- 5.1.2.1. ATTRIBUTE LABEL:**  
JUN
- 5.1.2.2. ATTRIBUTE DEFINITION:**  
Present in June
- 5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**  
Research Planning, Inc.

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



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

**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.

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

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

OCT

**5.1.2.2. ATTRIBUTE DEFINITION:**

Present in October

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

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

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

X

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

Present  
(blank) Not present

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

EL\_SPE\_SEA

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

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

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

**5.1.1. ENTITY TYPES:**

<b>5.1.1.1. ENTITY TYPE LABEL:</b>	<b>5.1.1.2. ENTITY TYPE DEFINITION:</b>
<u>Attributes</u>	HUNUM integer TYPE character NAME character CONTACT character PHONE character G_SOURCE integer A_SOURCE integer COMMENTS character

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

HUNUM

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

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

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

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

TYPE

**5.1.2.2. ATTRIBUTE DEFINITION:**

Identifies the feature type

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

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ACCESS	Access
AIRPORT	Airport
AQUACULTURE	Aquaculture
ARCHAEOLOGICAL SITE	Archaeological Site
BEACH	Beach
BOAT RAMP	Boat Ramp
CAMPGROUND	Campground
COAST GUARD	Coast Guard
COMMERCIAL FISHING FACTORY	Commercial Fishing Factory
HISTORICAL SITE	Historical Site
HOIST	Hoist
LOG STORAGE	Log Storage
MARINA	Marina
MARINE SANCTUARY	Marine Sanctuary
MINING	Mining
NATIONAL PARK	National Park
OIL FACILITIES	Oil Facilities
PLATFORMS	Platforms
RECREATIONAL FISHING	Recreational Fishing
STATE PARK	State Park
SUBSISTENCE FISHING	Subsistence Fishing
VILLAGE	Village
WATER INTAKE	Water Intake
WILDLIFE REFUGE	Wildlife Refuge

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

NAME

**5.1.2.2. ATTRIBUTE DEFINITION:**

The feature name

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

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ABALONE INTERNATIONAL  
ACCESS  
AIRPORT  
AIRSTRIP  
ALBION RIVER HARBOUR  
ARCATA COUNTY AIRPORT  
B.L.M. BEACH PROPERTIES  
BEACH  
BEACH FRONT PARK  
BIG LAGOON COUNTY PARK  
BIG LAGOON INDIAN RESERVATION  
BIRD ROCK - ASBS  
BOAT RAMP  
BODEGA FISH FARMS - WATER INTAKE  
BODEGA MARINE LAB  
BODEGA MARINE LAB WATER INTAKE  
BODEGA MARINE LIFE REFUGE  
BOWERS FIELD  
BROOKS FIELD  
CENTERVILLE BEACH COUNTY PARK  
CHADBOURNE GULCH STATE PARK  
CLAM BEACH COUNTY PARK  
CLIFFORD KAMPH MEMORIAL PARK  
COAST OYSTER  
COLLINS LANDING ACCESS  
COMMERCIAL FISHERIES SUPPORT FACILITIES  
COMMERCIAL FISHING  
COUNTY AIRPORT  
CRAB COUNTY PARK  
DABY ISLAND  
DEL MAR LANDING ECOLOGICAL RESERVE  
DEL NORTE COAST REDWOODS STATE PARK  
DEL NORTE STREET PIER  
DORAN REGIONAL PARK  
ECTERO DE LIMANTOUR RESERVE  
EUREKA AIRPORT  
EUREKA CITY AIRPORT  
FISH ROCK BEACH / ANCHOR BAY  
FORT BRAGG AIRPORT  
FORT ROSS STATE HISTORIC PARK  
GARCIA RIVER  
GERSTLE COVE ASBS  
GOLD BLUFFS STATE RECREATIONAL AREA

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

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GREENWOOD CREEK PROJECT  
GULF OF FARALLONES NTL. MARINE SANCTUARY  
HUMBOLDT BAY NATIONAL WILDLIFE REFUGE  
HUMBOLDT LAGOONS STATE PARK  
HUMBOLDT MARINE SERVICES WHARF  
HUMBOLDT STATE UNIVERSITY WATER INTAKE  
INDIAN ISLAND  
INNER BOAT BASIN  
INVERNESS LANDING  
JUGHANDLE STATE RESERVE  
KELP BEDS AT SAUNDERS REEF ASBS  
KING RANGE NAT. CONSERVATION AREA  
KING SALMON MARINA  
KLAMATH RIVER ESTUARY  
KUIPER MARICULTURE WATER INTAKE  
LAUNCHING RAMP  
LAWSONS LANDING  
LIFE SAVING STATION  
LITTLE RIVER STATE BEACH  
LOUISIANA PACIFIC LUMBER MILL  
M-430-02 AQUACULTURE LEASE  
M-430-05  
M-430-06 AQUACULTURE LEASE  
M-430-07 AQUACULTURE LEASE  
M-430-08 AQUACULTURE LEASE  
M-430-09 AQUACULTURE LEASE  
M-430-11 AQUACULTURE LEASE  
M-430-12  
M-430-12 AQUACULTURE LEASE  
M-430-13 AQUACULTURE LEASE  
M-430-14 AQUACULTURE LEASE  
M-430-15 AQUACULTURE LEASE  
M-430-16 AQUACULTURE LEASE  
M-430-17 AQUACULTURE LEASE  
M-430-18 AQUACULTURE LEASE  
M-438-01 PARCEL 1-JOHNSON OYSTER CO.  
M-438-01 PARCEL 2-JOHNSON OYSTER CO.  
MACKERRICHER STATE PARK  
MAD RIVER BEACH COUNTY PARK  
MAD RIVER SLOUGH MARICULTURE SITES  
MANCHESTER STATE BEACH  
MARCONI COVE MARINA  
MARINA  
MASONS MARINA  
MCNAMARA FIELD  
MENDOCINO COAST BOTANICAL GARDEN



**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

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MENDOCINO HEADLANDS STATE PARK  
 MILLER COUNTY PARK  
 MOAT CREEK  
 NAVARRO RIVER STATE PARK  
 NORTH HUMBOLDT BAY MARICULTURE SITES  
 NOYO HARBOR  
 OCEAN COVE RESERVE  
 OUTER BOAT BASIN  
 PARK  
 PATRICKS POINT STATE PARK  
 PELICAN BEACH STATE PARK  
 PG & E POWER WATER INTAKE  
 POINT ARENA HARBOUR  
 POINT ARENA LIGHTHOUSE  
 POINT CABRILLO LIGHTHOUSE  
 POINT DELGADA LANDING STRIP  
 POINT REYES HEADLAND RESERVE  
 POINT REYES NATIONAL SEASHORE  
 PORTO BODEGA HARBOR  
 PRAIRIE CREEK REDWOODS STATE PARK  
 PT. CABRILLO LIGHTHOUSE  
 PUBLIC FISHING  
 RECREATIONAL BEACH  
 RECREATIONAL FISHING  
 REDWOOD NATIONAL PARK  
 RUSSIAN GULCH STATE PARK  
 SALT POINT STATE PARK  
 SAMOA BOAT RAMP  
 SAND DOLLAR PICNIC AREA & BEACH  
 SCHOONER GULCH STATE BEACH  
 SEA RANCH AIRPORT  
 SHELTER COVE HARBOUR  
 SHIP ASHORE AND SALMON HARBOR RESORTS  
 SHIP ASHORE LANDING STRIP  
 SIMPSON PULP MILL  
 SINKYONE WILDERNESS STATE PARK  
 SMALL CRAFT HARBOUR  
 SMITH RIVER RANCHERIA  
 SONOMA COAST STATE BEACH  
 SONOMA COAST STATE BEACH - BODEGA HEAD  
 SONOMA COAST STATE BEACH - GOAT ROCK  
 SONOMA COAST STATE BEACH - RUSSIAN GULCH  
 SPUD POINT MARINA  
 TABLE BLUFF COUNTY PARK  
 TOMALES BAY ECOLOGICAL RESERVE  
 TOMALES BAY STATE PARK

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

TOMALES BAY STATE PARK - MILLERTON POINT  
TRIBAL BOUNDARY  
TRINIDAD HARBOUR  
TRINIDAD HEAD USCG LIGHTHOUSE RES.  
TRINIDAD INDIAN RESERVATION  
TRINIDAD STATE BEACH  
UNDERSEA WORLD WATER INTAKE  
USGC STATION  
VAN DAMME STATE PARK  
WAGES CREEK BEACH  
WESTPORT UNION LANDING STATE BEACH  
WESTSIDE REGIONAL PARK  
WILDLIFE REFUGE  
WOODLY ISLAND MARINA

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

CONTACT

**5.1.2.2. ATTRIBUTE DEFINITION:**

Contact person

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

PHONE

**5.1.2.2. ATTRIBUTE DEFINITION:**

Telephone number

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

G\_SOURCE

**5.1.2.2. ATTRIBUTE DEFINITION:**

A link to EXPERT\_ID in the supplementary data table EXPERTS. Formerly called EXPERT\_ID. Item name has been changed to G\_SOURCE to maintain consistency with the latest ESI data structure.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

1-N

Unique link

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

A\_SOURCE

**5.1.2.2. ATTRIBUTE DEFINITION:**

A duplicate link to EXPERT\_ID in the supplementary data table EXPERTS. The A\_SOURCE field has been added to maintain consistency with the latest ESI data structure.

**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:**

COMMENTS

**5.1.2.2. ATTRIBUTE DEFINITION:**

Lists any special comments about the 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:**

---

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. DETAILED DESCRIPTION: SOC\_LUT**

Lookup table to link SOC\_DAT to SOCECON data layer.

**5.1.1. ENTITY TYPES:**

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

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

HUNUM

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

A unique identifier that links SOC\_LUT to the SOCECON data layer

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

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**5.1. DETAILED DESCRIPTION: SOCECON**

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

**5.1.1. ENTITY TYPES:**

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

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

TYPE

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
A	Airport
A2	Access
AQ	Aquaculture
AS	Archaeological Site
B	Beach
B / RB	State Beach
BR	Boat Ramp
CF	Commercial Fishing
CG	Coast Guard
CP	Campground
F2	Factory
H	Hoist
HS	Historical Site
IB	International Border
IR	Indian Reservation
LS	Log Storage
M	Marina
M2	Mining
MS	Marine Sanctuary

5.1.2.4.1.1.	ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2.	ENUMERATED DOMAIN VALUE DEFINITION:
	NP		National Park
	OF		Oil Facilities
	P		Park
	PF		Platforms
	PL		Pipeline
	RF		Recreational Fishing
	S		Subsistence Fishing
	SB		State Border
	SP		State Park
	SP		Regional or State Park
	V		Village
	WI		Water Intake
	WR		Wildlife Refuge

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

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

**5.1.2.1. ATTRIBUTE LABEL:**  
ID

**5.1.2.2. ATTRIBUTE DEFINITION:**  
A unique identifier that links to the SOC\_LUT table. ID is a concatenation of atlas number (7), element number (10), and record number.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**  
NOAA

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

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

**5.1.2.1. ATTRIBUTE LABEL:**  
HUNUM

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



**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

1-N

Unique number

---

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

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

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**5.1. DETAILED DESCRIPTION: 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:	5.1.1.2. ENTITY TYPE DEFINITION:
<u>Attributes</u>	SPECIES_ID integer
	NAME character
	GEN_SPEC character
	ELEMENT character
	SUBELEMENT character
	NHP character
	DATE_PUB integer
	EL_SPE character

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

SPECIES\_ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

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:**

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:**

---

Abalone  
Aleutian goose  
American avocet  
American bittern  
Ashy storm-petrel  
Bald eagle  
Bay ghost shrimp  
Beach layia  
Black brant  
Black oystercatcher  
Black rail  
Black scoter (common)  
Black-crowned night heron  
Brandts cormorant  
Brown pelican  
Bull kelp  
California black rail  
California halibut  
California sea lion  
Canada goose  
Canvasback  
Cassins auklet  
Chinook salmon (king)  
Clover lupine  
Coho salmon (silver)  
Common loon  
Common murre  
Common Pacific littleneck clam  
Cutthroat trout  
Dalls porpoise  
Diving birds  
Double-crested cormorant  
Dungeness crab  
Eared grebe  
Eelgrass  
Eulachon  
Fork-tailed storm-petrel  
Gaper clam

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

Giant kelp  
Gray whale  
Great blue heron  
Great egret  
Greater scaup  
Green sturgeon  
Gulls  
Harbor porpoise  
Harbor seal  
Harlequin duck  
Horned grebe  
Howells spineflower  
Leachs storm-petrel  
Marbled godwit  
Marbled murrelet  
Marin bent grass  
Menzies wallflower  
Minke whale  
Native Pacific oyster  
Night smelt  
Northern (Steller) sea lion  
Northern elephant seal  
Northern phalarope  
Northern shoveler  
Osprey  
Pacific herring  
Pacific lamprey  
Pacific razor clam  
Pelagic cormorant  
Peregrine falcon  
Pied-billed grebe  
Pigeon guillemot  
Purple shore crab  
Rainbow trout (steelhead)  
Raptors  
Red phalarope  
Red sea urchin  
Red-breasted merganser  
Red-necked grebe  
Redtail surfperch

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

Rhinoceros auklet  
River otter  
Rockfish  
Salmon sp.  
Salt marsh birds-beak  
Sanderling  
Shorebirds  
Short-billed dowitcher  
Snowy plover  
Soft-shell clam  
Sooty shearwater  
Sora rail  
Striped bass  
Surf scoter  
Surf smelt  
Surfperch  
Terns  
Tidewater goby  
Tufted puffin  
Virginia rail  
Wading birds  
Washington butter clam  
Waterfowl  
Western grebe  
Western gull  
Western lily  
Whistling swan (tundra swan)  
White pelican  
White sturgeon  
White-winged scoter  
Willet

---

**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 medirostris*  
*Acipenser transmontanus*  
*Aechmophorus occidentalis*  
*Agrostis blasdalei marinensis*  
*Amphistichus rhodoterus*  
*Anas clypeata*  
*Ardea herodias*  
*Aythya marila*  
*Aythya valisineria*  
*Baleonoptera acutorostrata*  
*Botaurus lentiginosus*  
*Brachyramphus marmoratus*  
*Branta bernicla*  
*Branta canadensis*  
*Branta canadensis leucopareia*  
*Calidris alba*  
*Callianassa californiensis*  
*Cancer magister*  
*Casmerodius albus*  
*Catoptrophorus semipalmatus*  
*Cephus columba*  
*Cerorhinca monocerata*  
*Charadrius alexandrinus*  
*Chorizantho howellii*  
*Clupea harengus pallasii*  
*Cordylantus maritimus maritimus*  
*Embiotocidae*  
*Entosphenus tridentatus*  
*Erysimum menziesii*  
*Eschrichtius robustus*  
*Eucyclogobius newberryi*  
*Eumetopias jubatus*  
*Falco peregrinus*

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

*Gavia immer*  
*Haematopus bachmani*  
*Haliaeetus leucocephalus*  
*Haliotis* sp.  
*Hemigrapsus nudus*  
*Histrionicus histrionicus*  
*Hypomesus pretiosus*  
*Larus occidentalis*  
*Laterallus jamaicensis*  
*Laterallus jamaicensis coturniculus*  
*Layia carnosus*  
*Lilium occidentale*  
*Limnodromus griseus*  
*Limosa fedoa*  
*Lunda cirrhata*  
*Lupinus tidestromii tidestromii*  
*Lutra canadensis*  
*Macrocystis pyrifera*  
*Melanitta deglandi*  
*Melanitta nigra*  
*Melanitta perspicillata*  
*Mergus serrator*  
*Mirounga angustirostris*  
*Morone saxatilis*  
*Mya arenaria*  
*Nereocystis luetkeana*  
*Nycticorax nycticorax*  
*Oceanodroma furcata*  
*Oceanodroma homochroa*  
*Oceanodroma leucorhoa*  
*Olor columbianus*  
*Oncorhynchus kisutch*  
*Oncorhynchus mykiss*  
*Oncorhynchus tshawytscha*  
*Ostrea lurida*  
*Pandion haliaetus*  
*Paralichthys californicus*  
*Pelecanus erythrorhynchos*  
*Pelecanus occidentalis*  
*Phalacrocorax auritus*



**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

---

Phalacrocorax pelagicus  
Phalacrocorax penicillatus  
Phalaropus fulicarius  
Phalaropus lobatus  
Phoca vitulina  
Phocoena phocoena  
Phocoenoides dalli dalli  
Podiceps auritus  
Podiceps grisegena  
Podiceps nigricollis  
Podilymbus podiceps  
Porzana carolina  
Protothaca staminea  
Ptychoramphus aleuticus  
Puffinus griseus  
Rallus limicola  
Recurvirostra americana  
Salmo clarki  
Saxidomus giganteus  
Sebastes spp.  
Siliqua patula  
Spirinchus starksi  
Strongylocentrotus franciscanus  
Thaleichthys pacificus  
Tresus nuttallii  
Uria aalge  
Zalophus californianus  
Zostera marina

---

**5.1.2.4.1.3. ENUMERATED DOMAIN VALUE**

**DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

ELEMENT

**5.1.2.2. ATTRIBUTE DEFINITION:**

Biological element

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

---

BIRD	Birds
FISH	Fish
HABITAT	Habitats and Rare Plants
INVERT	Invertebrates
M_MAMMAL	Marine Mammals
T_MAMMAL	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:**

---

abalone  
 alcid  
 anadromous  
 beach\_sp  
 crab  
 diving  
 dolphin  
 echinoderm  
 gull\_tern  
 kelp\_sp  
 mustelid  
 oyster  
 pelagic  
 raptor  
 sav  
 sea\_lion

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

- seal
- shorebird
- shrimp
- shrub
- special
- wading
- waterfowl
- whale

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

NHP

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

Not supplied with this atlas

**5.1.2.1. ATTRIBUTE LABEL:**

DATE\_PUB

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

Not supplied with this atlas

**5.1.2.1. ATTRIBUTE LABEL:**

EL\_SPE

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1. DETAILED DESCRIPTION: STATUS**

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

**5.1.1. ENTITY TYPES:**

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

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

ELEMENT

**5.1.2.2. ATTRIBUTE DEFINITION:**

Major categories of biological data

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:	5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:
BIRD	Birds
FISH	Fish
HABITAT	Habitats and Rare Plants
INVERT	Invertebrates
M_MAMMAL	Marine Mammals
T_MAMMAL	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 ESI species list maintained by NOAA

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

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

---

1-N

Unique number

---

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

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

**5.1.2.1. ATTRIBUTE LABEL:**  
STATE

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

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

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

---

CA

California

---

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

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

**5.1.2.1. ATTRIBUTE LABEL:**

S\_F

**5.1.2.2. ATTRIBUTE DEFINITION:**

State and Federal status

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

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

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

USFWS, CDFG

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

T\_E

**5.1.2.2. ATTRIBUTE DEFINITION:**

Threatened and endangered status

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

**5.1.2.4.1.1. ENUMERATED DOMAIN VALUE:**

**5.1.2.4.1.2. ENUMERATED DOMAIN VALUE DEFINITION:**

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

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

USFWS, CDFG

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

DATE\_PUB

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.1. ATTRIBUTE LABEL:**

EL\_SPE

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

Research Planning, Inc.

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

Research Planning, Inc.

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal



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

The data layer T\_MAMMAL contains the polygons with terrestrial mammal species.

The following T\_MAMMAL species are found in the Northern California ESI atlas:

SPECIES ID	NAME
8	River otter

**5.1.1. ENTITY TYPES:**

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

**5.1.2. ATTRIBUTES:**

**5.1.2.1. ATTRIBUTE LABEL:**

ID

**5.1.2.2. ATTRIBUTE DEFINITION:**

A unique identifier that links to the BIO\_LUT table. ID is a concatenation of atlas number (7), element number (4), and record number. ID values of 9999 are holes in polygons and do not contain information.

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

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

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**5.1.2.1. ATTRIBUTE LABEL:**

RARNUM

**5.1.2.2. ATTRIBUTE DEFINITION:**

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

**5.1.2.3. ATTRIBUTE DEFINITION SOURCE:**

NOAA

**5.1.2.4.1.1. ENUMERATED  
DOMAIN VALUE:**

1-N

**5.1.2.4.1.2. ENUMERATED DOMAIN  
VALUE DEFINITION:**

Unique number

---

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

NOAA

**5.1.2.5. ATTRIBUTE UNITS OF MEASUREMENT:**

nominal

**6.0. DISTRIBUTION INFORMATION**

**6.1. DISTRIBUTOR**

**6.1.1. CONTACT PERSON PRIMARY**

**6.1.1.1. CONTACT PERSON:**

John Kaperick

**6.1.1.2. CONTACT ORGANIZATION:**

NOAA, Office of Response and Restoration

**6.1.4. CONTACT ADDRESS**

**6.1.4.1. ADDRESS TYPE:**

Physical Address

**6.1.4.2. ADDRESS:**

7600 Sand Point Way N.E.

**6.1.4.3. CITY:**

Seattle

**6.1.4.4. STATE OR PROVINCE:**

WA

**6.1.4.5. POSTAL CODE:**

98115-6349

**6.1.5. CONTACT VOICE TELEPHONE:**

(206) 526-6944

**6.1.7. CONTACT FACSIMILE TELEPHONE:**

(206) 526-6329

**6.2. RESOURCE DESCRIPTION:**

ESI Atlas for Northern California

**6.3. DISTRIBUTION LIABILITY:**

Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement copy of the product when the product is determined unreadable by computer-input peripherals, or when the physical medium is delivered in damaged condition.

**6.5. CUSTOM ORDER PROCESS**

Contact NOAA for distribution options (see 6.1.1.).

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**7.0. METADATA REFERENCE INFORMATION**

**7.1. METADATA DATE:**

19941206

**7.2. METADATA REVIEW DATE:**

19941115

**7.4. METADATA CONTACT**

**7.4.1. CONTACT PERSON PRIMARY**

**7.4.1.1. CONTACT PERSON:**

Jill Petersen

**7.4.1.2. CONTACT ORGANIZATION:**

NOAA, Office of Response and Restoration

**7.4.3. CONTACT POSITION:**

GIS Manager

**7.4.4. CONTACT ADDRESS**

**7.4.4.1. ADDRESS TYPE:**

Physical Address

**7.4.4.2. ADDRESS:**

7600 Sand Point Way N.E.

**7.4.4.3. CITY:**

Seattle

**7.4.4.4. STATE OR PROVINCE:**

Washington

**7.4.4.5. POSTAL CODE:**

98115-6349

**7.4.5. CONTACT VOICE TELEPHONE:**

(206) 526-6944

**7.4.7. CONTACT FACSIMILE TELEPHONE:**

(206) 526-6329

**7.4.8. CONTACT ELECTRONIC MAIL ADDRESS:**

jill\_petersen@hazmat.noaa.gov.us

**7.5. METADATA STANDARD NAME:**

Content Standards for Digital Geospatial Metadata

**7.6. METADATA STANDARD VERSION:**

19940608

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