Golfo de Fonseca ESI; Honduras and Nicaragua: HYDRO (Hydrology)

Metadata:

Identification_Information:

Citation:

Citation_Information:

Originator:
United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.
Publication_Date: 200102
Title: Golfo de Fonseca ESI; Honduras and Nicaragua: HYDRO (Hydrology)
Edition: First
Geospatial_Data_Presentation_Form: Atlas
Series_Information:

Series_Name: None
Issue_Identification: Golfo de Fonseca
Publication_Information:

Publication_Place: Seattle, Washington
Publisher:
National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington
Other_Citation_Details:
Prepared by Research Planning, Inc., Columbia, South Carolina for the United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.

Description:

Abstract:

This data set comprises the Environmental Sensitivity Index (ESI) data for Golfo de Fonseca. ESI data characterize estuarine 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. This data set contains hydrology data.

Purpose:

The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response and for coastal zone planning and management.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 200001
Ending_Date: 200102

Currentness_Reference: Project time span

Status:

Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -87.875
East_Bounding_Coordinate: -87.000
North_Bounding_Coordinate: 13.500
South_Bounding_Coordinate: 12.750

Keywords:

Theme:

Theme_Keyword_Thesaurus: None
Theme_Keyword: ESI
Theme_Keyword: Sensitivity maps
Theme_Keyword: Coastal resources
Theme_Keyword: Oil spill planning
Theme_Keyword: Coastal zone management
Theme_Keyword: Hydrology

Place:

Place_Keyword_Thesaurus: None
Place_Keyword: Gulf of Fonseca
Place_Keyword: Golfo de Fonseca
Place_Keyword: Pacific coast of Honduras
Place_Keyword: Pacific coast of Nicaragua
Place_Keyword: Honduras
Place_Keyword: Nicaragua

Access_Constraints: None

Use_Constraints:

DO NOT USE 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 Data_Set_Credit (below) would be appreciated in products derived from these data.

Browse_Graphic:

Browse_Graphic_File_Name: fonsecadatafig.jpg
Browse_Graphic_File_Description:
Relationships between spatial data layers and attribute data tables for the Golfo de Fonseca data.
Browse_Graphic_File_Type: JPEG

Data_Set_Credit:
This project was supported by the United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.

Native_Data_Set_Environment:
The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 8.0.2) and ORACLE(r) RDBMS (version 8.0.5.0.0). The hardware configuration is Hewlett Packard workstations (models 715/50 and 712/80i with 4 X-terminals) with UNIX operating system (HP-UX Release A.10.20). The following files are included in the data set: bio_lut.e00, biofile.e00, biores.e00, birds.e00, esi.e00, fish.e00, hydro.e00, index.e00, invert.e00, mgt.e00, m_mammal.e00, reptiles.e00, saltpond.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00.

Data_Quality_Information:

Attribute_Accuracy:

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.

Logical_Consistency_Report:
The digitization of shoreline types, biological resources, and human-use resources is a complex and highly quality-controlled process. Existing digital shoreline data are integrated into a study-wide basemap. In order to facilitate digitizing, the entire study area is split into individual quadrangles using the INDEX data layer. The first layer of information digitized is the ESI shoreline classification. The ESI habitat ranking is compiled onto 1:50,000 topographic quadrangles by a geomorphologist. The hardcopy maps are then digitized and checked using both on-screen and hardcopy reviews. The edited maps are updated, checked once again for completeness and topological and logical consistency. Any errors in the shoreline classification are updated prior to digitization of the biological and human-use layers. All layers use the shoreline as the geographic reference so that there are no slivers in the geographic coordinates. The hardcopy biological information is compiled onto 1:50,000 topographic quadrangles by a biological expert using data from regional specialists in the form of maps, tables, charts, written descriptions of wildlife distributions, and personal interviews. Concurrently, digital data sources are imported, projected, checked for quality control, and integrated into the data structure. The hardcopy data are digitized, checked using both digital and on-screen procedures, integrated with existing data, plotted, and sent out for review by the regional specialists. The edited maps are updated, checked once again, and the final product plotted (at approximately 1:50,000 scale). A team of specialists 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 data layer is checked using a standardized form by two GIS personnel (a technician and the GIS manager), and each attribute database is checked using several programs that test the files for missing or duplicate data, rules for

proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and ORACLE(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where data are written to tape and metadata are written. ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the CDs for ease of use of the ESI data. The database files are distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats. The section Spatial_Data_Organization_Information refers to the source files in ARC export format only.

Completeness_Report:

The intertidal coastal habitats of Golfo de Fonseca were mapped during overflights and ground surveys conducted 20-25 February, 2000. Overflights were conducted using fixed-wing Cessna 152 and 172s. Surveys of the entire study area were conducted at flying altitudes of 400-600 feet (120-185 meters) and at a slow air speed. During this work, an experienced coastal geologist delineated the intertidal shoreline habitats directly onto 1:50,000-scale topographic maps. Where appropriate, multiple habitats were described for each shoreline segment. Prior to the overflights, high resolution, black and white vertical aerial photographs (obtained in December, 1998 under the USGS Open Skies Program) were examined to produce an initial classification. The overflights and ground surveys were particularly important in updating the location and extent of recent aquaculture sites, as well as delineating changes resulting from Hurricane Mitch (October, 1998). Polygonal features such as mangroves and salt flats were initially mapped from the existing topographic maps, updated through the aerial photography, and finalized during the overflights.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

The HYDRO data use 1:50,000 topographic quadrangles as the basemap. It is estimated that the ESI shoreline classification has a minimum mapping unit of 100 feet.

Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Originator: Research Planning, Inc.
Publication_Date: Unpublished Material
Title: Overflight ESI and Socioeconomic information
Geospatial_Data_Presentation_Form: Hard maps

Source_Scale_Denominator: 50000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000

Source_Currentness_Reference: Field Work Date
Source_Citation_Abbreviation: None
Source_Contribution: Shorelines

Process_Step:

Process_Description:
All the digital data were checked using both digital and on-screen procedures, plotted, checked by the biological expert, edited to remove any errors, and plotted for review by the regional specialists. The reviewed maps were updated on the computer, checked once again, and plotted at final map scale. A team of specialists reviewed the entire series of maps, checked all data, and made final edits. The data were merged to form the study-wide layers that are described in the document. The data merging included a final quality control check where topological consistency, rules for geography, and database to geography were checked and validated for all relationships.
Process_Date: 200102
Process_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: NOAA, Office of Response and Restoration
Contact_Person: Jill Petersen
Contact_Address:

Address_Type: Physical address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: jill_petersen@hazmat.noaa.gov.us

---

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: GT-polygon composed of rings
Point_and_Vector_Object_Count: 232
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Area point
Point_and_Vector_Object_Count: 232
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Complete chain
Point_and_Vector_Object_Count: 1611
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Link
Point_and_Vector_Object_Count: 514508
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Node, planar graph
Point_and_Vector_Object_Count: 1610

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Geographic:

Latitude_Resolution: 0.00005
Longitude_Resolution: 0.00005
Geographic_Coordinate_Units: Decimal degrees
Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1927
Ellipsoid_Name: Clarke 1866
Semi-major_Axis: 6378206.4
Denominator_of_Flattening_Ratio: 294.98

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: Complete chain
Entity_Type_Definition:
The data layer HYDRO contains polygonal water and land features, as well as linear features for rivers and streams. 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.
Entity_Type_Definition_Source: Research Planning, Inc.
Attribute:

Attribute_Label: LINE
Attribute_Definition: Type of geographic feature
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: B
Enumerated_Domain_Value_Definition: Breakwater
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: H
Enumerated_Domain_Value_Definition: Hydrography
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: I
Enumerated_Domain_Value_Definition: Index
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: P
Enumerated_Domain_Value_Definition: Pier
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: S
Enumerated_Domain_Value_Definition: Shoreline
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Beginning_Date_of_Attribute_Values: 200001
Ending_Date_of_Attribute_Values: 200011
Attribute:

Attribute_Label: SOURCE_ID
Attribute_Definition: Data source for the ESI
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 2
Enumerated_Domain_Value_Definition: Overflight
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 3
Enumerated_Domain_Value_Definition: Aerial Photography
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 5
Enumerated_Domain_Value_Definition: Digitized from scanned NIMA maps
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 7
Enumerated_Domain_Value_Definition: Digital (Generated by Research Planning, Inc.)
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Beginning_Date_of_Attribute_Values: 200001
Ending_Date_of_Attribute_Values: 200011
Detailed_Description:

Entity_Type:

Entity_Type_Label: GT-Polygons
Entity_Type_Definition:
The data layer HYDRO contains polygonal water and land features, as well as linear features for rivers and streams. 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.
Entity_Type_Definition_Source: Research Planning, Inc.
Attribute:

Attribute_Label: WATER_CODE
Attribute_Definition: Specifies a polygon as either water or land
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: L
Enumerated_Domain_Value_Definition: Land
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

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

Enumerated_Domain:

Enumerated_Domain_Value: W
Enumerated_Domain_Value_Definition: Water
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Beginning_Date_of_Attribute_Values: 200001
Ending_Date_of_Attribute_Values: 200011

Distribution_Information:

Distributor:

Contact_Information:

Contact_Person_Primary:

Contact_Person: John Kaperick
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Address:

Address_Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6400
Contact_Facsimile_Telephone: (206) 526-6329
Resource_Description: ESI Atlas for Golfo de Fonseca, Honduras and Nicaragua
Distribution_Liability:
Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement copy of the product when the product is determined unreadable by computer-input peripherals, or when the physical medium is delivered in damaged condition.
Custom_Order_Process:
Contact NOAA for distribution options (see Distribution_Information).

Metadata_Reference_Information:

Metadata_Date: 200102
Metadata_Review_Date: 200102
Metadata_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Jill Petersen
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Position: GIS Manager
Contact_Address:

Address_Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: jill_petersen@hazmat.noaa.gov.us
Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

Golfo de Fonseca ESI; Honduras and Nicaragua: ESI (Environmental Sensitivity Index Shoreline Types)

Metadata:

Identification_Information:

Citation:

Citation_Information:

Originator:
United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.
Publication_Date: 200102
Title:
Golfo de Fonseca ESI; Honduras and Nicaragua: ESI (Environmental Sensitivity Index Shoreline Types)
Edition: First
Geospatial_Data_Presentation_Form: Atlas
Series_Information:

Series_Name: None
Issue_Identification: Golfo de Fonseca
Publication_Information:

Publication_Place: Seattle, Washington
Publisher:
National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington
Other_Citation_Details:
Prepared by Research Planning, Inc., Columbia, South Carolina for the United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International

Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.

Description:

Abstract:

This data set comprises the Environmental Sensitivity Index (ESI) data for Golfo de Fonseca. ESI data characterize estuarine 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. This data set contains the Environmental Sensitivity Index shoreline data.

Purpose:

The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response and for coastal zone planning and management.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 200001
Ending_Date: 200102

Currentness_Reference: Project time span

Status:

Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -87.875
East_Bounding_Coordinate: -87.000
North_Bounding_Coordinate: 13.500
South_Bounding_Coordinate: 12.750

Keywords:

Theme:

Theme_Keyword_Thesaurus: None
Theme_Keyword: ESI
Theme_Keyword: Sensitivity maps
Theme_Keyword: Coastal resources
Theme_Keyword: Oil spill planning
Theme_Keyword: Coastal zone management
Theme_Keyword: Shoreline

Place:

Place_Keyword_Thesaurus: None
Place_Keyword: Gulf of Fonseca
Place_Keyword: Golfo de Fonseca
Place_Keyword: Pacific coast of Honduras
Place_Keyword: Pacific coast of Nicaragua
Place_Keyword: Honduras
Place_Keyword: Nicaragua

Access_Constraints: None
Use_Constraints:

DO NOT USE 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 Data_Set_Credit (below) would be appreciated in products derived from these data.

Browse_Graphic:

Browse_Graphic_File_Name: fonsecadatafig.jpg

Browse_Graphic_File_Description:

Relationships between spatial data layers and attribute data tables for the Golfo de Fonseca data.

Browse_Graphic_File_Type: JPEG

Data_Set_Credit:

This project was supported by the United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.

Native_Data_Set_Environment:

The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 8.0.2) and ORACLE(r) RDBMS (version 8.0.5.0.0). The hardware configuration is Hewlett Packard workstations (models 715/50 and 712/80i with 4 X-terminals) with UNIX operating system (HP-UX Release A.10.20). The following files are included in the data set: bio_lut.e00, biofile.e00, biores.e00, birds.e00, esi.e00, fish.e00, hydro.e00, index.e00, invert.e00, mgt.e00, m_mammal.e00, reptiles.e00, saltpond.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00.

Data_Quality_Information:

Attribute_Accuracy:

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.

Logical_Consistency_Report:

The digitization of shoreline types, biological resources, and human-use resources is a complex and highly quality-controlled process. Existing digital shoreline and wetlands data are integrated into a study-wide basemap. In order to facilitate digitizing, the entire study area is split into individual quadrangles using the INDEX data layer. The first layer of information digitized is the ESI shoreline classification. The ESI habitat ranking is compiled onto 1:50,000 topographic quadrangles by a geomorphologist. The hardcopy maps are then digitized and checked using both on-screen and hardcopy reviews. The edited maps are updated, checked once again for completeness and topological and logical consistency. Any errors in the shoreline classification are updated prior to digitization of the biological and human-use layers. All layers use the shoreline as the geographic reference so that there are no slivers in the geographic coordinates. The hardcopy biological information is compiled onto 1:50,000 topographic quadrangles by a biological expert using data from regional specialists in the form of maps, tables, charts, written descriptions of wildlife distributions, and personal interviews. Concurrently, digital data sources are imported, projected, checked for quality control, and integrated into the data structure. The hardcopy data are digitized, checked using both digital and on-screen procedures, integrated with existing data, plotted, and sent out for review by the regional specialists. The edited maps are updated, checked once again, and the final product plotted (at approximately 1:50,000 scale). A team of specialists 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 data layer is checked using a standardized form by two GIS personnel (a technician and the GIS manager), and each attribute database is checked using several programs that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and ORACLE(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where the data are written to tape and the metadata are written. ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the CDs for ease of use of the ESI data. The database files are distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats. The section Spatial_Data_Organization_Information refers to the source files in ARC export format only.

Completeness_Report:

The intertidal coastal habitats of Golfo de Fonseca were mapped during overflights and ground surveys conducted 20-25 February, 2000. Overflights were conducted using fixed-wing Cessna 152 and 172s. Surveys of the entire study area were conducted at flying altitudes of 400-600 feet (120-185 meters) and at a slow air speed. During this work, an experienced coastal geologist delineated the intertidal shoreline habitats directly onto 1:50,000-scale topographic maps. Where appropriate, multiple habitats were described for each shoreline segment. Prior to the overflights, high resolution, black and white vertical aerial photographs (obtained in December, 1998 under the USGS Open Skies Program) were examined to produce an initial classification. The overflights and ground surveys were particularly important in updating the location and extent of recent aquaculture sites, as well as delineating changes resulting from Hurricane Mitch (October, 1998). Polygonal features, such as mangroves and salt flats, were initially mapped from the existing topographic maps, updated through the aerial photography, and finalized during the overflights.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

The ESI data use 1:50,000 topographic quadrangles as the basemap. It is estimated that the ESI shoreline classification has a minimum mapping unit of 100 feet.

Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Originator: Research Planning, Inc.
Publication_Date: Unpublished Material
Title: Overflight ESI and Socioeconomic information
Geospatial_Data_Presentation_Form: Hard maps

Source_Scale_Denominator: 50000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000

Source_Currentness_Reference: Field Work Date

Source_Citation_Abbreviation: None
Source_Contribution: ESI information
Process_Step:

Process_Description:
All the digital data were checked using both digital and on-screen procedures, plotted, checked by the biological expert, edited to remove any errors, and plotted for review by the regional specialists. The reviewed maps were updated on the computer, checked once again, and plotted at final map scale. A team of specialists reviewed the entire series of maps, checked all data, and made final edits. The data were merged to form the study-wide layers that are described in the document. The data merging included a final quality control check where topological consistency, rules for geography, and database to geography were checked and validated for all relationships.
Process_Date: 200102
Process_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: NOAA, Office of Response and Restoration
Contact_Person: Jill Petersen
Contact_Address:

Address_Type: Physical address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: jill_petersen@hazmat.noaa.gov.us

---

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: GT-polygon composed of rings
Point_and_Vector_Object_Count: 1314
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Area point
Point_and_Vector_Object_Count: 1314
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Complete chain
Point_and_Vector_Object_Count: 6551
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Link
Point_and_Vector_Object_Count: 1633294
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Node, planar graph
Point_and_Vector_Object_Count: 5692

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Geographic:

Latitude_Resolution: 0.00005
Longitude_Resolution: 0.00005
Geographic_Coordinate_Units: Decimal degrees
Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1927
Ellipsoid_Name: Clarke 1866
Semi-major_Axis: 6378206.4
Denominator_of_Flattening_Ratio: 294.98

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: Complete Chain
Entity_Type_Definition:
The data layer ESI contains arc (Complete Chain) features for the ESI shoreline classification and is based on Environmental Sensitivity Index Guidelines, Version 2.0 (Halls, J., J. Michel, S. Zengel, J. Dahlin, and J. Petersen, 1997, Hazardous Materials Response and Assessment Division, NOAA). The ESI classification was performed in February 1997.
Entity_Type_Definition_Source: Research Planning, Inc.
Attribute:

Attribute_Label: ESI
Attribute_Definition:
The intertidal coastal habitats of Golfo de Fonseca were mapped during overflights and ground surveys conducted in February, 2000. Overflights were conducted using fixed-wing Cessna 152 and 172s. Surveys of the entire study area were conducted at flying altitudes of 400-600 feet (120-185 meters) and at a slow air speed. During this work, an experienced coastal geologist delineated the intertidal shoreline habitats directly onto 1:50,000-scale topographic maps. Where appropriate, multiple habitats

were described for each shoreline segment. Prior to the overflights, high resolution, black and white vertical aerial photographs (obtained in December, 1998 under the USGS Open Skies Program) were examined to produce an initial classification. The overflights and ground surveys were particularly important in updating the location and extent of recent aquaculture sites, as well as delineating changes resulting from Hurricane Mitch (October, 1998). Polygonal features, such as mangroves and salt flats, were initially mapped from the existing topographic maps, updated through the aerial photography, and finalized during the overflights. To identify and classify the various coastal habitats, the following factors were integrated: 1) Shoreline type (substrate, grain size, tidal elevation, origin); 2) Exposure to wave and tidal energy; 3) Biological communities. The resulting coastal classification groups a complex series of coastal habitats into ten generalized habitat categories (some with more than one sub-type). The physical characterization of the generalized categories is based on geomorphology and the division of the coastal habitats according to their physical stability, dynamic character, or sheltered nature. From the physical standpoint, the more stable habitats include the rocky headlands and wave-cut platforms; the dynamic or continuously evolving habitats include the full range of beach types (sand to gravel) and exposed tidal flats; and the sheltered habitats include mangrove stands, sheltered flats, and salt marshes. Biological characterization of the generalized habitat categories incorporates the different ecological communities that are associated with them. Examples of these include encrusting fauna and flora on rocky headlands, and coastal birds, burrowing bivalves, and annelids associated with tidal flats. The combination of the physical and biological features results in the definition of the final generalized habitat category. Human use and potential development of these coastal habitats must take into account the physical and biological characteristics of these categories. The categories are: 1A) Exposed Rocky Cliffs; 1B) Exposed, Solid Man-made Structures; 2A) Exposed Wave-cut Platforms in Bedrock; 3A) Fine- to Medium-grained Sand Beaches; 4) Coarse-grained Sand Beaches; 5) Mixed Sand and Gravel Beaches; 6A) Gravel Beaches; 6B) Riprap; 7) Exposed Tidal Flats; 8A) Sheltered Rocky Shores; 8B) Sheltered, Solid Man-made Structures; 8C) Sheltered Riprap; 9A) Sheltered Tidal Flats; 9C) Hypersaline Tidal Flats; 10A) Salt and Brackish Water Marsh; 10C) Tall Mangroves; 10D) Short Mangroves. In many cases, the shorelines are also ranked with multiple codes, such as 6A/7. The first number is the most landward shoreline type (6A=gravel beach), with exposed tidal flats (7) being the shoreline type closest to the water.

Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 1A
Enumerated_Domain_Value_Definition: Exposed Rocky Cliffs
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 1A/2A
Enumerated_Domain_Value_Definition: Exposed Rocky Cliffs/ Exposed, Solid Man-made Structures
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 1A/2A/7
Enumerated_Domain_Value_Definition:

Exposed Rocky Cliffs/ Exposed, Solid Man-made Structures/ Exposed Tidal Flats

Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 1A/3A/7

Enumerated_Domain_Value_Definition:

Exposed Rocky Cliffs/ Fine- to Medium-grained Sand Beaches/ Exposed Tidal Flats

Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 1A/4

Enumerated_Domain_Value_Definition: Exposed Rocky Cliffs/ Coarse-grained Sand Beaches

Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 1A/4/7

Enumerated_Domain_Value_Definition:

Exposed Rocky Cliffs/ Coarse-grained Sand Beaches/ Exposed Tidal Flats

Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 1A/5

Enumerated_Domain_Value_Definition: Exposed Rocky Cliffs/ Mixed Sand and Gravel Beaches

Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 1A/5/7

Enumerated_Domain_Value_Definition:

Exposed Rocky Cliffs/ Mixed Sand and Gravel Beaches/ Exposed Tidal Flats

Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 1A/6A

Enumerated_Domain_Value_Definition: Exposed Rocky Cliffs/ Gravel Beaches

Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 1A/6A/2A
Enumerated_Domain_Value_Definition:
Exposed Rocky Cliffs/ Gravel Beaches/ Exposed Wave-cut Platforms in Bedrock
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 1A/6A/7
Enumerated_Domain_Value_Definition: Exposed Rocky Cliffs/ Gravel Beaches/ Exposed Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 1A/7
Enumerated_Domain_Value_Definition: Exposed Rocky Cliffs/ Exposed Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 1B
Enumerated_Domain_Value_Definition: Exposed, Solid Man-made Structures
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 1B/3A
Enumerated_Domain_Value_Definition:
Exposed, Solid Man-made Structures/ Fine- to Medium-grained Sand Beaches
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 1B/4
Enumerated_Domain_Value_Definition: Exposed, Solid Man-made Structures/ Coarse-grained Sand Beaches
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 1B/4/7
Enumerated_Domain_Value_Definition:
Exposed, Solid Man-made Structures/ Coarse-grained Sand Beaches/ Exposed Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 1B/5
Enumerated_Domain_Value_Definition:
Exposed, Solid Man-made Structures/ Mixed Sand and Gravel Beaches
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 1B/6A
Enumerated_Domain_Value_Definition: Exposed, Solid Man-made Structures/ Gravel Beaches
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 1B/7
Enumerated_Domain_Value_Definition: Exposed, Solid Man-made Structures/ Exposed Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 2A
Enumerated_Domain_Value_Definition: Exposed Wave-cut Platforms in Bedrock
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 3A
Enumerated_Domain_Value_Definition: Fine- to Medium-grained Sand Beaches
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 3A/7
Enumerated_Domain_Value_Definition: Fine- to Medium-grained Sand Beaches/ Exposed Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 3A/9A
Enumerated_Domain_Value_Definition: Fine- to Medium-grained Sand Beaches/ Sheltered Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 4
Enumerated_Domain_Value_Definition: Coarse-grained Sand Beaches
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 4/7
Enumerated_Domain_Value_Definition: Coarse-grained Sand Beaches/ Exposed Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 4/9A
Enumerated_Domain_Value_Definition: Coarse-grained Sand Beaches/ Sheltered Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 5
Enumerated_Domain_Value_Definition: Mixed Sand and Gravel Beaches
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 5/6B
Enumerated_Domain_Value_Definition: Mixed Sand and Gravel Beaches/ Riprap
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 5/7
Enumerated_Domain_Value_Definition: Mixed Sand and Gravel Beaches/ Exposed Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 5/9A
Enumerated_Domain_Value_Definition: Mixed Sand and Gravel Beaches/ Sheltered Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 6A

Enumerated_Domain_Value_Definition: Gravel Beaches
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 6A/7
Enumerated_Domain_Value_Definition: Gravel Beaches/ Exposed Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 6B
Enumerated_Domain_Value_Definition: Riprap
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 6B/4/7
Enumerated_Domain_Value_Definition: Riprap/ Coarse-grained Sand Beaches/ Exposed Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 6B/5
Enumerated_Domain_Value_Definition: Riprap/ Mixed Sand and Gravel Beaches
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 6B/6A
Enumerated_Domain_Value_Definition: Riprap/ Gravel Beaches
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 6B/9A
Enumerated_Domain_Value_Definition: Riprap/ Sheltered Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 8A
Enumerated_Domain_Value_Definition: Sheltered Rocky Shores
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 8A/9A
Enumerated_Domain_Value_Definition: Sheltered Rocky Shores/ Sheltered Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 8B
Enumerated_Domain_Value_Definition: Sheltered, Solid Man-made Structures
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 8B/3A
Enumerated_Domain_Value_Definition:
Sheltered, Solid Man-made Structures/ Fine- to Medium-grained Sand Beaches
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 8B/5
Enumerated_Domain_Value_Definition:
Sheltered, Solid Man-made Structures/ Mixed Sand and Gravel Beaches
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 8B/9A
Enumerated_Domain_Value_Definition: Sheltered, Solid Man-made Structures/ Sheltered Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 8C
Enumerated_Domain_Value_Definition: Sheltered Riprap
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 8C/9A
Enumerated_Domain_Value_Definition: Sheltered Riprap/ Sheltered Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 9A/7

Enumerated_Domain_Value_Definition: Sheltered Tidal Flats/ Exposed Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10A
Enumerated_Domain_Value_Definition: Salt and Brackish Water Marsh
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10A/9A
Enumerated_Domain_Value_Definition: Salt and Brackish Water Marsh/ Sheltered Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10C
Enumerated_Domain_Value_Definition: Tall Mangroves
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10C/3A
Enumerated_Domain_Value_Definition: Tall Mangroves/ Fine- to Medium-grained Sand Beaches
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10C/3A/7
Enumerated_Domain_Value_Definition:
Tall Mangroves/ Fine- to Medium-grained Sand Beaches/ Exposed Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10C/3A/9A
Enumerated_Domain_Value_Definition:
Tall Mangroves/ Fine- to Medium-grained Sand Beaches/ Sheltered Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10C/4/7
Enumerated_Domain_Value_Definition:

Tall Mangroves/ Coarse-grained Sand Beaches/ Exposed Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10C/7
Enumerated_Domain_Value_Definition: Tall Mangroves/ Exposed Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10C/8A
Enumerated_Domain_Value_Definition: Tall Mangroves/ Sheltered Rocky Shores
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10C/8A/9A
Enumerated_Domain_Value_Definition: Tall Mangroves/ Sheltered Rocky Shores/ Sheltered Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10C/8B/3A
Enumerated_Domain_Value_Definition:
Tall Mangroves/ Sheltered, Solid Man-made Structures/ Fine- to Medium-grained Sand Beaches
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10C/8B/9A
Enumerated_Domain_Value_Definition:
Tall Mangroves/ Sheltered, Solid Man-made Structures/ Sheltered Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10C/8C
Enumerated_Domain_Value_Definition: Tall Mangroves/ Sheltered Riprap
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10C/8C/9A
Enumerated_Domain_Value_Definition: Tall Mangroves/ Sheltered Riprap/ Sheltered Tidal Flats

Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10C/9A
Enumerated_Domain_Value_Definition: Tall Mangroves/ Sheltered Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10C/9A/7
Enumerated_Domain_Value_Definition: Tall Mangroves/ Sheltered Tidal Flats/ Exposed Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10D
Enumerated_Domain_Value_Definition: Short Mangroves
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10D/7
Enumerated_Domain_Value_Definition: Short Mangroves/ Exposed Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10D/9A
Enumerated_Domain_Value_Definition: Short Mangroves/ Sheltered Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: U
Enumerated_Domain_Value_Definition: Unranked
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Beginning_Date_of_Attribute_Values: 200001
Ending_Date_of_Attribute_Values: 200011
Attribute:

Attribute_Label: LINE
Attribute_Definition: Type of geographic feature
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: B
Enumerated_Domain_Value_Definition: Breakwater
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: F
Enumerated_Domain_Value_Definition: Flat
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: H
Enumerated_Domain_Value_Definition: Hydrography
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: I
Enumerated_Domain_Value_Definition: Index
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: M
Enumerated_Domain_Value_Definition: Marsh
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: S
Enumerated_Domain_Value_Definition: Shoreline
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Beginning_Date_of_Attribute_Values: 200001
Ending_Date_of_Attribute_Values: 200011
Attribute:

Attribute_Label: SOURCE_ID
Attribute_Definition: Data source for the ESI
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 2
Enumerated_Domain_Value_Definition: Overflight
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 3

Enumerated_Domain_Value_Definition: Aerial Photography
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 5
Enumerated_Domain_Value_Definition: Digitized from scanned NIMA maps
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 7
Enumerated_Domain_Value_Definition: Digital (Generated by Research Planning, Inc.)
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 8
Enumerated_Domain_Value_Definition:
Digital data from El Salvador ESI Atlas, Research Planning, Inc., Columbia, SC
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Beginning_Date_of_Attribute_Values: 200001
Ending_Date_of_Attribute_Values: 200011
Attribute:

Attribute_Label: ENVIR
Attribute_Definition: Regional environment
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: E
Enumerated_Domain_Value_Definition: Estuarine
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: U
Enumerated_Domain_Value_Definition: Unranked
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Beginning_Date_of_Attribute_Values: 200001
Ending_Date_of_Attribute_Values: 200011
Detailed_Description:

Entity_Type:

Entity_Type_Label: GT-Polygon
Entity_Type_Definition:
The data layer ESI contains polygonal (GT-Polygon) features for the ESI shoreline classification and is based on Environmental Sensitivity Index Guidelines, Version

2.0 (Halls, J., J. Michel, S. Zengel, J. Dahlin, and J. Petersen, 1997, Hazardous Materials Response and Assessment Division, NOAA). The ESI classification was performed in February, 1997.

Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:

Attribute_Label: ESI

Attribute_Definition:

The character item ESI contains values according to the ESI ranking of the polygons. The ESI rankings progress from low to high susceptibility to oil spills. The ESI rankings of polygons are similar to the ESI rankings of shorelines (see line attribute ESI).

Attribute_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 7
Enumerated_Domain_Value_Definition: Exposed Tidal Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 9A
Enumerated_Domain_Value_Definition: Sheltered Tidal Flat
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 9C
Enumerated_Domain_Value_Definition: Hypersaline Tidal Flat
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10A
Enumerated_Domain_Value_Definition: Salt and Brackish Water Marsh
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10C
Enumerated_Domain_Value_Definition: Tall Mangroves
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10D
Enumerated_Domain_Value_Definition: Short Mangroves
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Beginning_Date_of_Attribute_Values: 200001
Ending_Date_of_Attribute_Values: 200011

Attribute:

Attribute_Label: WATER_CODE
Attribute_Definition: Specifies a polygon as either water or land
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: L
Enumerated_Domain_Value_Definition: Land
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: W
Enumerated_Domain_Value_Definition: Water
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Beginning_Date_of_Attribute_Values: 200001
Ending_Date_of_Attribute_Values: 200011

Distribution_Information:

Distributor:

Contact_Information:

Contact_Person_Primary:

Contact_Person: John Kaperick
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Address:

Address_Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6400
Contact_Facsimile_Telephone: (206) 526-6329
Resource_Description: ESI Atlas for Golfo de Fonseca, Honduras and Nicaragua
Distribution_Liability:
Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement copy of the product when the product is determined unreadable by computer-input peripherals, or when the physical medium is delivered in damaged condition.
Custom_Order_Process:
Contact NOAA for distribution options (see Distribution_Information).

Metadata_Reference_Information:

Metadata_Date: 200102
Metadata_Review_Date: 200102
Metadata_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Jill Petersen
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Position: GIS Manager
Contact_Address:

Address_Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: jill_petersen@hazmat.noaa.gov.us
Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

Golfo de Fonseca ESI; Honduras and Nicaragua: INDEX

Metadata:

Identification_Information:

Citation:

Citation_Information:

Originator:
United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.
Publication_Date: 200102
Title: Golfo de Fonseca ESI; Honduras and Nicaragua: INDEX
Edition: First
Geospatial_Data_Presentation_Form: Atlas
Series_Information:

Series_Name: None
Issue_Identification: Golfo de Fonseca
Publication_Information:

Publication_Place: Seattle, Washington
Publisher:
National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington
Other_Citation_Details:
Prepared by Research Planning, Inc., Columbia, South Carolina for the United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.

Description:

Abstract:

This data set comprises the Environmental Sensitivity Index (ESI) data for Golfo de Fonseca. ESI data characterize estuarine 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. This data set contains the study area index.

Purpose:

The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response and for coastal zone planning and management.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 200001
Ending_Date: 200102

Currentness_Reference: Project time span

Status:

Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -87.875
East_Bounding_Coordinate: -87.000
North_Bounding_Coordinate: 13.500
South_Bounding_Coordinate: 12.750

Keywords:

Theme:

Theme_Keyword_Thesaurus: None
Theme_Keyword: ESI
Theme_Keyword: Sensitivity maps
Theme_Keyword: Coastal resources
Theme_Keyword: Oil spill planning
Theme_Keyword: Coastal zone management
Theme_Keyword: Index

Place:

Place_Keyword_Thesaurus: None
Place_Keyword: Gulf of Fonseca
Place_Keyword: Golfo de Fonseca
Place_Keyword: Pacific coast of Honduras
Place_Keyword: Pacific coast of Nicaragua
Place_Keyword: Honduras
Place_Keyword: Nicaragua

Access_Constraints: None

Use_Constraints:

DO NOT USE 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 Data_Set_Credit (below) would be appreciated in products derived from these data.

Browse_Graphic:

Browse_Graphic_File_Name: fonsecadatafig.jpg
Browse_Graphic_File_Description:
Relationships between spatial data layers and attribute data tables for the Golfo de Fonseca data.
Browse_Graphic_File_Type: JPEG

Data_Set_Credit:
This project was supported by the United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.

Native_Data_Set_Environment:
The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 8.0.2) and ORACLE(r) RDBMS (version 8.0.5.0.0). The hardware configuration is Hewlett Packard workstations (models 715/50 and 712/80i with 4 X-terminals) with UNIX operating system (HP-UX Release A.10.20). The following files are included in the data set: bio_lut.e00, biofile.e00, biores.e00, birds.e00, esi.e00, fish.e00, hydro.e00, index.e00, invert.e00, mgt.e00, m_mammal.e00, reptiles.e00, saltpond.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00.

Data_Quality_Information:

Attribute_Accuracy:

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.

Logical_Consistency_Report:
The INDEX map data layer is generated at Research Planning, Inc. (RPI) based on the corner coordinates of the desired map areas. The hardcopy maps are then digitized and checked using both on-screen and hardcopy reviews. The edited maps are updated, checked once again for completeness and topological and logical consistency. Any errors in the shoreline classification are updated prior to digitization of the biological and human-use layers. All layers use the shoreline as the geographic reference so that there are no slivers in the geographic coordinates. The hardcopy biological information is compiled onto 1:50,000 topographic quadrangles by a biological expert using data from regional specialists in the form of maps, tables, charts, written descriptions of wildlife distributions, and personal interviews. Concurrently, digital data sources are imported, projected, checked for quality control, and integrated into the data structure. The hardcopy data are digitized, checked using both digital and on-screen procedures, integrated with existing data, plotted, and sent out for review by the regional specialists. The edited maps are updated, checked once again, and the final product plotted (at approximately 1:50,000 scale). A team of specialists 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 data layer is checked using a standardized form by two GIS personnel (a technician and the GIS manager), and each attribute database is checked using several programs that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and ORACLE(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where data are written to tape and metadata are written. ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export,

MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the CDs for ease of use of the ESI data. The database files are distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats. The section Spatial_Data_Organization_Information refers to the source files in ARC export format only.

Completeness_Report:

The INDEX map data layer was generated based on 1:50,000 scale topographic maps. Names of the original topographic maps are included in the attribute information for each INDEX polygon.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

The INDEX data use 1:50,000 topographic quadrangles as the basemap. It is estimated that the ESI shoreline classification has a minimum mapping unit of 100 feet.

Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Originator: Research Planning, Inc.
Publication_Date: Unpublished Material
Title: Overflight ESI and Socioeconomic information
Geospatial_Data_Presentation_Form: Hard maps

Source_Scale_Denominator: 50000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000

Source_Currentness_Reference: Field Work Date
Source_Citation_Abbreviation: None
Source_Contribution: Map boundary

Process_Step:

Process_Description:

All the digital data were checked using both digital and on-screen procedures, plotted, checked by the biological expert, edited to remove any errors, and plotted for review by the regional specialists. The reviewed maps were updated on the computer, checked once again, and plotted at final map scale. A team of specialists reviewed the entire series of maps, checked all data, and made final edits. The data were merged to form the study-wide layers that are described in the document. The data merging included a final quality control check where topological consistency, rules for geography, and database to geography were checked and validated for all relationships.

Process_Date: 200102
Process_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: NOAA, Office of Response and Restoration
Contact_Person: Jill Petersen
Contact_Address:

Address_Type: Physical address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: jill_petersen@hazmat.noaa.gov.us

---

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: GT-polygon composed of rings
Point_and_Vector_Object_Count: 31
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Area point
Point_and_Vector_Object_Count: 31
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Complete chain
Point_and_Vector_Object_Count: 86
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Link
Point_and_Vector_Object_Count: 90
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Node, planar graph
Point_and_Vector_Object_Count: 56

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Geographic:

Latitude_Resolution: 0.00005
Longitude_Resolution: 0.00005
Geographic_Coordinate_Units: Decimal degrees
Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1927
Ellipsoid_Name: Clarke 1866
Semi-major_Axis: 6378206.4
Denominator_of_Flattening_Ratio: 294.98

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: GT-Polygon
Entity_Type_Definition:
The data layer INDEX contains the map or polygon boundaries for each map in the atlas.
Entity_Type_Definition_Source: Research Planning, Inc.
Attribute:

Attribute_Label: TILE-NAME
Attribute_Definition:
The TILE-NAME contains the map number according to the specified layout of the atlas. 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 31.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 1
Range_Domain_Maximum: 31
Attribute_Units_of_Measure: Nominal
Beginning_Date_of_Attribute_Values: 200001
Ending_Date_of_Attribute_Values: 200011
Attribute:

Attribute_Label: TOPO-NAME
Attribute_Definition: 1:50,000 topographic map name.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: AMAPALA, HONDURAS
Enumerated_Domain_Value_Definition: 1:50,000 Topographic map name
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: BAHIA CHISMUYO, HONDURAS
Enumerated_Domain_Value_Definition: 1:50,000 Topographic map name
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: COSIGÜINA, NICARAGUA
Enumerated_Domain_Value_Definition: 1:50,000 Topographic map name
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: ESTERO REAL, NICARAGUA; HONDURAS
Enumerated_Domain_Value_Definition: 1:50,000 Topographic map name
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: LA UNION, EL SALVADOR; HONDURAS
Enumerated_Domain_Value_Definition: 1:50,000 Topographic map name
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: MARCOVIA, HONDURAS
Enumerated_Domain_Value_Definition: 1:50,000 Topographic map name
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: POTOSI, NICARAGUA
Enumerated_Domain_Value_Definition: 1:50,000 Topographic map name
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: PUERTO MORAZAN, NICARAGUA; HONDURAS
Enumerated_Domain_Value_Definition: 1:50,000 Topographic map name
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: PUNTA CONDEGA, HONDURAS; NICARAGUA
Enumerated_Domain_Value_Definition: 1:50,000 Topographic map name
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: SAN LORENZO, HONDURAS
Enumerated_Domain_Value_Definition: 1:50,000 Topographic map name
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: SANTA MARIA, HONDURAS; NICARAGUA
Enumerated_Domain_Value_Definition: 1:50,000 Topographic map name
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: TONALA, NICARAGUA
Enumerated_Domain_Value_Definition: 1:50,000 Topographic map name
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Beginning_Date_of_Attribute_Values: 200001
Ending_Date_of_Attribute_Values: 200011

Attribute:

Attribute_Label: SCALE
Attribute_Definition:
SCALE contains the value of the denominator of the scale at which the map is plotted in the final map product
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 50000
Enumerated_Domain_Value_Definition: Scale = 1:50,000
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Beginning_Date_of_Attribute_Values: 200001
Ending_Date_of_Attribute_Values: 200011

Attribute:

Attribute_Label: MAPANGLE
Attribute_Definition:
MAPANGLE contains a value to rotate the final map product so that it is situated straight up and down.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0.000
Range_Domain_Maximum: 0.000
Attribute_Units_of_Measure: Degree

Beginning_Date_of_Attribute_Values: 200001
Ending_Date_of_Attribute_Values: 200011

Attribute:

Attribute_Label: PAGESIZE
Attribute_Definition:
PAGESIZE contains the value of the width and height of the map in the final map product
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 17,11
Enumerated_Domain_Value_Definition: Page size = 17' by 11'
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Beginning_Date_of_Attribute_Values: 200001
Ending_Date_of_Attribute_Values: 200011

Distribution_Information:

Distributor:

Contact_Information:

Contact_Person_Primary:

Contact_Person: John Kaperick
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Address:

Address_Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6400
Contact_Facsimile_Telephone: (206) 526-6329
Resource_Description: ESI Atlas for Golfo de Fonseca, Honduras and Nicaragua
Distribution_Liability:
Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement copy of the product when the product is determined unreadable by computer-input peripherals, or when the physical medium is delivered in damaged condition.
Custom_Order_Process:
Contact NOAA for distribution options (see Distribution_Information).

Metadata_Reference_Information:

Metadata_Date: 200102

Metadata_Review_Date: 200102
Metadata_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Jill Petersen
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Position: GIS Manager
Contact_Address:

Address_Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: jill_petersen@hazmat.noaa.gov.us
Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

Golfo de Fonseca ESI; Honduras and Nicaragua: BIRDS

Metadata:

Identification_Information:

Citation:

Citation_Information:

Originator:
United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.
Publication_Date: 200102
Title: Golfo de Fonseca ESI; Honduras and Nicaragua: BIRDS
Edition: First
Geospatial_Data_Presentation_Form: Atlas
Series_Information:

Series_Name: None
Issue_Identification: Golfo de Fonseca
Publication_Information:

Publication_Place: Seattle, Washington
Publisher:
National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington
Other_Citation_Details:
Prepared by Research Planning, Inc., Columbia, South Carolina for the United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.

Description:

Abstract:

This data set comprises the Environmental Sensitivity Index (ESI) data for Golfo de Fonseca. ESI data characterize estuarine 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. This data set contains sensitive biological resource data for birds.

Purpose:

The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response and for coastal zone planning and management.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 200001
Ending_Date: 200102

Currentness_Reference: Project time span

Status:

Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -87.875
East_Bounding_Coordinate: -87.000
North_Bounding_Coordinate: 13.500
South_Bounding_Coordinate: 12.750

Keywords:

Theme:

Theme_Keyword_Thesaurus: None
Theme_Keyword: ESI
Theme_Keyword: Sensitivity maps
Theme_Keyword: Coastal resources
Theme_Keyword: Oil spill planning
Theme_Keyword: Coastal zone management
Theme_Keyword: Bird
Theme_Keyword: Diving bird
Theme_Keyword: Gull
Theme_Keyword: Tern
Theme_Keyword: Pelagic
Theme_Keyword: Passerine
Theme_Keyword: Raptor
Theme_Keyword: Shorebird
Theme_Keyword: Wading bird
Theme_Keyword: Waterfowl

Place:

Place_Keyword_Thesaurus: None
Place_Keyword: Gulf of Fonseca
Place_Keyword: Golfo de Fonseca
Place_Keyword: Pacific coast of Honduras

Place_Keyword: Pacific coast of Nicaragua
Place_Keyword: Honduras
Place_Keyword: Nicaragua

Access_Constraints: None

Use_Constraints:
DO NOT USE 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 Data_Set_Credit (below) would be appreciated in products derived from these data.

Browse_Graphic:

Browse_Graphic_File_Name: fonsecadatafig.jpg
Browse_Graphic_File_Description:
Relationships between spatial data layers and attribute data tables for the Golfo de Fonseca data.
Browse_Graphic_File_Type: JPEG

Data_Set_Credit:
This project was supported by United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.

Native_Data_Set_Environment:
The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 8.0.2) and ORACLE(r) RDBMS (version 8.0.5.0.0). The hardware configuration is Hewlett Packard workstations (models 715/50 and 712/80i with 4 X-terminals) with UNIX operating system (HP-UX Release A.10.20). The following files are included in the data set: bio_lut.e00, biofile.e00, biores.e00, birds.e00, esi.e00, fish.e00, hydro.e00, index.e00, invert.e00, mgt.e00, m_mammal.e00, reptiles.e00, saltpond.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00.

Data_Quality_Information:

Attribute_Accuracy:

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.

Logical_Consistency_Report:
The digitization of shoreline types, biological resources, and human-use resources is a complex and highly quality-controlled process. Existing digital shoreline and wetlands data are integrated into a study-wide basemap. In order to facilitate digitizing, the entire study area is split into individual quadrangles using the INDEX data layer. The first layer of information digitized is the ESI shoreline classification. The ESI habitat ranking is compiled onto 1:50,000 topographic quadrangles by a geomorphologist. The hardcopy maps are then digitized and checked, using both on-screen and hardcopy reviews. The edited maps are updated, checked once again for completeness and topological and logical consistency. Any errors in the shoreline classification are updated prior to digitization of the biological reference so that there are no slivers in the geographic coordinates. The hardcopy biological information is compiled onto 1:50,000 topographic quadrangles by a biological expert using data from regional specialists in the form of maps, tables, charts, written descriptions of wildlife distributions, and personal interviews. Concurrently, digital data sources are imported,

projected, checked for quality control, and integrated into the data structure. The hardcopy data are digitized, checked using both digital and on-screen procedures, integrated with existing data, plotted, and sent out for review by the regional specialists. The edited maps are updated, checked once again, and the final product plotted (at approximately 1:50,000 scale). A team of specialists 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 data layer is checked using a standardized form by two GIS personnel (a technician and the GIS manager), and each attribute database is checked using several programs that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and ORACLE (r) and ARC/INFO (r) consistencies. A final review is made by the GIS manager, where the data are written to tape and the metadata are written. After the data are delivered to NOAA, they are again subjected to a number of quality and consistency checks. In the process of checking for topological and database consistencies, new IDs and RARNUMs or HUNUMs are also generated. The new IDs are a combination of atlas number, element number, and record number. In addition, the value used to represent the element is modified to reflect the type of feature being mapped. In the case of an element that is normally represented by a point or polygon, a value of 20 is added to the standard element value for mapping of linear features. In the case where an element usually mapped as a polygon is represented by a point, a value of 30 is added to the regular element value. The RARNUMs and HUNUMS are modified to be unique to each element. ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the CDs for ease of use of the ESI data. The database files are distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats. The section Spatial_Data_Organization_Information refers to the source files in ARC export format only.

Completeness_Report:

Biological information presented in this atlas was collected and compiled with the assistance of biologists from SERNA (Secretaria Nacional de Recursos Naturales de Honduras) in Honduras and MARENA (Ministerio del Ambiente y Recursos Naturales de Nicaragua) in Nicaragua, and various other agencies, organizations, and groups. Information collected and depicted on the maps denotes 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, invertebrates, marine mammals, terrestrial mammals, and reptiles/amphibians. The ELEMENTs generally correspond to the coverage or geographic data layer names. There are also six attribute or data tables, BIORES, LOCALHON, LOCALNIC, SOURCES, SPECIES, and STATUS, that are used to store the complex biological data. The biological polygons (BIRDS) are linked to the Biological Resources table (BIORES) using the unique ID and the lookup table BIO_LUT, or they can be linked directly using RARNUM. [The ID is a unique combination of the atlas number (for Golfo de Fonseca this is 104), an element specific number (birds are layer 1, fish are layer 2, etc.) and a unique record number. The RARNUM represents a unique combination of species, seasonalities, concentrations, and source information. For each of these groupings, a number is generated.] 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 (BAJO = low, MEDIO = medium, ALTO = high, etc.) or an actual count of the number of individuals or nests associated with a polygon. SEASON_ID contains a numeric identifier for the life history characteristics of each species at a given location (1 = Year round resident population; 2 = Migratory/seasonal population; 3 = Resident and migratory population; 4 = Population/location of nesting/reproduction). G_SOURCE contains the SOURCE_ID for geographic information, and S_SOURCE contains the SOURCE_ID for seasonality information. Both items link to the SOURCES data table. EL_SPE is a concatenation of ELEMENT and SPECIES_ID and links to the SPECIES and STATUS tables. EL_SPE_SEA is a concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. The SPECIES data table contains the SPECIES_ID (described above), common English name (NAME), scientific name (GEN_SPEC), biological element (ELEMENT), biological subelement (SUBELEMENT), the Natural Heritage Program

(NHP) global conservation status rank (not used in this atlas), the date the list of NHP ranks was published (DATE_PUB) (not used in this atlas), and EL_SPE, which links back to the BIORES and STATUS tables. The item SUBELEMENT refers to the grouping of the species: (ELEMENT, subelement): BIRDS: diving bird, gull/tern, pelagic, passerine, raptor, shorebird, wading bird, waterfowl. The STATUS data table contains records for each species that is threatened or endangered in either Honduras and/or Nicaragua. The items include: ELEMENT, SPECIES_ID, STATE (two-letter state abbreviation; not populated in this atlas), S_F (jurisdiction; N=Nicaragua, H=Honduras), T_E (status; A=Amenazado, E=En Peligro), DATE_PUB (the date when the given amenazado or en peligro listings were in effect), and EL_SPE. The SOURCES data table contains metadata for each biological and human-use source listed in the ESI atlas. The items in SOURCES include: SOURCE_ID; ORIGINATOR (author); DATE_PUB (date of publication); TITLE (title of the data set); DATA_FORMAT (digital type, hardcopy maps, etc.); PUBLICATION (additional citation); SCALE (source scale denominator); and TIME_PERIOD (beginning and ending dates of original data collection). The SOURCES data table is linked to all biological data at the feature plus species-level and human-use data at the feature-level. The LOCALHON data table provides the common Honduran name (NAME) for a given species. The items in this table include: ELEMENT, SPECIES_ID, NAME, and EL_SPE, which links to the SPECIES table. The LOCALNIC data table provides the common Nicaraguan name (NAME) for a given species. The items in this table include: ELEMENT, SPECIES_ID, NAME, and EL_SPE, which links to the SPECIES table. Due to the complexity of the relational database model, the biological data items are also 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/HONDURAS, NAME/NICARAGUA, NAME/ENGLISH, GEN_SPEC, S_F, T_E, CONC, SEASONALITY, RARNUM, G_SOURCE, S_SOURCE, and SEAS_ID. These items are the same as their counterparts in the individual files described above, with the exception of NAME/HONDURAS, NAME/NICARAGUA, NAME/ENGLISH, SEASONALITY, and SEAS_ID. NAME/HONDURAS is populated with the common Honduran name for each species, NAME/NICARAGUA is populated with the common Nicaraguan name for each species, and NAME/ENGLISH is populated with the common English name for each species. SEASONALITY identifies each species at a given location as one of the following: year-round resident population; migratory/seasonal population; resident and migratory population; or population/location of nesting/reproduction. SEAS_ID contains the numeric identifier for the life history characteristics of each species (1 = Year round resident population; 2 = Migratory/seasonal population; 3 = Resident and migratory population; 4 = Population/location of nesting/reproduction). The link to the BIOFILE may be made through BIO_LUT using ID, or it may be linked directly from the RARNUM in each of the biology cover's attribute files. A supporting data file is SOURCES. This is the same as the source file described above, and the link from the flat file is both G_SOURCE and S_SOURCE. It should be noted that although the flat file eases data query, it is not a normalized database structure, and actual updates performed by the states and other responsible agencies should be done using the relational files.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

The biological data sets are developed primarily using regional experts who estimate concentration areas. Unlike shorelines, which maintain relative spatial stability through time, the biological data by nature vary in distribution across the landscape. Therefore, the 1:50,000 topographic quadrangles are used as a basemap in gathering the data but the data have "fuzzy" boundaries which must be understood when utilizing this information.

Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Originator: Wainwright, F.
Publication_Date: Unpublished Material
Title: Expert knowledge of various resources in the Golfo deFonseca
Geospatial_Data_Presentation_Form: Expert knowledge
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Interview Date
Source_Citation_Abbreviation: None
Source_Contribution: Bird information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Merio Rodriguez, V. (SERNA)
Publication_Date: Unpublished Material
Title: Diagnóstico de las Areas Protegidas de la Zona Sur de Honduras
Geospatial_Data_Presentation_Form: Hard table
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1999
Source_Currentness_Reference: Field Work Date
Source_Citation_Abbreviation: None
Source_Contribution: Bird information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Howell, S. and S. Webb
Publication_Date: 1999
Title: A Guide to the Birds of Mexico and Northern Central America
Geospatial_Data_Presentation_Form: Hard text
Publication_Information:

Publication_Place: New York
Publisher: Oxford University Press
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1999
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Bird information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Olivas, L. and R. H. Paz López (COHDEFOR)
Publication_Date: Unpublished Material
Title: Expert knowledge of various resources in the Golfo deFonseca
Geospatial_Data_Presentation_Form: Expert knowledge
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Interview Date
Source_Citation_Abbreviation: None
Source_Contribution: Bird information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Secretaria de Recursos Naturales y Ambiente (SERNA)
Publication_Date: 1999
Title:
Propuesta de Declaratoria Corredor Biológico Mesoamericano Pacifico de Honduras
Geospatial_Data_Presentation_Form: Hard text, Digital polygons
Publication_Information:

Publication_Place: Tegucigalpa, M.D.C.
Publisher: SERNA
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1999
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Bird information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Research Planning, Inc.
Publication_Date: 1998
Title:
Levantamiento y Mapeo de Indices de Sensibilidad Ambiental de El Salvador: Vol 2
Geospatial_Data_Presentation_Form: Hard maps, Hard text, Hard tables, Digital polygons
Publication_Information:

Publication_Place: Columbia, SC.
Publisher: Research Planning, Inc.
Source_Scale_Denominator: 50000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1998
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Bird information
Source_Information:

Source_Citation:

Citation_Information:

Originator: CATIE
Publication_Date: 2000
Title:
Estrategia para el Desarrollo y la Conservación del Estero Real, Nicaragua
Geospatial_Data_Presentation_Form: Hard text, Hard maps
Publication_Information:

Publication_Place: Turrialba, C. R.
Publisher: CATIE/IDR
Source_Scale_Denominator: 400000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Bird information
Source_Information:

Source_Citation:

Citation_Information:

Originator: MARENA
Publication_Date: 1999
Title: Biodiversidad en Nicaragua: Un Estudio de Páis
Geospatial_Data_Presentation_Form: Hard text
Publication_Information:

Publication_Place: Managua, Nicaragua
Publisher: MARENA-PANIF
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1999
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Bird information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Moralei, J.V. (CITIES-MARENA)
Publication_Date: Unpublished Material
Title: Expert knowledge Cosigüina peninsula
Geospatial_Data_Presentation_Form: Expert knowledge
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Interview Date
Source_Citation_Abbreviation: None
Source_Contribution: Bird information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Cajina , O.
Publication_Date: Unpublished Material
Title: Proyecto Danida Manglares, Estero Real: Fauna
Geospatial_Data_Presentation_Form: Hard text
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1996
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Bird information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Gonzales, L., M. Molina, M. Lacayo
Publication_Date: Unpublished Material
Title: Expert knowledge of Estero Real Area
Geospatial_Data_Presentation_Form: Expert knowledge
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Interview Date
Source_Citation_Abbreviation: None
Source_Contribution: Bird information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Lezama, M (Univ. de Centroamerica)
Publication_Date: Unpublished Material
Title: Expert knowledge of Estero Real Area
Geospatial_Data_Presentation_Form: Expert knowledge
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Interview Date
Source_Citation_Abbreviation: None
Source_Contribution: Bird information
Source_Information:

Source_Citation:

Citation_Information:

Originator: AOU
Publication_Date: 1998
Title: Check-list of North American Birds: 7th edition

Geospatial_Data_Presentation_Form: Hard text
Publication_Information:

Publication_Place: Washington, D.C.
Publisher: American Orinthologists Union
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1998
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Bird information
Process_Step:

Process_Description:
All the digital data were checked using both digital and on-screen procedures, plotted, checked by the biological expert, edited to remove any errors, and plotted for review by the regional specialists. The reviewed maps were updated on the computer, checked once again, and plotted at final map scale. A team of specialists reviewed the entire series of maps, checked all data, and made final edits. The data were merged to form the study-wide layers that are described in the document. The data merging included a final quality control check where topological consistency, rules for geography, and database to geography were checked and validated for all relationships.
Process_Date: 200102
Process_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: NOAA, Office of Response and Restoration
Contact_Person: Jill Petersen
Contact_Address:

Address_Type: Physical address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: jill_petersen@hazmat.noaa.gov.us

---

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: GT-polygon composed of rings
Point_and_Vector_Object_Count: 862
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Area point
Point_and_Vector_Object_Count: 862
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Complete chain
Point_and_Vector_Object_Count: 3862
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Link
Point_and_Vector_Object_Count: 1156677
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Node, planar graph
Point_and_Vector_Object_Count: 3359

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Geographic:

Latitude_Resolution: 0.00005
Longitude_Resolution: 0.00005
Geographic_Coordinate_Units: Decimal degrees
Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1927
Ellipsoid_Name: Clarke 1866
Semi-major_Axis: 6378206.4
Denominator_of_Flattening_Ratio: 294.98

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: GT-polygon
Entity_Type_Definition:
Birds in this atlas are divided into several species subgroups based on taxonomy, morphology, behavior, etc. The SPECIES table lists all the birds included on the

maps, sorted by subgroup. Species presented in this atlas include species of special concern (because of their general rarity or imperilment, or their special protection status as threatened or endangered), species of social or cultural significance, etc. Marine, wetland, and aquatic species; nesting sites and colonies; and protected species are especially emphasized.

Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:

Attribute_Label: ID

Attribute_Definition:

A unique identifier that links to the BIO_LUT table. ID is a concatenation of atlas number (104), element number (1), and record number. ID values of 9999 are holes in polygons and do not contain information. The following BIRDS species are found in the Golfo de Fonseca ESI data set (SPECIES ID, GEN_SPEC): 16, Anas platyrhynchos; 17, Anas acuta; 54, Ardea herodias; 55, Numenius phaeopus; 56, Actitis macularia; 58, Tringa melanoleuca; 62, Calidris minutilla; 66, Calidris mauri; 67, Calidris alba; 69, Charadrius semipalmatus; 71, Pluvialis squatarola; 77, Pandion haliaetus; 87, Egretta caerulea; 88, Ardea alba; 89, Egretta thula; 91, Plegadis falcinellus; 94, Egretta tricolor; 97, Butorides virescens; 98, Larus atricilla; 107, Falco peregrinus; 115, Eudocimus albus; 116, Ajaia ajaja; 118, Pelecanus occidentalis; 119, Fregata magnificens; 120, Nyctanassa violacea; 121, Anhinga anhinga; 131, Elanus leucurus; 132, Mycteria americana; 133, Rynchops niger; 139, Charadrius alexandrinus; 141, Recurvirostra americana; 142, Himantopus mexicanus; 145, Sterna elegans; 155, Catoptrophorus semipalmatus; 173, Pelecanus erythrorhynchos; 182, Falco sparverius; 190, Anas discors; 209, Numenius americanus; 210, Limosa fedoa; 212, Porphyrula martinica; 221, Accipiter cooperii; 230, Buteo jamaicensis; 231, Buteo platypterus; 266, Dendrocygna autumnalis; 269, Tachybaptus dominicus; 290, Calidris spp.; 321, Ceryle torquata; 323, Chloroceryle amazona; 325, Phalacrocorax brasilianus; 327, Amazona albifrons; 328, Amazona auropalliata; 329, Ara macao; 330, Aratinga canicularis; 331, Aratinga holochlora; 333, Brotogeris jugularis; 334, Dendroica petechia; 336, Tachycineta albilinea; 337, Vireo pallens; 353, Buteo albonotatus; 354, Buteo brachyurus; 355, Buteo magnirostris; 356, Buteo nitidus; 359, Buteogallus urubitinga; 374, Herpetotheres cachinnans; 379, Otus cooperi; 380, Parabuteo unicinctus; 381, Caracara plancus; 382, Pulsatrix perspicillata; 385, Tyto alba; 390, Burhinus bistriatus; 400, Cochlearius cochlearius; 401, Jabiru mycteria; 405, Tigrisoma mexicanum; 407, Cairina moschata; 414, Numenius borealis; 429, Trogon melanocephalus; 431, Chordeiles acutipennis; 432, Nyctidromus albicollis; 441, Picoides scalaris; 448, Zenaida asiatica; 452, Zenaida macroura; 497, Tigrisoma limeatum; 516, Buteogallus anthracinus; 564, Columbina passerina; 565, Cyanocorax morio; 566, Calocitta formosa; 567, Columbina talpacoti; 568, Aratinga astec; 569, Crotophaga sulcirostris; 570, Melanerpes aurifrons; 571, Campephilus guatemalensis; 572, Pitangus sulphuratus; 573, Tyrannus melancholicus; 574, Icterus pustulatus sclateri; 575, Icterus gularis; 576, Todirostrum cinereum; 577, Turdus grayi; 578, Dives dives; 579, Tyrannus forficatus; 580, Columbina inca; 581, Veniliornis sp.; 582, Hirundo rustica; 583, Icterus galbula galbula; 584, Setophaga ruticilla; 585, Cyclarhis gujanensis; 586, Amazona ochrocephala; 587, Myiozetetes similis; 588, Thryothorus pleurostictus; 589, Polioptila plumbea; 590, Mniotilta varia; 591, Aimophila ruficauda; 592, Amazilia rutila; 593, Otus sp.; 611, Quiscalus mexicanus; 612, Campylorhynchus rufinucha; 1001, Gulls; 1004, Wading birds; 1008, Terns; 1022, Seabirds.

Attribute_Definition_Source: NOAA

Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 1040100002
Range_Domain_Maximum: 1040100863

Attribute_Units_of_Measure: Ordered
Beginning_Date_of_Attribute_Values: 200102
Ending_Date_of_Attribute_Values: 200102
Attribute:

Attribute_Label: RARNUM
Attribute_Definition:
An identifier that links directly to the BIORES table or the flat format BIOFILE table.
Attribute_Definition_Source: NOAA
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 1
Range_Domain_Maximum: 63
Beginning_Date_of_Attribute_Values: 200102
Ending_Date_of_Attribute_Values: 200102

Distribution_Information:

Distributor:

Contact_Information:

Contact_Person_Primary:

Contact_Person: John Kaperick
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Address:

Address_Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6400
Contact_Facsimile_Telephone: (206) 526-6329
Resource_Description: ESI Atlas for Golfo de Fonseca, Honduras and Nicaragua
Distribution_Liability:
Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement copy of the product when the product is determined unreadable by computer-input peripherals, or when the physical medium is delivered in damaged condition.
Custom_Order_Process:
Contact NOAA for distribution options (see Distribution_Information).

Metadata_Reference_Information:

Metadata_Date: 200102
Metadata_Review_Date: 200102
Metadata_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Jill Petersen
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Position: GIS Manager
Contact_Address:

Address_Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: jill_petersen@hazmat.noaa.gov.us
Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

Golfo de Fonseca ESI; Honduras and Nicaragua: FISH

Metadata:

Identification_Information:

Citation:

Citation_Information:

Originator:
United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.
Publication_Date: 200102
Title: Golfo de Fonseca ESI; Honduras and Nicaragua: FISH
Edition: First
Geospatial_Data_Presentation_Form: Atlas
Series_Information:

Series_Name: None
Issue_Identification: Golfo de Fonseca
Publication_Information:

Publication_Place: Seattle, Washington
Publisher:
National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington
Other_Citation_Details:
Prepared by Research Planning, Inc., Columbia, South Carolina for the United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.

Description:

Abstract:

This data set comprises the Environmental Sensitivity Index (ESI) data for Golfo de Fonseca. ESI data characterize estuarine 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. This data set contains sensitive biological resource data for fish.

Purpose:

The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response and for coastal zone planning and management.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 200001
Ending_Date: 200102

Currentness_Reference: Project time span

Status:

Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -87.875
East_Bounding_Coordinate: -87.000
North_Bounding_Coordinate: 13.500
South_Bounding_Coordinate: 12.750

Keywords:

Theme:

Theme_Keyword_Thesaurus: None
Theme_Keyword: ESI
Theme_Keyword: Sensitivity maps
Theme_Keyword: Coastal resources
Theme_Keyword: Oil spill planning
Theme_Keyword: Coastal zone management
Theme_Keyword: Fish
Theme_Keyword: Nursery
Theme_Keyword: Resident
Theme_Keyword: Benthic
Theme_Keyword: Pelagic

Place:

Place_Keyword_Thesaurus: None
Place_Keyword: Gulf of Fonseca
Place_Keyword: Golfo de Fonseca
Place_Keyword: Pacific coast of Honduras
Place_Keyword: Pacific coast of Nicaragua
Place_Keyword: Honduras
Place_Keyword: Nicaragua

Access_Constraints: None
Use_Constraints:

DO NOT USE 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 Data_Set_Credit (below) would be appreciated in products derived from these data.

Browse_Graphic:

Browse_Graphic_File_Name: fonsecadatafig.jpg

Browse_Graphic_File_Description:

Relationships between spatial data layers and attribute data tables for the Golfo de Fonseca data.

Browse_Graphic_File_Type: JPEG

Data_Set_Credit:

This project was supported by United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.

Native_Data_Set_Environment:

The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 8.0.2) and ORACLE(r) RDBMS (version 8.0.5.0.0). The hardware configuration is Hewlett Packard workstations (models 715/50 and 712/80i with 4 X-terminals) with UNIX operating system (HP-UX Release A.10.20). The following files are included in the data set: bio_lut.e00, biofile.e00, biores.e00, birds.e00, esi.e00, fish.e00, hydro.e00, index.e00, invert.e00, mgt.e00, m_mammal.e00, reptiles.e00, saltpond.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00.

Data_Quality_Information:

Attribute_Accuracy:

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.

Logical_Consistency_Report:

The digitization of shoreline types, biological resources, and human-use resources is a complex and highly quality-controlled process. Existing digital shoreline and wetlands data are integrated into a study-wide basemap. In order to facilitate digitizing, the entire study area is split into individual quadrangles using the INDEX data layer. The first layer of information digitized is the ESI shoreline classification. The ESI habitat ranking is compiled onto 1:50,000 topographic quadrangles by a geomorphologist. The hardcopy maps are then digitized and checked, using both on-screen and hardcopy reviews. The edited maps are updated, checked once again for completeness and topological and logical consistency. Any errors in the shoreline classification are updated prior to digitization of the biological reference so that there are no slivers in the geographic coordinates. The hardcopy biological information is compiled onto 1:50,000 topographic quadrangles by a biological expert using data from regional specialists in the form of maps, tables, charts, written descriptions of wildlife distributions, and personal interviews. Concurrently, digital data sources are imported, projected, checked for quality control, and integrated into the data structure. The hardcopy data are digitized, checked using both digital and on-screen procedures, integrated with existing data, plotted, and sent out for review by the regional specialists. The edited maps are updated, checked once again, and the final product plotted (at approximately 1:50,000 scale). A team of specialists 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 data layer is checked using a standardized form by two GIS personnel (a technician and the GIS manager), and each attribute database is checked using several programs that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and ORACLE (r) and ARC/INFO (r) consistencies. A final review is made by the GIS manager, where the data are written to tape and the metadata are written. After the data are delivered to NOAA, they are again subjected to a number of quality and consistency checks. In the process of checking for topological and database consistencies, new IDs and RARNUMs or HUNUMs are also generated. The new IDs are a combination of atlas number, element number, and record number. In addition, the value used to represent the element is modified to reflect the type of feature being mapped. In the case of an element that is normally represented by a point or polygon, a value of 20 is added to the standard element value for mapping of linear features. In the case where an element usually mapped as a polygon is represented by a point, a value of 30 is added to the regular element value. The RARNUMs and HUNUMS are modified to be unique to each element. ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the CDs for ease of use of the ESI data. The database files are distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats. The section Spatial_Data_Organization_Information refers to the source files in ARC export format only.

Completeness_Report:

Biological information presented in this atlas was collected and compiled with the assistance of biologists from SERNA (Secretaria Nacional de Recursos Naturales de Honduras) in Honduras and MARENA (Ministerio del Ambiente y Recursos Naturales de Nicaragua) in Nicaragua, and various other agencies, organizations, and groups. Information collected and depicted on the maps denotes 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, invertebrates, marine mammals, terrestrial mammals, and reptiles. The ELEMENTs generally correspond to the coverage or geographic data layer names. There are also six attribute or data tables, BIORES, LOCALHON, LOCALNIC, SOURCES, SPECIES, and STATUS, that are used to store the complex biological data. The biological polygons (FISH) are linked to the Biological Resources table (BIORES) using the unique ID and the lookup table BIO_LUT, or they can be linked directly using RARNUM. [The ID is a unique combination of the atlas number (for Golfo de Fonseca this is 104), an element specific number (birds are layer 1, fish are layer 2, etc.) and a unique record number. The RARNUM represents a unique combination of species, seasonalities, concentrations, and source information. For each of these groupings, a number is generated.] 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 (BAJO = low, MEDIO = medium, ALTO = high, etc.) or an actual count of the number of individuals or nests associated with a polygon. SEASON_ID contains a numeric identifier for the life history characteristics of each species at a given location (1 = Year round resident population; 2 = Migratory/seasonal population; 3 = Resident and migratory population; 4 = Population/location of nesting/reproduction). G_SOURCE contains the SOURCE_ID for geographic information, and S_SOURCE contains the SOURCE_ID for seasonality information. Both items link to the SOURCES data table. EL_SPE is a concatenation of ELEMENT and SPECIES_ID and links to the SPECIES and STATUS tables. EL_SPE_SEA is a concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. The SPECIES data table contains the SPECIES_ID (described above), common English name (NAME), scientific name (GEN_SPEC), biological element (ELEMENT), biological subelement (SUBELEMENT), the Natural Heritage Program (NHP) global conservation status rank (not used in this atlas), the date the list of NHP ranks was published (DATE_PUB) (not used in this atlas), and EL_SPE, which links back to the BIORES and STATUS tables. The item SUBELEMENT refers to the grouping of the species: (ELEMENT, subelement): FISH: nursery, resident, benthic, pelagic. The STATUS data table contains records for each species that is threatened or endangered in either Honduras and/or Nicaragua. The items include: ELEMENT, SPECIES_ID,

STATE (two-letter state abbreviation; not populated in this atlas), S_F (jurisdiction; N=Nicaragua, H=Honduras), T_E (status; A=Amenazado, E=En Peligro), DATE_PUB (the date when the given amenazado or en peligro listings were in effect), and EL_SPE. The SOURCES data table contains metadata for each biological and human-use source listed in the ESI atlas. The items in SOURCES include: SOURCE_ID; ORIGINATOR (author); DATE_PUB (date of publication); TITLE (title of the data set); DATA_FORMAT (digital type, hardcopy maps, etc.); PUBLICATION (additional citation); SCALE (source scale denominator); and TIME_PERIOD (beginning and ending dates of original data collection). The SOURCES data table is linked to all biological data at the feature plus species-level and human-use data at the feature-level. The LOCALHON data table provides the common Honduran name (NAME) for a given species. The items in this table include: ELEMENT, SPECIES_ID, NAME, and EL_SPE, which links to the SPECIES table. The LOCALNIC data table provides the common Nicaraguan name (NAME) for a given species. The items in this table include: ELEMENT, SPECIES_ID, NAME, and EL_SPE, which links to the SPECIES table. Due to the complexity of the relational database model, the biological data items are also 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/HONDURAS, NAME/NICARAGUA, NAME/ENGLISH, GEN_SPEC, S_F, T_E, CONC, SEASONALITY, RARNUM, G_SOURCE, S_SOURCE, and SEAS_ID. These items are the same as their counterparts in the individual files described above, with the exception of NAME/HONDURAS, NAME/NICARAGUA, NAME/ENGLISH, SEASONALITY, and SEAS_ID. NAME/HONDURAS is populated with the common Honduran name for each species, NAME/NICARAGUA is populated with the common Nicaraguan name for each species, and NAME/ENGLISH is populated with the common English name for each species. SEASONALITY identifies each species at a given location as one of the following: year-round resident population; migratory/seasonal population; resident and migratory population; or population/location of nesting/reproduction. SEAS_ID contains the numeric identifier for the life history characteristics of each species (1 = Year round resident population; 2 = Migratory/seasonal population; 3 = Resident and migratory population; 4 = Population/location of nesting/reproduction). The link to the BIOFILE may be made through BIO_LUT using ID, or it may be linked directly from the RARNUM in each of the biology cover's attribute files. A supporting data file is SOURCES. This is the same as the source file described above, and the link from the flat file is both G_SOURCE and S_SOURCE. It should be noted that although the flat file eases data query, it is not a normalized database structure, and actual updates performed by the states and other responsible agencies should be done using the relational files.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

The biological data sets are developed primarily using regional experts who estimate concentration areas. Unlike shorelines, which maintain relative spatial stability through time, the biological data by nature vary in distribution across the landscape. Therefore, the 1:50,000 topographic quadrangles are used as a basemap in gathering the data but the data have "fuzzy" boundaries which must be understood when utilizing this information.

Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Originator: Wainwright, F.
Publication_Date: Unpublished Material
Title: Expert knowledge of various resources in the Golfo deFonseca
Geospatial_Data_Presentation_Form: Expert knowledge

Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Interview Date
Source_Citation_Abbreviation: None
Source_Contribution: Fish Information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Secretaria de Recursos Naturales y Ambiente (SERNA)
Publication_Date: 1999
Title:
Propuesta de Declaratoria Corredor Biológico Mesoamericano Pacifico de Honduras
Geospatial_Data_Presentation_Form: Hard text, Digital polygons
Publication_Information:

Publication_Place: Tegucigalpa, M.D.C.
Publisher: SERNA
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1999
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Fish Information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Research Planning, Inc.
Publication_Date: 1998
Title:
Levantamiento y Mapeo de Indices de Sensibilidad Ambiental de El Salvador: Vol 2
Geospatial_Data_Presentation_Form: Hard maps, Hard text, Hard tables, Digital polygons
Publication_Information:

Publication_Place: Columbia, SC.
Publisher: Research Planning, Inc.
Source_Scale_Denominator: 50,000
Type_of_Source_Media: Paper

Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1998
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Fish information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Espinoza, J. and X. Rodriguez
Publication_Date: Unpublished Material
Title:
Expert knowledge of Turtle Nesting Sites and Artesanal Fishing and Invertebrates
Geospatial_Data_Presentation_Form: Expert knowledge
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Interview Date
Source_Citation_Abbreviation: None
Source_Contribution: Fish information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Com. Cent. de Ambiente y Desarrollo
Publication_Date: 1999
Title:
Diag. de los recursos naturals, socio. institucional de la zona costera
Geospatial_Data_Presentation_Form: Digital text
Publication_Information:

Publication_Place: San José, C. R.
Publisher: UICN/CCAD
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1999
Source_Currentness_Reference: Date of publication

Source_Citation_Abbreviation: None
Source_Contribution: Fish information
Source_Information:

Source_Citation:

Citation_Information:

Originator: CATIE
Publication_Date: 2000
Title:
Estrategia para el Desarrollo y la Conservación del Estero Real, Nicaragua
Geospatial_Data_Presentation_Form: Hard text, Hard maps
Publication_Information:

Publication_Place: Turrialba, C. R.
Publisher: CATIE/IDR
Source_Scale_Denominator: 400000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Fish information
Source_Information:

Source_Citation:

Citation_Information:

Originator: MARENA
Publication_Date: 1999
Title: Biodiversidad en Nicaragua: Un Estudio de Páis
Geospatial_Data_Presentation_Form: Hard text
Publication_Information:

Publication_Place: Managua, Nicaragua
Publisher: MARENA-PANIF
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1999
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Fish information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Cajina , O.
Publication_Date: Unpublished Material
Title: Proyecto Danida Manglares, Estero Real: Fauna
Geospatial_Data_Presentation_Form: Hard text
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1996
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Fish information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Estrada, N., C. Sorta, J. Antonio
Publication_Date: Unpublished Material
Title: Expert knowledge of Estero Real Area
Geospatial_Data_Presentation_Form: Expert knowledge
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Interview Date
Source_Citation_Abbreviation: None
Source_Contribution: Fish information
Process_Step:

Process_Description:
All the digital data were checked using both digital and on-screen procedures, plotted, checked by the biological expert, edited to remove any errors, and plotted for review by the regional specialists. The reviewed maps were updated on the computer, checked once again, and plotted at final map scale. A team of specialists reviewed the entire series of maps, checked all data, and made final edits. The data were merged to form the study-wide layers that are described in the document. The data merging included a final quality control check where topological consistency, rules for geography, and database to geography were checked and validated for all relationships.
Process_Date: 200102
Process_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: NOAA, Office of Response and Restoration
Contact_Person: Jill Petersen
Contact_Address:

Address_Type: Physical address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: jill_petersen@hazmat.noaa.gov.us

---

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: GT-polygon composed of rings
Point_and_Vector_Object_Count: 219
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Area point
Point_and_Vector_Object_Count: 219
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Complete chain
Point_and_Vector_Object_Count: 1486
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Link
Point_and_Vector_Object_Count: 519538
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Node, planar graph
Point_and_Vector_Object_Count: 1471

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Geographic:

Latitude_Resolution: 0.00005

Longitude_Resolution: 0.00005
Geographic_Coordinate_Units: Decimal degrees
Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1927
Ellipsoid_Name: Clarke 1866
Semi-major_Axis: 6378206.4
Denominator_of_Flattening_Ratio: 294.98

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: GT-polygon
Entity_Type_Definition:
The available literature on fish of the gulf is limited, and as a rule does not differentiate between locations or make habitat associations as to where different fish species are found. Finfish depicted in this atlas include selected species that were mapped based on habitat type. Two major categories were developed: open water gulf species, and estuarine and/or nearshore and/or mangrove associated species. This division considers three basic parameters: depth, salinity, and temperature. The estuarine and/or nearshore and/or mangrove associated species are usually subjected to greater temperature and salinity fluctuations (often due to the fact that the waters are shallower closer to shore, and due to freshwater runoff influence). Species of commercial, artesanal/subsistence, ecological, and/or conservation interest are emphasized.
Entity_Type_Definition_Source: Research Planning, Inc.
Attribute:

Attribute_Label: ID
Attribute_Definition:
A unique identifier that links to the BIO_LUT table. ID is a concatenation of atlas number (104), element number (2), and record number. ID values of 9999 are holes in polygons and do not contain information. The following FISH species are found in the Golfo de Fonseca ESI data set (SPECIES ID, GEN_SPEC): 116, Mugil cephalus; 119, Bairdiella chrysoura; 173, Mugil curema; 295, Hyporhamphus unifasciatus; 317, Carcharhinus leucas; 326, Sphyrna tiburo; 332, Galeocerdo cuvier; 384, Aetobatus narinari; 387, Diodon hystrix; 405, Opisthonema libertate; 411, Centropomus robalito; 413, Anableps dovii; 414, Arius sp.; 415, Bagre sp.; 431, Epinephelus analogus; 434, Cynoscion stolozmanni; 437, Bagre panamensis; 499, Scomberomorus spp.; 508, Centropomus spp.; 513, Hippocampus ingens; 518, Epinephelus itajara; 525, Albula vulpes; 545, Rhizoprionodon longurio; 568, Urotrygon asterias; 569, Dasyatis spp.; 570, Elops affinis; 571, Lile piquitinga; 572, Odontognathus compressus; 573, Pellona harroweri; 574, Chanos chanos; 575, Ariopsis sp.; 576, Tylosurus raphidoma; 577, Strongylura timuca; 578, Sphyraena guachancho; 579, Polydactylus approximans; 580, Centropomus pectinatus; 581, Centropomus poeyi; 582, Mycteroperca cidi; 583, Pseudobalistes sp.; 584, Batrachoides surinamensis; 585, Hemicaranx sp.; 586, Caranx vinctus; 587, Dormitator maculatus; 588, Chaetodipeterus zonatus; 589, Diapterus brevimanus; 590, Lutjanus colorado; 591, Lutjanus novemfasciatus; 592, Lobotes pacificus; 593, Anisotremus sp.; 594, Genuatremus sp.; 595, Pomadasys macracanthus; 596, Haemulon scuderi; 597,

Stellifer sp.; 598, Anchoa sp.; 599, Paralonchurus sp.; 600, Menticirrhus nasus; 601, Sphyraena ensis; 602, Sphoeroides sp.; 603, Carcharhinus porous; 604, Cynoscion squamipinnis; 605, Cynoscion phoxocephalus; 606, Cynoscion albus; 608, Pareques viola; 609, Bagre pinnimaculatus; 610, Parapsetus panamensis.

Attribute_Definition_Source: NOAA
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 1040200002
Range_Domain_Maximum: 1040200220
Attribute_Units_of_Measure: Ordered

Beginning_Date_of_Attribute_Values: 200102
Ending_Date_of_Attribute_Values: 200102

Attribute:

Attribute_Label: RARNUM
Attribute_Definition:
An identifier that links directly to the BIORES table or the flat format BIOFILE table.
Attribute_Definition_Source: NOAA
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 66
Range_Domain_Maximum: 75

Beginning_Date_of_Attribute_Values: 200102
Ending_Date_of_Attribute_Values: 200102

Distribution_Information:

Distributor:

Contact_Information:

Contact_Person_Primary:

Contact_Person: John Kaperick
Contact_Organization: NOAA, Office of Response and Restoration

Contact_Address:

Address_Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349

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

Resource_Description: ESI Atlas for Golfo de Fonseca, Honduras and Nicaragua
Distribution_Liability:
Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding

the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement copy of the product when the product is determined unreadable by computer-input peripherals, or when the physical medium is delivered in damaged condition.

Custom_Order_Process:

Contact NOAA for distribution options (see Distribution_Information).

Metadata_Reference_Information:

Metadata_Date: 200102
Metadata_Review_Date: 200102
Metadata_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Jill Petersen
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Position: GIS Manager
Contact_Address:

Address_Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: jill_petersen@hazmat.noaa.gov.us
Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

Golfo de Fonseca ESI; Honduras and Nicaragua: INVERT (Invertebrates)

Metadata:

Identification_Information:

Citation:

Citation_Information:

Originator:
United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.
Publication_Date: 200102
Title: Golfo de Fonseca ESI; Honduras and Nicaragua: INVERT (Invertebrates)
Edition: First
Geospatial_Data_Presentation_Form: Atlas
Series_Information:

Series_Name: None
Issue_Identification: Golfo de Fonseca
Publication_Information:

Publication_Place: Seattle, Washington
Publisher:
National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington
Other_Citation_Details:
Prepared by Research Planning, Inc., Columbia, South Carolina for the United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.

Description:

Abstract:

This data set comprises the Environmental Sensitivity Index (ESI) data for Golfo de Fonseca. ESI data characterize estuarine 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. This data set contains sensitive biological resource data for invertebrates.

Purpose:

The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response and for coastal zone planning and management.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 200001
Ending_Date: 200102

Currentness_Reference: Project time span

Status:

Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -87.875
East_Bounding_Coordinate: -87.000
North_Bounding_Coordinate: 13.500
South_Bounding_Coordinate: 12.750

Keywords:

Theme:

Theme_Keyword_Thesaurus: None
Theme_Keyword: ESI
Theme_Keyword: Sensitivity maps
Theme_Keyword: Coastal resources
Theme_Keyword: Oil spill planning
Theme_Keyword: Coastal zone management
Theme_Keyword: Invertebrate
Theme_Keyword: Shellfish
Theme_Keyword: Bivalve
Theme_Keyword: Cephalopod
Theme_Keyword: Crab
Theme_Keyword: Gastropod
Theme_Keyword: Lobster
Theme_Keyword: Shrimp

Place:

Place_Keyword_Thesaurus: None
Place_Keyword: Gulf of Fonseca
Place_Keyword: Golfo de Fonseca
Place_Keyword: Pacific coast of Honduras
Place_Keyword: Pacific coast of Nicaragua
Place_Keyword: Honduras

Place_Keyword: Nicaragua

Access_Constraints: None

Use_Constraints:

DO NOT USE 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 Data_Set_Credit (below) would be appreciated in products derived from these data.

Browse_Graphic:

Browse_Graphic_File_Name: fonsecadatafig.jpg

Browse_Graphic_File_Description:

Relationships between spatial data layers and attribute data tables for the Golfo de Fonseca data.

Browse_Graphic_File_Type: JPEG

Data_Set_Credit:

This project was supported by United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.

Native_Data_Set_Environment:

The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 8.0.2) and ORACLE(r) RDBMS (version 8.0.5.0.0). The hardware configuration is Hewlett Packard workstations (models 715/50 and 712/80i with 4 X-terminals) with UNIX operating system (HP-UX Release A.10.20). The following files are included in the data set: bio_lut.e00, biofile.e00, biores.e00, birds.e00, esi.e00, fish.e00, hydro.e00, index.e00, invert.e00, mgt.e00, m_mammal.e00, reptiles.e00, saltpond.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00.

Data_Quality_Information:

Attribute_Accuracy:

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.

Logical_Consistency_Report:

The digitization of shoreline types, biological resources, and human-use resources is a complex and highly quality-controlled process. Existing digital shoreline and wetlands data are integrated into a study-wide basemap. In order to facilitate digitizing, the entire study area is split into individual quadrangles using the INDEX data layer. The first layer of information digitized is the ESI shoreline classification. The ESI habitat ranking is compiled onto 1:50,000 topographic quadrangles by a geomorphologist. The hardcopy maps are then digitized and checked, using both on-screen and hardcopy reviews. The edited maps are updated, checked once again for completeness and topological and logical consistency. Any errors in the shoreline classification are updated prior to digitization of the biological reference so that there are no slivers in the geographic coordinates. The hardcopy biological information is compiled onto 1:50,000 topographic quadrangles by a biological expert using data from regional specialists in the form of maps, tables, charts, written descriptions of wildlife distributions, and personal interviews. Concurrently, digital data sources are imported, projected, checked for quality control, and integrated into the data structure. The hardcopy data are digitized, checked using both digital and on-screen procedures, integrated with existing data, plotted,

and sent out for review by the regional specialists. The edited maps are updated, checked once again, and the final product plotted (at approximately 1:50,000 scale). A team of specialists 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 data layer is checked using a standardized form by two GIS personnel (a technician and the GIS manager), and each attribute database is checked using several programs that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and ORACLE (r) and ARC/INFO (r) consistencies. A final review is made by the GIS manager, where the data are written to tape and the metadata are written. After the data are delivered to NOAA, they are again subjected to a number of quality and consistency checks. In the process of checking for topological and database consistencies, new IDs and RARNUMs or HUNUMs are also generated. The new IDs are a combination of atlas number, element number, and record number. In addition, the value used to represent the element is modified to reflect the type of feature being mapped. In the case of an element that is normally represented by a point or polygon, a value of 20 is added to the standard element value for mapping of linear features. In the case where an element usually mapped as a polygon is represented by a point, a value of 30 is added to the regular element value. The RARNUMs and HUNUMS are modified to be unique to each element. ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the CDs for ease of use of the ESI data. The database files are distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats. The section Spatial_Data_Organization_Information refers to the source files in ARC export format only.

Completeness_Report:

Biological information presented in this atlas was collected and compiled with the assistance of biologists from SERNA (Secretaria Nacional de Recursos Naturales de Honduras) in Honduras and MARENA (Ministerio del Ambiente y Recursos Naturales de Nicaragua) in Nicaragua, and various other agencies, organizations, and groups. Information collected and depicted on the maps denotes 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, invertebrates, marine mammals, terrestrial mammals, and reptiles/amphibians. The ELEMENTs generally correspond to the coverage or geographic data layer names. There are also six attribute or data tables, BIORES, LOCALHON, LOCALNIC, SOURCES, SPECIES, and STATUS, that are used to store the complex biological data. The biological polygons (INVERT) are linked to the Biological Resources table (BIORES) using the unique ID and the lookup table BIO_LUT, or they can be linked directly using RARNUM. [The ID is a unique combination of the atlas number (for Golfo de Fonseca this is 104), an element specific number (birds are layer 1, fish are layer 2, etc.) and a unique record number. The RARNUM represents a unique combination of species, seasonalities, concentrations, and source information. For each of these groupings, a number is generated.] 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 (BAJO = low, MEDIO = medium, ALTO = high, etc.) or an actual count of the number of individuals or nests associated with a polygon. SEASON_ID contains a numeric identifier for the life history characteristics of each species at a given location (1 = Year round resident population; 2 = Migratory/seasonal population; 3 = Resident and migratory population; 4 = Population/location of nesting/reproduction). G_SOURCE contains the SOURCE_ID for geographic information, and S_SOURCE contains the SOURCE_ID for seasonality information. Both items link to the SOURCES data table. EL_SPE is a concatenation of ELEMENT and SPECIES_ID and links to the SPECIES and STATUS tables. EL_SPE_SEA is a concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. The SPECIES data table contains the SPECIES_ID (described above), common English name (NAME), scientific name (GEN_SPEC), biological element (ELEMENT), biological subelement (SUBELEMENT), the Natural Heritage Program (NHP) global conservation status rank (not used in this atlas), the date the list of NHP ranks was published (DATE_PUB) (not used in this atlas), and EL_SPE, which links back to the BIORES and

STATUS tables. The item SUBELEMENT refers to the grouping of the species: (ELEMENT, subelement): INVERT: bivalve, cephalopod, crab, gastropod, lobster, shrimp. The STATUS data table contains records for each species that is threatened or endangered in either Honduras and/or Nicaragua. The items include: ELEMENT, SPECIES_ID, STATE (two-letter state abbreviation; not populated in this atlas), S_F (jurisdiction; N=Nicaragua, H=Honduras), T_E (status; A=Amenazado, E=En Peligro), DATE_PUB (the date when the given amenazado or en peligro listings were in effect), and EL_SPE. The SOURCES data table contains metadata for each biological and human-use source listed in the ESI atlas. The items in SOURCES include: SOURCE_ID; ORIGINATOR (author); DATE_PUB (date of publication); TITLE (title of the data set); DATA_FORMAT (digital type, hardcopy maps, etc.); PUBLICATION (additional citation); SCALE (source scale denominator); and TIME_PERIOD (beginning and ending dates of original data collection). The SOURCES data table is linked to all biological data at the feature plus species-level and human-use data at the feature-level. The LOCALHON data table provides the common Honduran name (NAME) for a given species. The items in this table include: ELEMENT, SPECIES_ID, NAME, and EL_SPE, which links to the SPECIES table. The LOCALNIC data table provides the common Nicaraguan name (NAME) for a given species. The items in this table include: ELEMENT, SPECIES_ID, NAME, and EL_SPE, which links to the SPECIES table. Due to the complexity of the relational database model, the biological data items are also 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/HONDURAS, NAME/NICARAGUA, NAME/ENGLISH, GEN_SPEC, S_F, T_E, CONC, SEASONALITY, RARNUM, G_SOURCE, S_SOURCE, and SEAS_ID. These items are the same as their counterparts in the individual files described above, with the exception of NAME/HONDURAS, NAME/NICARAGUA, NAME/ENGLISH, SEASONALITY, and SEAS_ID. NAME/HONDURAS is populated with the common Honduran name for each species, NAME/NICARAGUA is populated with the common Nicaraguan name for each species, and NAME/ENGLISH is populated with the common English name for each species. SEASONALITY identifies each species at a given location as one of the following: year-round resident population; migratory/seasonal population; resident and migratory population; or population/location of nesting/reproduction. SEAS_ID contains the numeric identifier for the life history characteristics of each species (1 = Year round resident population; 2 = Migratory/seasonal population; 3 = Resident and migratory population; 4 = Population/location of nesting/reproduction). The link to the BIOFILE may be made through BIO_LUT using ID, or it may be linked directly from the RARNUM in each of the biology cover's attribute files. A supporting data file is SOURCES. This is the same as the source file described above, and the link from the flat file is both G_SOURCE and S_SOURCE. It should be noted that although the flat file eases data query, it is not a normalized database structure, and actual updates performed by the states and other responsible agencies should be done using the relational files.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

The biological data sets are developed primarily using regional experts who estimate concentration areas. Unlike shorelines, which maintain relative spatial stability through time, the biological data by nature vary in distribution across the landscape. Therefore, the 1:50,000 topographic quadrangles are used as a basemap in gathering the data but the data have "fuzzy" boundaries which must be understood when utilizing this information.

Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Originator: Wainwright, F.

Publication_Date: Unpublished Material
Title: Expert knowledge of various resources in the Golfo de Fonseca
Geospatial_Data_Presentation_Form: Expert knowledge
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Interview Date
Source_Citation_Abbreviation: None
Source_Contribution: Crab information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Research Planning, Inc.
Publication_Date: 1998
Title:
Levantamiento y Mapeo de Indices de Sensibilidad Ambiental de El Salvador: Vol 2
Geospatial_Data_Presentation_Form: Hard maps, Hard text, Hard tables, Digital polygons
Publication_Information:

Publication_Place: Columbia, SC.
Publisher: Research Planning, Inc.
Source_Scale_Denominator: 50,000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1998
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Crab information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Espinoza, J. and X. Rodriguez
Publication_Date: Unpublished Material
Title:
Expert knowledge of Turtle Nesting Sites and Artesanal Fishing and Invertebrates
Geospatial_Data_Presentation_Form: Expert knowledge
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Interview Date
Source_Citation_Abbreviation: None
Source_Contribution: Crab information
Source_Information:

Source_Citation:

Citation_Information:

Originator: CATIE
Publication_Date: 2000
Title:
Estrategia para el Desarrollo y la Conservación del Estero Real, Nicaragua
Geospatial_Data_Presentation_Form: Hard text, Hard maps
Publication_Information:

Publication_Place: Turrialba, C. R.
Publisher: CATIE/IDR
Source_Scale_Denominator: 400,000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Crab information
Source_Information:

Source_Citation:

Citation_Information:

Originator: MARENA
Publication_Date: 1999
Title: Biodiversidad en Nicaragua: Un Estudio de Páis
Geospatial_Data_Presentation_Form: Hard text
Publication_Information:

Publication_Place: Managua, Nicaragua
Publisher: MARENA-PANIF
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1999
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Crab information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Cajina , O.
Publication_Date: Unpublished Material
Title: Proyecto Danida Manglares, Estero Real: Fauna
Geospatial_Data_Presentation_Form: Hard text
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1996
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Crab information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Gonzales, L., M. Molina, M. Lacayo
Publication_Date: Unpublished Material
Title: Expert knowledge of Estero Real Area
Geospatial_Data_Presentation_Form: Expert knowledge
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Interview Date
Source_Citation_Abbreviation: None
Source_Contribution: Invertebrate information
Process_Step:

Process_Description:
All the digital data were checked using both digital and on-screen procedures, plotted, checked by the biological expert, edited to remove any errors, and plotted for review by the regional specialists. The reviewed maps were updated on the computer, checked once again, and plotted at final map scale. A team of specialists reviewed the entire series of maps, checked all data, and made final edits. The data were merged to form the study-wide layers that are described in the document. The data merging included a final quality control check where topological consistency, rules for

geography, and database to geography were checked and validated for all relationships.
Process_Date: 200102
Process_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: NOAA, Office of Response and Restoration
Contact_Person: Jill Petersen
Contact_Address:

Address_Type: Physical address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: jill_petersen@hazmat.noaa.gov.us

---

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: GT-polygon composed of rings
Point_and_Vector_Object_Count: 1059
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Area point
Point_and_Vector_Object_Count: 1059
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Complete chain
Point_and_Vector_Object_Count: 4375
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Link
Point_and_Vector_Object_Count: 1220440
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Node, planar graph
Point_and_Vector_Object_Count: 3661

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Geographic:

Latitude_Resolution: 0.00005
Longitude_Resolution: 0.00005
Geographic_Coordinate_Units: Decimal degrees
Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1927
Ellipsoid_Name: Clarke 1866
Semi-major_Axis: 6378206.4
Denominator_of_Flattening_Ratio: 294.98

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: GT-polygon
Entity_Type_Definition:
Invertebrate species of artesanal, subsistence, commercial, ecological, and/or conservation interest are emphasized. The available literature on invertebrates of the gulf is limited, and as a rule does not differentiate between locations or describe habitat associations. Invertebrates depicted in this atlas include selected species that were mapped based on habitat type. Invertebrate areas depicted in this atlas were divided into four major categories: selected marine/open water gulf species, nearshore species, mud flat species, and mangrove/estuarine species.
Entity_Type_Definition_Source: Research Planning, Inc.
Attribute:

Attribute_Label: ID
Attribute_Definition:
A unique identifier that links to the BIO_LUT table. ID is a concatenation of atlas number (104), element number (7), and record number. ID values of 9999 are holes in polygons and do not contain information. The following INVERT species are found in the Golfo de Fonseca ESI data set (SPECIES ID, GEN_SPEC): 92, Penaeus spp.; 124, Octopus vulgaris; 125, Donax spp.; 126, Callinectes spp.; 131, Ostrea spp.; 132, Pinctada mazatlanica; 133, Penaeus stylirostris; 134, Anadara grandis; 135, Anadara similis; 136, Anadara tuberculosa; 139, Mytella sp.; 142, Ostrea corteziensis; 143, Ostrea iridescens; 144, Ostrea palmula; 147, Cardisoma crassum; 148, Menippe frontalis; 149, Ucides occidentalis; 166, Panulirus gracilis; 168, Macrobrachium tenellum; 169, Penaeus vannamei; 218, Pagurus spp.; 279, Xiphopenaeus riveti; 280, Trachypenaeus similis pacificus; 281, Loliolopsis diomedeae; 323, Panulirus inflatus; 325, Penaeus brevirostris; 326, Penaeus californiensis; 327, Penaeus occidentalis; 328, Trachypenaeus byrdi; 329, Trachypenaeus faoe; 330, Trachypenaeus fuscina; 331, Haliporoides diomedeae; 332, Calappa convexa; 333, Mursia gaudichaudii; 334, Arenaeus mexicanus; 335, Enphylax dovii; 336, Eurytium affine; 337, Gecarcinus

quadratus; 338, Clibanarius panamensis; 339, Anadara multicostata; 340, Anadara nux; 341, Strombus galeatus; 342, Strombus glacilior; 343, Strombus peruvianus; 344, Panulirus spp.; 345, Callinectes arcuatus; 346, Callinectes toxotes; 347, Portunus panamensis; 348, Panopeus herbstedii; 349, Melongena patula; 350, Lithodes panamensis; 351, Macrobrachium americanum; 352, Cancer johngarthi; 353, Coenobita compressa; 354, Emerita analoga; 355, Chama frondosa; 356, Munida sp.; 357, Emerita rathbunae; 358, Ostrea angelica; 359, Ostrea columbiensis; 360, Ostrea conchaphila; 361, Ostrea fisheri; 362, Ostrea megodon; 363, Chama echinata; 364, Chama buddiana; 365, Munidopsis sp.

Attribute_Definition_Source: NOAA
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 1040700002
Range_Domain_Maximum: 1040701068
Attribute_Units_of_Measure: Ordered

Beginning_Date_of_Attribute_Values: 200102
Ending_Date_of_Attribute_Values: 200102

Attribute:

Attribute_Label: RARNUM
Attribute_Definition:
An identifier that links directly to the BIORES table or the flat format BIOFILE table.
Attribute_Definition_Source: NOAA
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 76
Range_Domain_Maximum: 142

Beginning_Date_of_Attribute_Values: 200102
Ending_Date_of_Attribute_Values: 200102

Distribution_Information:

Distributor:

Contact_Information:

Contact_Person_Primary:

Contact_Person: John Kaperick
Contact_Organization: NOAA, Office of Response and Restoration

Contact_Address:

Address_Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349

Contact_Voice_Telephone: (206) 526-6400

Contact_Facsimile_Telephone: (206) 526-6329
Resource_Description: ESI Atlas for Golfo de Fonseca, Honduras and Nicaragua
Distribution_Liability:
Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement copy of the product when the product is determined unreadable by computer-input peripherals, or when the physical medium is delivered in damaged condition.
Custom_Order_Process:
Contact NOAA for distribution options (see Distribution_Information).

Metadata_Reference_Information:

Metadata_Date: 200102
Metadata_Review_Date: 200102
Metadata_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Jill Petersen
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Position: GIS Manager
Contact_Address:

Address_Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: jill_petersen@hazmat.noaa.gov.us
Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

Golfo de Fonseca ESI; Honduras and Nicaragua: M_MAMMAL (Marine Mammals)

Metadata:

Identification_Information:

Citation:

Citation_Information:

Originator:
United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.
Publication_Date: 200102
Title: Golfo de Fonseca ESI; Honduras and Nicaragua: M_MAMMAL (Marine Mammals)
Edition: First
Geospatial_Data_Presentation_Form: Atlas
Series_Information:

Series_Name: None
Issue_Identification: Golfo de Fonseca
Publication_Information:

Publication_Place: Seattle, Washington
Publisher:
National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington
Other_Citation_Details:
Prepared by Research Planning, Inc., Columbia, South Carolina for the United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.

Description:

Abstract:

This data set comprises the Environmental Sensitivity Index (ESI) data for Golfo de Fonseca. ESI data characterize estuarine 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. This data set contains sensitive biological resource data for marine mammals.

Purpose:

The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response and for coastal zone planning and management.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 200001
Ending_Date: 200102

Currentness_Reference: Project time span

Status:

Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -87.875
East_Bounding_Coordinate: -87.000
North_Bounding_Coordinate: 13.500
South_Bounding_Coordinate: 12.750

Keywords:

Theme:

Theme_Keyword_Thesaurus: None
Theme_Keyword: ESI
Theme_Keyword: Sensitivity maps
Theme_Keyword: Coastal resources
Theme_Keyword: Oil spill planning
Theme_Keyword: Coastal zone management
Theme_Keyword: Marine mammal
Theme_Keyword: Dolphin

Place:

Place_Keyword_Thesaurus: None
Place_Keyword: Gulf of Fonseca
Place_Keyword: Golfo de Fonseca
Place_Keyword: Pacific coast of Honduras
Place_Keyword: Pacific coast of Nicaragua
Place_Keyword: Honduras
Place_Keyword: Nicaragua

Access_Constraints: None

Use_Constraints:

DO NOT USE 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 Data_Set_Credit (below) would be appreciated in products derived from these data.

Browse_Graphic:

Browse_Graphic_File_Name: fonsecadatafig.jpg
Browse_Graphic_File_Description:
Relationships between spatial data layers and attribute data tables for the Golfo de Fonseca data.
Browse_Graphic_File_Type: JPEG

Data_Set_Credit:
This project was supported by United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.

Native_Data_Set_Environment:
The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 8.0.2) and ORACLE(r) RDBMS (version 8.0.5.0.0). The hardware configuration is Hewlett Packard workstations (models 715/50 and 712/80i with 4 X-terminals) with UNIX operating system (HP-UX Release A.10.20). The following files are included in the data set: bio_lut.e00, biofile.e00, biores.e00, birds.e00, esi.e00, fish.e00, hydro.e00, index.e00, invert.e00, mgt.e00, m_mammal.e00, reptiles.e00, saltpond.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00.

Data_Quality_Information:

Attribute_Accuracy:

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.

Logical_Consistency_Report:
The digitization of shoreline types, biological resources, and human-use resources is a complex and highly quality-controlled process. Existing digital shoreline and wetlands data are integrated into a study-wide basemap. In order to facilitate digitizing, the entire study area is split into individual quadrangles using the INDEX data layer. The first layer of information digitized is the ESI shoreline classification. The ESI habitat ranking is compiled onto 1:50,000 topographic quadrangles by a geomorphologist. The hardcopy maps are then digitized and checked, using both on-screen and hardcopy reviews. The edited maps are updated, checked once again for completeness and topological and logical consistency. Any errors in the shoreline classification are updated prior to digitization of the biological reference so that there are no slivers in the geographic coordinates. The hardcopy biological information is compiled onto 1:50,000 topographic quadrangles by a biological expert using data from regional specialists in the form of maps, tables, charts, written descriptions of wildlife distributions, and personal interviews. Concurrently, digital data sources are imported, projected, checked for quality control, and integrated into the data structure. The hardcopy data are digitized, checked using both digital and on-screen procedures, integrated with existing data, plotted, and sent out for review by the regional specialists. The edited maps are updated, checked once again, and the final product plotted (at approximately 1:50,000 scale). A team of specialists 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 data layer is checked using a standardized form by two GIS personnel (a technician and the GIS manager), and

each attribute database is checked using several programs that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and ORACLE (r) and ARC/INFO (r) consistencies. A final review is made by the GIS manager, where the data are written to tape and the metadata are written. After the data are delivered to NOAA, they are again subjected to a number of quality and consistency checks. In the process of checking for topological and database consistencies, new IDs and RARNUMs or HUNUMs are also generated. The new IDs are a combination of atlas number, element number, and record number. In addition, the value used to represent the element is modified to reflect the type of feature being mapped. In the case of an element that is normally represented by a point or polygon, a value of 20 is added to the standard element value for mapping of linear features. In the case where an element usually mapped as a polygon is represented by a point, a value of 30 is added to the regular element value. The RARNUMs and HUNUMS are modified to be unique to each element. ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the CDs for ease of use of the ESI data. The database files are distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats. The section Spatial_Data_Organization_Information refers to the source files in ARC export format only.

Completeness_Report:

Biological information presented in this atlas was collected and compiled with the assistance of biologists from the SERNA (Secretaria Nacional de Recursos Naturales de Honduras) in Honduras and MARENA (Ministerio del Ambiente y Recursos Naturales de Nicaragua) in Nicaragua, and various other agencies, organizations, and groups. Information collected and depicted on the maps denotes 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, invertebrates, marine mammals, terrestrial mammals, and reptiles/amphibians. The ELEMENTs generally correspond to the coverage or geographic data layer names. There are also six attribute or data tables, BIORES, LOCALHON, LOCALNIC, SOURCES, SPECIES, and STATUS, that are used to store the complex biological data. The biological polygons (M_MAMMAL) are linked to the Biological Resources table (BIORES) using the unique ID and the lookup table BIO_LUT, or they can be linked directly using RARNUM. [The ID is a unique combination of the atlas number (for Golfo de Fonseca this is 104), an element specific number (birds are layer 1, fish are layer 2, etc.) and a unique record number. The RARNUM represents a unique combination of species, seasonalities, concentrations, and source information. For each of these groupings, a number is generated.] 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 (BAJO = low, MEDIO = medium, ALTO = high, etc.) or an actual count of the number of individuals or nests associated with a polygon. SEASON_ID contains a numeric identifier for the life history characteristics of each species at a given location (1 = Year round resident population; 2 = Migratory/seasonal population; 3 = Resident and migratory population; 4 = Population/location of nesting/reproduction). G_SOURCE contains the SOURCE_ID for geographic information, and S_SOURCE contains the SOURCE_ID for seasonality information. Both items link to the SOURCES data table. EL_SPE is a concatenation of ELEMENT and SPECIES_ID and links to the SPECIES and STATUS tables. EL_SPE_SEA is a concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. The SPECIES data table contains the SPECIES_ID (described above), common English name (NAME), scientific name (GEN_SPEC), biological element (ELEMENT), biological subelement (SUBELEMENT), the Natural Heritage Program (NHP) global conservation status rank (not used in this atlas), the date the list of NHP ranks was published (DATE_PUB) (not used in this atlas), and EL_SPE, which links back to the BIORES and STATUS tables. The item SUBELEMENT refers to the grouping of the species: (ELEMENT, subelement): M_MAMMAL: dolphin. The STATUS data table contains records for each species that is threatened or endangered in either Honduras and/or Nicaragua. The items include: ELEMENT, SPECIES_ID, STATE (two-letter state abbreviation; not populated in this atlas), S_F (jurisdiction; N=Nicaragua, H=Honduras), T_E (status; A=Amenazado, E=En Peligro), DATE_PUB (the date when the given amenazado or en peligro listings were in effect), and EL_SPE. The SOURCES data

table contains metadata for each biological and human-use source listed in the ESI atlas. The items in SOURCES include: SOURCE_ID; ORIGINATOR (author); DATE_PUB (date of publication); TITLE (title of the data set); DATA_FORMAT (digital type, hardcopy maps, etc.); PUBLICATION (additional citation); SCALE (source scale denominator); and TIME_PERIOD (beginning and ending dates of original data collection). The SOURCES data table is linked to all biological data at the feature plus species-level and human-use data at the feature-level. The LOCALHON data table provides the common Honduran name (NAME) for a given species. The items in this table include: ELEMENT, SPECIES_ID, NAME, and EL_SPE, which links to the SPECIES table. The LOCALNIC data table provides the common Nicaraguan name (NAME) for a given species. The items in this table include: ELEMENT, SPECIES_ID, NAME, and EL_SPE, which links to the SPECIES table. Due to the complexity of the relational database model, the biological data items are also 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/HONDURAS, NAME/NICARAGUA, NAME/ENGLISH, GEN_SPEC, S_F, T_E, CONC, SEASONALITY, RARNUM, G_SOURCE, S_SOURCE, and SEAS_ID. These items are the same as their counterparts in the individual files described above, with the exception of NAME/HONDURAS, NAME/NICARAGUA, NAME/ENGLISH, SEASONALITY, and SEAS_ID. NAME/HONDURAS is populated with the common Honduran name for each species, NAME/NICARAGUA is populated with the common Nicaraguan name for each species, and NAME/ENGLISH is populated with the common English name for each species. SEASONALITY identifies each species at a given location as one of the following: year-round resident population; migratory/seasonal population; resident and migratory population; or population/location of nesting/reproduction. SEAS_ID contains the numeric identifier for the life history characteristics of each species (1 = Year round resident population; 2 = Migratory/seasonal population; 3 = Resident and migratory population; 4 = Population/location of nesting/reproduction). The link to the BIOFILE may be made through BIO_LUT using ID, or it may be linked directly from the RARNUM in each of the biology cover's attribute files. A supporting data file is SOURCES. This is the same as the source file described above, and the link from the flat file is both G_SOURCE and S_SOURCE. It should be noted that although the flat file eases data query, it is not a normalized database structure, and actual updates performed by the states and other responsible agencies should be done using the relational files.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:
The biological data sets are developed primarily using regional experts who estimate concentration areas. Unlike shorelines, which maintain relative spatial stability through time, the biological data by nature vary in distribution across the landscape. Therefore, the 1:50,000 topographic quadrangles are used as a basemap in gathering the data but the data have "fuzzy" boundaries which must be understood when utilizing this information.

Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Originator: Wainwright, F.
Publication_Date: Unpublished Material
Title: Expert knowledge of various resources in the Golfo de Fonseca
Geospatial_Data_Presentation_Form: Expert knowledge
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Interview Date
Source_Citation_Abbreviation: None
Source_Contribution: Marine mammal information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Beletsky, L.
Publication_Date: 1999
Title: Tropical Mexico: The Ecotraveller's Wildlife guide
Geospatial_Data_Presentation_Form: Hard text
Publication_Information:

Publication_Place: San Francisco, CA
Publisher: Academic Press
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1999
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Marine mammal information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Research Planning, Inc.
Publication_Date: 1998
Title:
Levantamiento y Mapeo de Indices de Sensibilidad Ambiental de El Salvador: Vol 2
Geospatial_Data_Presentation_Form: Hard maps, Hard text, Hard tables, Digital polygons
Publication_Information:

Publication_Place: Columbia, SC.
Publisher: Research Planning, Inc.
Source_Scale_Denominator: 50000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1998
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Marine mammal information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Espinoza, J. and X. Rodriguez
Publication_Date: Unpublished Material
Title:
Expert knowledge of Turtle Nesting Sites and Artesanal Fishing and Invertebrates
Geospatial_Data_Presentation_Form: Expert knowledge
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Interview Date
Source_Citation_Abbreviation: None
Source_Contribution: Marine mammal information
Process_Step:

Process_Description:
All the digital data were checked using both digital and on-screen procedures, plotted, checked by the biological expert, edited to remove any errors, and plotted for review by the regional specialists. The reviewed maps were updated on the computer, checked once again, and plotted at final map scale. A team of specialists reviewed the entire series of maps, checked all data, and made final edits. The data were merged to form the study-wide layers that are described in the document. The data merging included a final quality control check where topological consistency, rules for geography, and database to geography were checked and validated for all relationships.
Process_Date: 200102
Process_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: NOAA, Office of Response and Restoration
Contact_Person: Jill Petersen
Contact_Address:

Address_Type: Physical address
Address: 7600 Sand Point Way N.E
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944

Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: jill_petersen@hazmat.noaa.gov.us

---

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: GT-polygon composed of rings
Point_and_Vector_Object_Count: 25
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Area point
Point_and_Vector_Object_Count: 25
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Complete chain
Point_and_Vector_Object_Count: 116
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Link
Point_and_Vector_Object_Count: 43480
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Node, planar graph
Point_and_Vector_Object_Count: 116

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Geographic:

Latitude_Resolution: 0.00005
Longitude_Resolution: 0.00005
Geographic_Coordinate_Units: Decimal degrees
Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1927
Ellipsoid_Name: Clarke 1866
Semi-major_Axis: 6378206.4
Denominator_of_Flattening_Ratio: 294.98

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: GT-polygon
Entity_Type_Definition:
Marine mammals depicted in the Golfo de Fonseca are limited to three species of dolphins, Stenella attenata (spotted dolphin - delfín machado), Stenella longirostris (spinner dolphin - bufeo), and Tursiops truncatus (bottlenose dolphin - delfín gris o nariz de botella) which are widespread in the gulf. T. truncatus is probably the most common of the three species. These can occur year-round throughout the Golfo de Fonseca but are, as a rule, more abundant in the open waters of the gulf and near the general entrances to the small bays. Both S. attenata and S. longirostris are on Nicaragua's threatened (anemazadas) list. Though there is a lack of information, it is recognized that whales may be present in the Golfo de Fonseca, but their distribution is often limited to the open water areas near the entrance of the gulf.
Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:

Attribute_Label: ID
Attribute_Definition:
A unique identifier that links to the BIO_LUT table. ID is a concatenation of atlas number (104), element number (4), and record number. ID values of 9999 are holes in polygons and do not contain information. The following MARINE MAMMAL species are found in the Golfo de Fonseca ESI data set (SPECIES ID, GEN_SPEC): 17, Tursiops truncatus; 49, Stenella attenuata; 50, Stenella longirostris.
Attribute_Definition_Source: NOAA
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 1040400002
Range_Domain_Maximum: 1040400006
Attribute_Units_of_Measure: Ordered
Beginning_Date_of_Attribute_Values: 200102
Ending_Date_of_Attribute_Values: 200102

Attribute:

Attribute_Label: RARNUM
Attribute_Definition:
An identifier that links directly to the BIORES table or the flat format BIOFILE table.
Attribute_Definition_Source: NOAA
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 1
Range_Domain_Maximum: 143
Beginning_Date_of_Attribute_Values: 200102
Ending_Date_of_Attribute_Values: 200102

Distribution_Information:

Distributor:

Contact_Information:

Contact_Person_Primary:

Contact_Person: John Kaperick
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Address:

Address_Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6400
Contact_Facsimile_Telephone: (206) 526-6329
Resource_Description: ESI Atlas for Golfo de Fonseca, Honduras and Nicaragua
Distribution_Liability:
Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement copy of the product when the product is determined unreadable by computer-input peripherals, or when the physical medium is delivered in damaged condition.
Custom_Order_Process:
Contact NOAA for distribution options (see Distribution_Information).

Metadata_Reference_Information:

Metadata_Date: 200102
Metadata_Review_Date: 200102
Metadata_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Jill Petersen
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Position: GIS Manager
Contact_Address:

Address_Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington

Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: jill_petersen@hazmat.noaa.gov.us
Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

Golfo de Fonseca ESI; Honduras and Nicaragua: REPTILES (Reptiles and Amphibians)

Metadata:

Identification_Information:

Citation:

Citation_Information:

Originator:
United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.
Publication_Date: 200102
Title:
Golfo de Fonseca ESI; Honduras and Nicaragua: REPTILES (Reptiles and Amphibians)
Edition: First
Geospatial_Data_Presentation_Form: Atlas
Series_Information:

Series_Name: None
Issue_Identification: Golfo de Fonseca
Publication_Information:

Publication_Place: Seattle, Washington
Publisher:
National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington
Other_Citation_Details:
Prepared by Research Planning, Inc., Columbia, South Carolina for the United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International

Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.

Description:

Abstract:

This data set comprises the Environmental Sensitivity Index (ESI) data for Golfo de Fonseca. ESI data characterize estuarine 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. This data set contains sensitive biological resource data for reptiles and amphibians.

Purpose:

The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response and for coastal zone planning and management.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 200001
Ending_Date: 200102

Currentness_Reference: Project time span

Status:

Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -87.875
East_Bounding_Coordinate: -87.000
North_Bounding_Coordinate: 13.500
South_Bounding_Coordinate: 12.750

Keywords:

Theme:

Theme_Keyword_Thesaurus: None
Theme_Keyword: ESI
Theme_Keyword: Sensitivity maps
Theme_Keyword: Coastal resources
Theme_Keyword: Oil spill planning
Theme_Keyword: Coastal zone management
Theme_Keyword: Reptile
Theme_Keyword: Amphibian
Theme_Keyword: Alligator
Theme_Keyword: Lizard
Theme_Keyword: Snake
Theme_Keyword: Turtle

Place:

Place_Keyword_Thesaurus: None
Place_Keyword: Gulf of Fonseca
Place_Keyword: Golfo de Fonseca
Place_Keyword: Pacific coast of Honduras

Place_Keyword: Pacific coast of Nicaragua
Place_Keyword: Honduras
Place_Keyword: Nicaragua

Access_Constraints: None

Use_Constraints:
DO NOT USE 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 Data_Set_Credit (below) would be appreciated in products derived from these data.

Browse_Graphic:

Browse_Graphic_File_Name: fonsecadatafig.jpg
Browse_Graphic_File_Description:
Relationships between spatial data layers and attribute data tables for the Golfo de Fonseca data.
Browse_Graphic_File_Type: JPEG

Data_Set_Credit:
This project was supported by the United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.

Native_Data_Set_Environment:
The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 8.0.2) and ORACLE(r) RDBMS (version 8.0.5.0.0). The hardware configuration is Hewlett Packard workstations (models 715/50 and 712/80i with 4 X-terminals) with UNIX operating system (HP-UX Release A.10.20). The following files are included in the data set: bio_lut.e00, biofile.e00, biores.e00, birds.e00, esi.e00, fish.e00, hydro.e00, index.e00, invert.e00, mgt.e00, m_mammal.e00, reptiles.e00, saltpond.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00.

Data_Quality_Information:

Attribute_Accuracy:

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.

Logical_Consistency_Report:
The digitization of shoreline types, biological resources, and human-use resources is a complex and highly quality-controlled process. Existing digital shoreline and wetlands data are integrated into a study-wide basemap. In order to facilitate digitizing, the entire study area is split into individual quadrangles using the INDEX data layer. The first layer of information digitized is the ESI shoreline classification. The ESI habitat ranking is compiled onto 1:50,000 topographic quadrangles by a geomorphologist. The hardcopy maps are then digitized and checked, using both on-screen and hardcopy reviews. The edited maps are updated, checked once again for completeness and topological and logical consistency. Any errors in the shoreline classification are updated prior to digitization of the biological reference so that there are no slivers in the geographic coordinates. The hardcopy biological information is compiled onto 1:50,000 topographic quadrangles by a biological expert using data from regional specialists in the form of maps, tables, charts, written descriptions of wildlife distributions, and personal interviews. Concurrently, digital data sources are imported,

projected, checked for quality control, and integrated into the data structure. The hardcopy data are digitized, checked using both digital and on-screen procedures, integrated with existing data, plotted, and sent out for review by the regional specialists. The edited maps are updated, checked once again, and the final product plotted (at approximately 1:50,000 scale). A team of specialists 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 data layer is checked using a standardized form by two GIS personnel (a technician and the GIS manager), and each attribute database is checked using several programs that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and ORACLE (r) and ARC/INFO (r) consistencies. A final review is made by the GIS manager, where the data are written to tape and the metadata are written. After the data are delivered to NOAA, they are again subjected to a number of quality and consistency checks. In the process of checking for topological and database consistencies, new IDs and RARNUMs or HUNUMs are also generated. The new IDs are a combination of atlas number, element number, and record number. In addition, the value used to represent the element is modified to reflect the type of feature being mapped. In the case of an element that is normally represented by a point or polygon, a value of 20 is added to the standard element value for mapping of linear features. In the case where an element usually mapped as a polygon is represented by a point, a value of 30 is added to the regular element value. The RARNUMs and HUNUMS are modified to be unique to each element. ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the CDs for ease of use of the ESI data. The database files are distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats. The section Spatial_Data_Organization_Information refers to the source files in ARC export format only.

Completeness_Report:

Biological information presented in this atlas was collected and compiled with the assistance of biologists from SERNA (Secretaria Nacional de Recursos Naturales de Honduras) in Honduras and MARENA (Ministerio del Ambiente y Recursos Naturales de Nicaragua) in Nicaragua, and various other agencies, organizations, and groups. Information collected and depicted on the maps denotes 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, invertebrates, marine mammals, terrestrial mammals, and reptiles/amphibians. The ELEMENTs generally correspond to the coverage or geographic data layer names. There are also six attribute or data tables, BIORES, LOCALHON, LOCALNIC, SOURCES, SPECIES, and STATUS, that are used to store the complex biological data. The biological polygons (REPTILES) are linked to the Biological Resources table (BIORES) using the unique ID and the lookup table BIO_LUT, or they can be linked directly using RARNUM. [The ID is a unique combination of the atlas number (for Golfo de Fonseca this is 104), an element specific number (birds are layer 1, fish are layer 2, etc.) and a unique record number. The RARNUM represents a unique combination of species, seasonalities, concentrations, and source information. For each of these groupings, a number is generated.] 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 (BAJO = low, MEDIO = medium, ALTO = high, etc.) or an actual count of the number of individuals or nests associated with a polygon. SEASON_ID contains a numeric identifier for the life history characteristics of each species at a given location (1 = Year round resident population; 2 = Migratory/seasonal population; 3 = Resident and migratory population; 4 = Population/location of nesting/reproduction). G_SOURCE contains the SOURCE_ID for geographic information, and S_SOURCE contains the SOURCE_ID for seasonality information. Both items link to the SOURCES data table. EL_SPE is a concatenation of ELEMENT and SPECIES_ID and links to the SPECIES and STATUS tables. EL_SPE_SEA is a concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. The SPECIES data table contains the SPECIES_ID (described above), common English name (NAME), scientific name (GEN_SPEC), biological element (ELEMENT), biological subelement (SUBELEMENT), the Natural Heritage Program

(NHP) global conservation status rank (not used in this atlas), the date the list of NHP ranks was published (DATE_PUB) (not used in this atlas), and EL_SPE, which links back to the BIORES and STATUS tables. The item SUBELEMENT refers to the grouping of the species: (ELEMENT, subelement): REPTILES: alligator, amphibian , lizard, snake, turtle. The STATUS data table contains records for each species that is threatened or endangered in either Honduras and/or Nicaragua. The items include: ELEMENT, SPECIES_ID, STATE (two-letter state abbreviation; not populated in this atlas), S_F (jurisdiction; N=Nicaragua, H=Honduras), T_E (status; A=Amenazado, E=En Peligro), DATE_PUB (the date when the given amenazado or en peligro listings were in effect), and EL_SPE. The SOURCES data table contains metadata for each biological and human-use source listed in the ESI atlas. The items in SOURCES include: SOURCE_ID; ORIGINATOR (author); DATE_PUB (date of publication); TITLE (title of the data set); DATA_FORMAT (digital type, hardcopy maps, etc.); PUBLICATION (additional citation); SCALE (source scale denominator); and TIME_PERIOD (beginning and ending dates of original data collection). The SOURCES data table is linked to all biological data at the feature plus species-level and human-use data at the feature-level. The LOCALHON data table provides the common Honduran name (NAME) for a given species. The items in this table include: ELEMENT, SPECIES_ID, NAME, and EL_SPE, which links to the SPECIES table. The LOCALNIC data table provides the common Nicaraguan name (NAME) for a given species. The items in this table include: ELEMENT, SPECIES_ID, NAME, and EL_SPE, which links to the SPECIES table. Due to the complexity of the relational database model, the biological data items are also 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/HONDURAS, NAME/NICARAGUA, NAME/ENGLISH, GEN_SPEC, S_F, T_E, CONC, SEASONALITY, RARNUM, G_SOURCE, S_SOURCE, and SEAS_ID. These items are the same as their counterparts in the individual files described above, with the exception of NAME/HONDURAS, NAME/NICARAGUA, NAME/ENGLISH, SEASONALITY, and SEAS_ID. NAME/HONDURAS is populated with the common Honduran name for each species, NAME/NICARAGUA is populated with the common Nicaraguan name for each species, and NAME/ENGLISH is populated with the common English name for each species. SEASONALITY identifies each species at a given location as one of the following: year-round resident population; migratory/seasonal population; resident and migratory population; or population/location of nesting/reproduction. SEAS_ID contains the numeric identifier for the life history characteristics of each species (1 = Year round resident population; 2 = Migratory/seasonal population; 3 = Resident and migratory population; 4 = Population/location of nesting/reproduction). The link to the BIOFILE may be made through BIO_LUT using ID, or it may be linked directly from the RARNUM in each of the biology cover's attribute files. A supporting data file is SOURCES. This is the same as the source file described above, and the link from the flat file is both G_SOURCE and S_SOURCE. It should be noted that although the flat file eases data query, it is not a normalized database structure, and actual updates performed by the states and other responsible agencies should be done using the relational files.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

The biological data sets are developed primarily using regional experts who estimate concentration areas. Unlike shorelines, which maintain relative spatial stability through time, the biological data by nature vary in distribution across the landscape. Therefore, the 1:50,000 topographic quadrangles are used as a basemap in gathering the data but the data have "fuzzy" boundaries which must be understood when utilizing this information.

Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Originator: Wainwright, F.
Publication_Date: Unpublished Material
Title: Expert knowledge of various resources in the Golfo de Fonseca
Geospatial_Data_Presentation_Form: Expert knowledge
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Interview Date
Source_Citation_Abbreviation: None
Source_Contribution: Reptile information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Olivas, L. and R. H. Paz López (COHDEFOR)
Publication_Date: Unpublished Material
Title: Expert knowledge of various resources in the Golfo de Fonseca
Geospatial_Data_Presentation_Form: Expert knowledge
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Interview Date
Source_Citation_Abbreviation: None
Source_Contribution: Reptile information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Secretaria de Recursos Naturales y Ambiente (SERNA)
Publication_Date: 1999
Title:
Propuesta de Declaratoria Corredor Biológico Mesoamericano Pacifico de Honduras
Geospatial_Data_Presentation_Form: Hard text, Digital polygons
Publication_Information:

Publication_Place: Tegucigalpa, M.D.C.
Publisher: SERNA
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1999
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Reptile information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Beletsky, L.
Publication_Date: 1999
Title: Tropical Mexico: The Ecotraveller's Wildlife guide
Geospatial_Data_Presentation_Form: Hard text
Publication_Information:

Publication_Place: San Francisco, CA
Publisher: Academic Press
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1999
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Reptile information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Research Planning, Inc.
Publication_Date: 1998
Title:
Levantamiento y Mapeo de Indices de Sensibilidad Ambiental de El Salvador: Vol 2
Geospatial_Data_Presentation_Form: Hard maps, Hard text, Hard tables, Digital polygons
Publication_Information:

Publication_Place: Columbia, SC.
Publisher: Research Planning, Inc.
Source_Scale_Denominator: 50,000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1998
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Reptile information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Espinoza, J. and X. Rodriguez
Publication_Date: Unpublished Material
Title:
Expert knowledge of Turtle Nesting Sites and Artesanal Fishing and Invertebrates
Geospatial_Data_Presentation_Form: Expert knowledge
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Interview Date
Source_Citation_Abbreviation: None
Source_Contribution: Reptile information
Source_Information:

Source_Citation:

Citation_Information:

Originator: CATIE
Publication_Date: 2000
Title:
Estrategia para el Desarrollo y la Conservación del Estero Real, Nicaragua
Geospatial_Data_Presentation_Form: Hard text, Hard maps
Publication_Information:

Publication_Place: Turrialba, C. R.
Publisher: CATIE/IDR
Source_Scale_Denominator: 400,000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Reptile information
Source_Information:

Source_Citation:

Citation_Information:

Originator: MARENA
Publication_Date: 1999
Title: Biodiversidad en Nicaragua: Un Estudio de Páis
Geospatial_Data_Presentation_Form: Hard text
Publication_Information:

Publication_Place: Managua, Nicaragua
Publisher: MARENA-PANIF
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1999
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Reptile information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Davila, P. (UNAN)
Publication_Date: Unpublished Material
Title:
Expert knowledge of Turtle Nesting, Reptiles, and T_mammals in Cosigüina
Geospatial_Data_Presentation_Form: Expert knowledge
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Interview Date
Source_Citation_Abbreviation: None
Source_Contribution: Reptile information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Cajina , O.
Publication_Date: Unpublished Material
Title: Proyecto Danida Manglares, Estero Real: Fauna
Geospatial_Data_Presentation_Form: Hard text
Type_of_Source_Media: Paper

Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1996
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Reptile information
Process_Step:

Process_Description:
All the digital data were checked using both digital and on-screen procedures, plotted, checked by the biological expert, edited to remove any errors, and plotted for review by the regional specialists. The reviewed maps were updated on the computer, checked once again, and plotted at final map scale. A team of specialists reviewed the entire series of maps, checked all data, and made final edits. The data were merged to form the study-wide layers that are described in the document. The data merging included a final quality control check where topological consistency, rules for geography, and database to geography were checked and validated for all relationships.
Process_Date: 200102
Process_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: NOAA, Office of Response and Restoration
Contact_Person: Jill Petersen
Contact_Address:

Address_Type: Physical address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: jill_petersen@hazmat.noaa.gov.us

---

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: GT-polygon composed of rings
Point_and_Vector_Object_Count: 977
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Area point
Point_and_Vector_Object_Count: 977
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Complete chain
Point_and_Vector_Object_Count: 4743
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Link
Point_and_Vector_Object_Count: 1389090
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Node, planar graph
Point_and_Vector_Object_Count: 4175

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Geographic:

Latitude_Resolution: 0.00005
Longitude_Resolution: 0.00005
Geographic_Coordinate_Units: Decimal degrees
Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1927
Ellipsoid_Name: Clarke 1866
Semi-major_Axis: 6378206.4
Denominator_of_Flattening_Ratio: 294.98

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: GT-polygon
Entity_Type_Definition:
Although nesting of sea turtles does occur within the Golfo de Fonseca, it is not as widespread or as common as it is on the outer coast beaches. The most common sea turtle in the gulf is Lepidochelys olivacea, which nests year round, with the peak period being June-October. L. olivacea is likely to nest on basically all outer coast sand beaches (ESI = 3A or 4) and mixed sand and gravel beaches (ESI = 5) in this atlas. Examples of some important nesting habitats include the area from Punta Condega to Punta Raton and the sand beaches of Isla Tigre in Honduras. In Nicaragua, the principal nesting areas are the beaches around Punta San Juan, and the

pocket beaches associated with the cliffs, southwest of Punta San Juan. There may be some limited occurrences of this turtle in the larger estuaries, where they may feed. There are some reports of other marine turtles (including Chelonia mydas agassizi and Eretmochelys imbricata) in the gulf, but the numbers are relatively small, and as a rule these species are restricted to the outer-most parts of the gulf. Collection of turtle eggs is an important subsistence activity, and there are ongoing attempts to somewhat regulate the harvests. In Honduras, collection of turtle eggs is permitted all year, with the exception of a 15-day period during the "peak egg laying period," which is determined by DIGEPESCA. This closure is not strictly enforced, and it is suspected that collection continues. Locations for rare and protected amphibians and reptiles in coastal and inland areas (such as common and black iguanas, snakes, etc.) were based mainly on information provided by expert sources, wildlife biologists, and resource managers. In general, local experts agree that the abundance of the larger reptiles in this area (such as alligators and snakes) has decreased significantly over the last few decades due to loss of habitats and human exploitation.

Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:

Attribute_Label: ID
Attribute_Definition:
A unique identifier that links to the BIO_LUT table. ID is a concatenation of atlas number (104), element number (6), and record number. ID values of 9999 are holes in polygons and do not contain information. The following REPTILES species are found in the Golfo de Fonseca ESI data set (SPECIES_ID, GEN_SPEC): 1, Crocodylus acutus; 5, Dermochelys coriacea; 8, Chelonia mydas agassizi; 9, Eretmochelys imbricata; 43, Caiman crocodilus; 44, Ctenosaura similis; 45, Iguana iguana; 46, Pelamis platurus; 47, Lepidochelys olivacea; 49, Rhinoclemmys pulcherrima; 89, Lepidodactylus lugubres; 90, Rana maculata; 91, Norops sp.; 92, Loxocemus bicolor; 93, Conophis lineatus; 94, Oxybelis aeneus; 95, Micrurus nigrocinctus; 96, Ameiva undulata; 97, Physalaemus pustulosus; 98, Drymarchon corais; 99, Basiliscus vittatus; 100, Bufo marinus; 101, Enulis flavitorques; 102, Agkistrodon bilineatus; 103, Cnemidophorus deppii; 104, Ameiva festiva; 105, Cnemidophorus lemniscatus; 106, Sceloporus variabilis; 107, Boa constrictor; 110, Crotalus durissus.
Attribute_Definition_Source: NOAA
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 1040600002
Range_Domain_Maximum: 1040600979
Attribute_Units_of_Measure: Ordered
Beginning_Date_of_Attribute_Values: 200102
Ending_Date_of_Attribute_Values: 200102

Attribute:

Attribute_Label: RARNUM
Attribute_Definition:
An identifier that links directly to the BIORES table or the flat format BIOFILE table.
Attribute_Definition_Source: NOAA
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 144
Range_Domain_Maximum: 202
Beginning_Date_of_Attribute_Values: 200102

Ending_Date_of_Attribute_Values: 200102

Distribution_Information:

Distributor:

Contact_Information:

Contact_Person_Primary:

Contact_Person: John Kaperick
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Address:

Address_Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6400
Contact_Facsimile_Telephone: (206) 526-6329
Resource_Description: ESI Atlas for Golfo de Fonseca, Honduras and Nicaragua
Distribution_Liability:
Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement copy of the product when the product is determined unreadable by computer-input peripherals, or when the physical medium is delivered in damaged condition.
Custom_Order_Process:
Contact NOAA for distribution options (see Distribution_Information).

Metadata_Reference_Information:

Metadata_Date: 200102
Metadata_Review_Date: 200102
Metadata_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Jill Petersen
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Position: GIS Manager
Contact_Address:

Address_Type: Physical Address

Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: jill_petersen@hazmat.noaa.gov.us
Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

Golfo de Fonseca ESI; Honduras and Nicaragua: T_MAMMAL (Terrestrial Mammals)

Metadata:

Identification_Information:

Citation:

Citation_Information:

Originator:
United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.
Publication_Date: 200102
Title:
Golfo de Fonseca ESI; Honduras and Nicaragua: T_MAMMAL (Terrestrial Mammals)
Edition: First
Geospatial_Data_Presentation_Form: Atlas
Series_Information:

Series_Name: None
Issue_Identification: Golfo de Fonseca
Publication_Information:

Publication_Place: Seattle, Washington
Publisher:
National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington
Other_Citation_Details:
Prepared by Research Planning, Inc., Columbia, South Carolina for the United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International

Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.

Description:

Abstract:

This data set comprises the Environmental Sensitivity Index (ESI) data for Golfo de Fonseca. ESI data characterize estuarine 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. This data set contains sensitive biological resource data for terrestrial mammals.

Purpose:

The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response and for coastal zone planning and management.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 200001
Ending_Date: 200102

Currentness_Reference: Project time span

Status:

Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -87.875
East_Bounding_Coordinate: -87.000
North_Bounding_Coordinate: 13.500
South_Bounding_Coordinate: 12.750

Keywords:

Theme:

Theme_Keyword_Thesaurus: None
Theme_Keyword: ESI
Theme_Keyword: Sensitivity maps
Theme_Keyword: Coastal resources
Theme_Keyword: Oil spill planning
Theme_Keyword: Coastal zone management
Theme_Keyword: Terrestrial mammal
Theme_Keyword: Bat
Theme_Keyword: Canine
Theme_Keyword: Feline

Place:

Place_Keyword_Thesaurus: None
Place_Keyword: Gulf of Fonseca
Place_Keyword: Golfo de Fonseca
Place_Keyword: Pacific coast of Honduras
Place_Keyword: Pacific coast of Nicaragua
Place_Keyword: Honduras

Place_Keyword: Nicaragua

Access_Constraints: None

Use_Constraints:

DO NOT USE 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 Data_Set_Credit (below) would be appreciated in products derived from these data.

Browse_Graphic:

Browse_Graphic_File_Name: fonsecadatafig.jpg

Browse_Graphic_File_Description:

Relationships between spatial data layers and attribute data tables for the Golfo de Fonseca data.

Browse_Graphic_File_Type: JPEG

Data_Set_Credit:

This project was supported by the United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.

Native_Data_Set_Environment:

The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 8.0.2) and ORACLE(r) RDBMS (version 8.0.5.0.0). The hardware configuration is Hewlett Packard workstations (models 715/50 and 712/80i with 4 X-terminals) with UNIX operating system (HP-UX Release A.10.20). The following files are included in the data set: bio_lut.e00, biofile.e00, biores.e00, birds.e00, esi.e00, fish.e00, hydro.e00, index.e00, invert.e00, mgt.e00, m_mammal.e00, reptiles.e00, saltpond.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00.

Data_Quality_Information:

Attribute_Accuracy:

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.

Logical_Consistency_Report:

The digitization of shoreline types, biological resources, and human-use resources is a complex and highly quality-controlled process. Existing digital shoreline and wetlands data are integrated into a study-wide basemap. In order to facilitate digitizing, the entire study area is split into individual quadrangles using the INDEX data layer. The first layer of information digitized is the ESI shoreline classification. The ESI habitat ranking is compiled onto 1:50,000 topographic quadrangles by a geomorphologist. The hardcopy maps are then digitized and checked, using both on-screen and hardcopy reviews. The edited maps are updated, checked once again for completeness and topological and logical consistency. Any errors in the shoreline classification are updated prior to digitization of the biological reference so that there are no slivers in the geographic coordinates. The hardcopy biological information is compiled onto 1:50,000 topographic quadrangles by a biological expert using data from regional specialists in the form of maps, tables, charts, written descriptions of wildlife distributions, and personal interviews. Concurrently, digital data sources are imported, projected, checked for quality control, and integrated into the data structure. The hardcopy data are digitized, checked using both digital and on-screen procedures, integrated with existing data, plotted,

and sent out for review by the regional specialists. The edited maps are updated, checked once again, and the final product plotted (at approximately 1:50,000 scale). A team of specialists 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 data layer is checked using a standardized form by two GIS personnel (a technician and the GIS manager), and each attribute database is checked using several programs that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and ORACLE (r) and ARC/INFO (r) consistencies. A final review is made by the GIS manager, where the data are written to tape and the metadata are written. After the data are delivered to NOAA, they are again subjected to a number of quality and consistency checks. In the process of checking for topological and database consistencies, new IDs and RARNUMs or HUNUMs are also generated. The new IDs are a combination of atlas number, element number, and record number. In addition, the value used to represent the element is modified to reflect the type of feature being mapped. In the case of an element that is normally represented by a point or polygon, a value of 20 is added to the standard element value for mapping of linear features. In the case where an element usually mapped as a polygon is represented by a point, a value of 30 is added to the regular element value. The RARNUMs and HUNUMS are modified to be unique to each element. ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the CDs for ease of use of the ESI data. The database files are distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats. The section Spatial_Data_Organization_Information refers to the source files in ARC export format only.

Completeness_Report:

Biological information presented in this atlas was collected and compiled with the assistance of biologists from the SERNA (Secretaria Nacional de Recursos Naturales de Honduras) in Honduras and MARENA (Ministerio del Ambiente y Recursos Naturales de Nicaragua) in Nicaragua, and various other agencies, organizations, and groups. Information collected and depicted on the maps denotes 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, invertebrates, marine mammals, terrestrial mammals, and reptiles/amphibians. The ELEMENTs generally correspond to the coverage or geographic data layer names. There are also six attribute or data tables, BIORES, LOCALHON, LOCALNIC, SOURCES, SPECIES, and STATUS, that are used to store the complex biological data. The biological polygons (T_MAMMAL) are linked to the Biological Resources table (BIORES) using the unique ID and the lookup table BIO_LUT, or they can be linked directly using RARNUM. [The ID is a unique combination of the atlas number (for Golfo de Fonseca this is 104), an element specific number (birds are layer 1, fish are layer 2, etc.) and a unique record number. The RARNUM represents a unique combination of species, seasonalities, concentrations, and source information. For each of these groupings, a number is generated.] 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 (BAJO = low, MEDIO = medium, ALTO = high, etc.) or an actual count of the number of individuals or nests associated with a polygon. SEASON_ID contains a numeric identifier for the life history characteristics of each species at a given location (1 = Year round resident population; 2 = Migratory/seasonal population; 3 = Resident and migratory population; 4 = Population/location of nesting/reproduction). G_SOURCE contains the SOURCE_ID for geographic information, and S_SOURCE contains the SOURCE_ID for seasonality information. Both items link to the SOURCES data table. EL_SPE is a concatenation of ELEMENT and SPECIES_ID and links to the SPECIES and STATUS tables. EL_SPE_SEA is a concatenation of ELEMENT, SPECIES_ID, and SEASON_ID. The SPECIES data table contains the SPECIES_ID (described above), common English name (NAME), scientific name (GEN_SPEC), biological element (ELEMENT), biological subelement (SUBELEMENT), the Natural Heritage Program (NHP) global conservation status rank (not used in this atlas), the date the list of NHP ranks was published (DATE_PUB) (not used in this atlas), and EL_SPE, which links back to the BIORES and

STATUS tables. The item SUBELEMENT refers to the grouping of the species: (ELEMENT, subelement): T_MAMMAL: bat, canine, feline, sm_mammal. The STATUS data table contains records for each species that is threatened or endangered in either Honduras and/or Nicaragua. The items include: ELEMENT, SPECIES_ID, STATE (two-letter state abbreviation; not populated in this atlas), S_F (jurisdiction; N=Nicaragua, H=Honduras), T_E (status; A=Amenazado, E=En Peligro), DATE_PUB (the date when the given amenazado or en peligro listings were in effect), and EL_SPE. The SOURCES data table contains metadata for each biological and human-use source listed in the ESI atlas. The items in SOURCES include: SOURCE_ID; ORIGINATOR (author); DATE_PUB (date of publication); TITLE (title of the data set); DATA_FORMAT (digital type, hardcopy maps, etc.); PUBLICATION (additional citation); SCALE (source scale denominator); and TIME_PERIOD (beginning and ending dates of original data collection). The SOURCES data table is linked to all biological data at the feature plus species-level and human-use data at the feature-level. The LOCALHON data table provides the common Honduran name (NAME) for a given species. The items in this table include: ELEMENT, SPECIES_ID, NAME, and EL_SPE, which links to the SPECIES table. The LOCALNIC data table provides the common Nicaraguan name (NAME) for a given species. The items in this table include: ELEMENT, SPECIES_ID, NAME, and EL_SPE, which links to the SPECIES table. Due to the complexity of the relational database model, the biological data items are also 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/HONDURAS, NAME/NICARAGUA, NAME/ENGLISH, GEN_SPEC, S_F, T_E, CONC, SEASONALITY, RARNUM, G_SOURCE, S_SOURCE, and SEAS_ID. These items are the same as their counterparts in the individual files described above, with the exception of NAME/HONDURAS, NAME/NICARAGUA, NAME/ENGLISH, SEASONALITY, and SEAS_ID. NAME/HONDURAS is populated with the common Honduran name for each species, NAME/NICARAGUA is populated with the common Nicaraguan name for each species, and NAME/ENGLISH is populated with the common English name for each species. SEASONALITY identifies each species at a given location as one of the following: year-round resident population; migratory/seasonal population; resident and migratory population; or population/location of nesting/reproduction. SEAS_ID contains the numeric identifier for the life history characteristics of each species (1 = Year round resident population; 2 = Migratory/seasonal population; 3 = Resident and migratory population; 4 = Population/location of nesting/reproduction). The link to the BIOFILE may be made through BIO_LUT using ID, or it may be linked directly from the RARNUM in each of the biology cover's attribute files. A supporting data file is SOURCES. This is the same as the source file described above, and the link from the flat file is both G_SOURCE and S_SOURCE. It should be noted that although the flat file eases data query, it is not a normalized database structure, and actual updates performed by the states and other responsible agencies should be done using the relational files.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

The biological data sets are developed primarily using regional experts who estimate concentration areas. Unlike shorelines, which maintain relative spatial stability through time, the biological data by nature vary in distribution across the landscape. Therefore, the 1:50,000 topographic quadrangles are used as a basemap in gathering the data but the data have "fuzzy" boundaries which must be understood when utilizing this information.

Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Originator: Wainwright, F.

Publication_Date: Unpublished Material
Title: Expert knowledge of various resources in the Golfo de Fonseca
Geospatial_Data_Presentation_Form: Expert knowledge
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Interview Date
Source_Citation_Abbreviation: None
Source_Contribution: Terrestrial mammal information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Olivas, L. and R. H. Paz López (COHDEFOR)
Publication_Date: Unpublished Material
Title: Expert knowledge of various resources in the Golfo de Fonseca
Geospatial_Data_Presentation_Form: Expert knowledge
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Interview Date
Source_Citation_Abbreviation: None
Source_Contribution: Terrestrial mammal information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Secretaria de Recursos Naturales y Ambiente (SERNA)
Publication_Date: 1999
Title:
Propuesta de Declaratoria Corredor Biológico Mesoamericano Pacifico de Honduras
Geospatial_Data_Presentation_Form: Hard text, Digital polygons
Publication_Information:

Publication_Place: Tegucigalpa, M.D.C.
Publisher: SERNA
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1999
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Terrestrial mammal information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Beletsky, L.
Publication_Date: 1999
Title: Tropical Mexico: The Ecotraveller's Wildlife guide
Geospatial_Data_Presentation_Form: Hard text
Publication_Information:

Publication_Place: San Francisco, CA
Publisher: Academic Press
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1999
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Terrestrial mammal information
Source_Information:

Source_Citation:

Citation_Information:

Originator: CATIE
Publication_Date: 2000
Title:
Estrategia para el Desarrollo y la Conservación del Estero Real, Nicaragua
Geospatial_Data_Presentation_Form: Hard text, Hard maps
Publication_Information:

Publication_Place: Turrialba, C. R.
Publisher: CATIE/IDR
Source_Scale_Denominator: 400000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None

Source_Contribution: Terrestrial mammal information
Source_Information:

Source_Citation:

Citation_Information:

Originator: MARENA
Publication_Date: 1999
Title: Biodiversidad en Nicaragua: Un Estudio de Páis
Geospatial_Data_Presentation_Form: Hard text
Publication_Information:

Publication_Place: Managua, Nicaragua
Publisher: MARENA-PANIF
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1999
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Terrestrial mammal information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Davila, P. (UNAN)
Publication_Date: Unpublished Material
Title:
Expert knowledge of Turtle Nesting, Reptiles, and T_mammals in Cosigüina
Geospatial_Data_Presentation_Form: Expert knowledge
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Interview Date
Source_Citation_Abbreviation: None
Source_Contribution: Terrestrial mammal information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Cajina , O.
Publication_Date: Unpublished Material

Title: Proyecto Danida Manglares, Estero Real: Fauna
Geospatial_Data_Presentation_Form: Hard text
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1996
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Terrestrial mammal information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Marineros, L., F. Martinez Gallegos
Publication_Date: 1998
Title: Guia de Campos de los Mamíferos de Honduras
Geospatial_Data_Presentation_Form: Hard text
Publication_Information:

Publication_Place: Tegucigalpa
Publisher: INADES
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1998
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Terrestrial mammal information
Process_Step:

Process_Description:
All the digital data were checked using both digital and on-screen procedures, plotted, checked by the biological expert, edited to remove any errors, and plotted for review by the regional specialists. The reviewed maps were updated on the computer, checked once again, and plotted at final map scale. A team of specialists reviewed the entire series of maps, checked all data, and made final edits. The data were merged to form the study-wide layers that are described in the document. The data merging included a final quality control check where topological consistency, rules for geography, and database to geography were checked and validated for all relationships.
Process_Date: 200102
Process_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: NOAA, Office of Response and Restoration
Contact_Person: Jill Petersen
Contact_Address:

Address_Type: Physical address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: jill_petersen@hazmat.noaa.gov.us

---

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: GT-polygon composed of rings
Point_and_Vector_Object_Count: 371
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Area point
Point_and_Vector_Object_Count: 371
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Complete chain
Point_and_Vector_Object_Count: 2286
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Link
Point_and_Vector_Object_Count: 847307
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Node, planar graph
Point_and_Vector_Object_Count: 2277

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Geographic:

Latitude_Resolution: 0.00005
Longitude_Resolution: 0.00005
Geographic_Coordinate_Units: Decimal degrees

Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1927
Ellipsoid_Name: Clarke 1866
Semi-major_Axis: 6378206.4
Denominator_of_Flattening_Ratio: 294.98

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: GT-polygon
Entity_Type_Definition:
Terrestrial mammals depicted in this atlas are sub-divided into three groups, bats, small mammals, and large mammals. Distribution of these mammals was mapped mainly using expert knowledge. In general, local experts agree that the abundance of the larger mammals in this area has decreased significantly due to loss of habitats and over-harvest. Many of the larger mammals are now primarily restricted to the few forested natural areas that still exist. For some of the large mammals presented on these maps (notably felines and canines) it is accepted that they are not particularly abundant, but local experts and resource managers wanted to include them due to concern regarding their conservation.
Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:

Attribute_Label: ID
Attribute_Definition:
A unique identifier that links to the BIO_LUT table. ID is a concatenation of atlas number (104), element number (9), and record number. ID values of 9999 are holes in polygons and do not contain information. The following T_MAMMAL species are found in the Golfo de Fonseca ESI data set (SPECIES ID, GEN_SPEC): 10, Noctilio leporinus; 13, Panthera onca; 14, Tayassu tajacu; 15, Didelphis marsupialis; 16, Sylvilagus floridanus; 17, Mephitis macroura; 18, Saccopteryx leptura; 19, Balantiopteryx plicata; 20, Sciurus variegatoides; 21, Sciurus deppei; 22, Bradypus variegatus; 23, Desmodus rotundus; 31, Odocoileus virginianus; 40, Mustela frenata; 44, Procyon lotor; 63, Canis latrans; 64, Urocyon cinereoargenteus; 65, Puma concolor; 66, Leopardus pardalis; 108, Herpailurus yaguarondi; 110, Ateles geoffroyi; 111, Dasypus novemcinctus; 112, Nasua narica; 113, Tamandua mexicana; 114, Agouti paca; 116, Dasyprocta punctata; 137, Uroderma bilobatum; 138, Artibeus jamaicensis.
Attribute_Definition_Source: NOAA
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 1040900002
Range_Domain_Maximum: 1040900373
Attribute_Units_of_Measure: Ordered
Beginning_Date_of_Attribute_Values: 200102
Ending_Date_of_Attribute_Values: 200102

Attribute:

Attribute_Label: RARNUM
Attribute_Definition:
An identifier that links directly to the BIORES table or the flat format BIOFILE table.
Attribute_Definition_Source: NOAA
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 204
Range_Domain_Maximum: 214
Beginning_Date_of_Attribute_Values: 200102
Ending_Date_of_Attribute_Values: 200102

Distribution_Information:

Distributor:

Contact_Information:

Contact_Person_Primary:

Contact_Person: John Kaperick
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Address:

Address_Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6400
Contact_Facsimile_Telephone: (206) 526-6329
Resource_Description: ESI Atlas for Golfo de Fonseca, Honduras and Nicaragua
Distribution_Liability:
Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement copy of the product when the product is determined unreadable by computer-input peripherals, or when the physical medium is delivered in damaged condition.
Custom_Order_Process:
Contact NOAA for distribution options (see Distribution_Information).

Metadata_Reference_Information:

Metadata_Date: 200102

Metadata_Review_Date: 200102
Metadata_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Jill Petersen
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Position: GIS Manager
Contact_Address:

Address_Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: jill_petersen@hazmat.noaa.gov.us
Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

Golfo de Fonseca ESI; Honduras and Nicaragua: MGT (Management Areas)

Metadata:

Identification_Information:

Citation:

Citation_Information:

Originator:
United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.
Publication_Date: 200102
Title: Golfo de Fonseca ESI; Honduras and Nicaragua: MGT (Management Areas)
Edition: First
Geospatial_Data_Presentation_Form: Atlas
Series_Information:

Series_Name: None
Issue_Identification: Golfo de Fonseca
Publication_Information:

Publication_Place: Seattle, Washington
Publisher:
National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington
Other_Citation_Details:
Prepared by Research Planning, Inc., Columbia, South Carolina for the United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.

Description:

Abstract:

This data set comprises the Environmental Sensitivity Index (ESI) data for Golfo de Fonseca. ESI data characterize estuarine 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. This data set contains polygonal data for human-use resources.

Purpose:

The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response and for coastal zone planning and management.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 200001
Ending_Date: 200102

Currentness_Reference: Project time span

Status:

Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -87.875
East_Bounding_Coordinate: -87.000
North_Bounding_Coordinate: 13.500
South_Bounding_Coordinate: 12.750

Keywords:

Theme:

Theme_Keyword_Thesaurus: None
Theme_Keyword: ESI
Theme_Keyword: Sensitivity maps
Theme_Keyword: Coastal resources
Theme_Keyword: Oil spill planning
Theme_Keyword: Coastal zone management
Theme_Keyword: Management
Theme_Keyword: Human uses
Theme_Keyword: Aquaculture
Theme_Keyword: Shrimp farm
Theme_Keyword: Hatchery
Theme_Keyword: Protected area
Theme_Keyword: National park

Place:

Place_Keyword_Thesaurus: None
Place_Keyword: Gulf of Fonseca
Place_Keyword: Golfo de Fonseca
Place_Keyword: Pacific coast of Honduras
Place_Keyword: Pacific coast of Nicaragua
Place_Keyword: Honduras
Place_Keyword: Nicaragua

Access_Constraints: None
Use_Constraints:
DO NOT USE 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 Data_Set_Credit (below) would be appreciated in products derived from these data.
Browse_Graphic:

Browse_Graphic_File_Name: fonsecadatafig.jpg
Browse_Graphic_File_Description:
Relationships between spatial data layers and attribute data tables for the Golfo de Fonseca data.
Browse_Graphic_File_Type: JPEG
Data_Set_Credit:
This project was supported by the United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.
Native_Data_Set_Environment:
The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 8.0.2) and ORACLE(r) RDBMS (version 8.0.5.0.0). The hardware configuration is Hewlett Packard workstations (models 715/50 and 712/80i with 4 X-terminals) with UNIX operating system (HP-UX Release A.10.20). The following files are included in the data set: bio_lut.e00, biofile.e00, biores.e00, birds.e00, esi.e00, fish.e00, hydro.e00, index.e00, invert.e00, mgt.e00, m_mammal.e00, reptiles.e00, saltpond.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00.

Data_Quality_Information:

Attribute_Accuracy:

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.
Logical_Consistency_Report:
The human-use resources were obtained in either digital format or in hardcopy format on 1:50,000 scale maps. Under this project, new digital data sources were imported, projected, checked for quality control, and integrated into the spatial data structure (for selected resources). The data were checked using both digital and on-screen procedures. To finalize the data checking process, each data layer was checked using a standardized form by two GIS personnel (a technician and the GIS manager), and each attribute database was 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(r) to ARC/INFO(r) consistencies. A final review was made by the GIS manager, where the data were written to tape and metadata were written. ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the CDs for ease of use of the ESI data. The database files are distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats. The section

Spatial_Data_Organization_Information refers to the source files in ARC export format only.

Completeness_Report:

Several human-use, or socioeconomic, features are included in ESI atlases. Entity points and complete chains (arcs) are digitized into the data layer SOCECON, and managed area polygonal data are stored in the data layer MGT. The MGT data set is linked to the data table SOC_DAT using the SOC_LUT lookup table and the items HUNUM and ID. HUNUM is a unique reference number and ID is a unique combination of the atlas number (for Golfo de Fonseca this is 104), an element specific number (MGT=11) and a unique record number. The table SOC_DAT contains the human-use number (HUNUM), feature type (TYPE), name of the facility (NAME), owner/manager or contact person (CONTACT), telephone number (PHONE) [Note: Some phone numbers for Honduras and Nicaragua contain only nine digits, xxx/xxx-xxx], geographic source (G_SOURCE), and attribute source (A_SOURCE). Detailed contact information is included for select management features, where available. Source information is included for all features.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

The MGT data use 1:50,000 topographic quadrangles as the basemap.

Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Originator: Wainwright, F.
Publication_Date: Unpublished Material
Title: Expert knowledge of various resources in the Golfo de Fonseca
Geospatial_Data_Presentation_Form: Expert knowledge
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Interview Date
Source_Citation_Abbreviation: None
Source_Contribution: Management information

Source_Information:

Source_Citation:

Citation_Information:

Originator: Secretaria de Recursos Naturales y Ambiente (SERNA)
Publication_Date: 1999
Title:
Propuesta de Declaratoria Corredor Biológico Mesoamericano Pacifico de Honduras
Geospatial_Data_Presentation_Form: Hard text, Digital polygons
Publication_Information:

Publication_Place: Tegucigalpa, M.D.C.

Publisher: SERNA
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1999
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Management information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Com. Cent. de Ambiente y Desarrollo
Publication_Date: 1999
Title:
Diag. de los recursos naturals, socio. institucional de la zona costera
Geospatial_Data_Presentation_Form: Digital text
Publication_Information:

Publication_Place: San José, C. R.
Publisher: UICN/CCAD
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1999
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Management Information
Source_Information:

Source_Citation:

Citation_Information:

Originator: CATIE
Publication_Date: 2000
Title:
Estrategia para el Desarrollo y la Conservación del Estero Real, Nicaragua
Geospatial_Data_Presentation_Form: Hard text, Hard maps
Publication_Information:

Publication_Place: Turrialba, C. R.
Publisher: CATIE/IDR
Source_Scale_Denominator: 400,000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Management information
Source_Information:

Source_Citation:

Citation_Information:

Originator: ANDAH
Publication_Date: 1999
Title: Hardcopy table of Aquaculture site contact information
Geospatial_Data_Presentation_Form: Hard table
Publication_Information:

Publication_Place: Choluteca, Honduras
Publisher: ANDAH
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1999
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Management information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Research Planning, Inc.
Publication_Date: Unpublished Material
Title: Overflight ESI and Socioeconomic information
Geospatial_Data_Presentation_Form: Hard maps
Source_Scale_Denominator: 50,000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Field Work Date
Source_Citation_Abbreviation: None
Source_Contribution: Management information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Perez Zelaya, D. O.(MARENA)
Publication_Date: Unpublished Material
Title: Expert knowledge of Shrimp Farm Information
Geospatial_Data_Presentation_Form: Expert knowledge
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Interview Date
Source_Citation_Abbreviation: None
Source_Contribution: Management information
Process_Step:

Process_Description:
All the digital data were checked using both digital and on-screen procedures, plotted, checked by the biological expert, edited to remove any errors, and plotted for review by the regional specialists. The reviewed maps were updated on the computer, checked once again, and plotted at final map scale. A team of specialists reviewed the entire series of maps, checked all data, and made final edits. The data were merged to form the study-wide layers that are described in the document. The data merging included a final quality control check where topological consistency, rules for geography, and database to geography were checked and validated for all relationships.
Process_Date: 200102
Process_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: NOAA, Office of Response and Restoration
Contact_Person: Jill Petersen
Contact_Address:

Address_Type: Physical address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: jill_petersen@hazmat.noaa.gov.us

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: GT-polygon composed of rings
Point_and_Vector_Object_Count: 405
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Area point
Point_and_Vector_Object_Count: 405
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Complete chain
Point_and_Vector_Object_Count: 745
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Link
Point_and_Vector_Object_Count: 26637
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Node, planar graph
Point_and_Vector_Object_Count: 484

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Geographic:

Latitude_Resolution: 0.00005
Longitude_Resolution: 0.00005
Geographic_Coordinate_Units: Decimal degrees
Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1927
Ellipsoid_Name: Clarke 1866
Semi-major_Axis: 6378206.4
Denominator_of_Flattening_Ratio: 294.98

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: GT-Polygon
Entity_Type_Definition:
The human-use features depicted on the maps are those that could be impacted by an oil spill or could provide access for response operations. Aquaculture (Acuacultutra) - Location of aquaculture sites and facilities (mostly shrimp farms). Location of surface water intakes associated with marine shrimp hatcheries. When known, the site name, owner/manager, and telephone number are provided on the data tables for each map. Areas Protegidas - All protected areas, including national parks, are included in this category. In Honduras, they are administered by DAPVS (Departamento de Areas Protegidas y Vida Silvestre) of AFECOHDEFOR (Administración Forestal del Estado). In Nicaragua, protected areas are administered by Dirección de Biodiversidad de MARENA.
Entity_Type_Definition_Source: Research Planning, Inc.
Attribute:

Attribute_Label: TYPE
Attribute_Definition:
Identifies a polygon 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.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: AQ
Enumerated_Domain_Value_Definition: Aquaculture
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: WR
Enumerated_Domain_Value_Definition: Area Protegidas
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Beginning_Date_of_Attribute_Values: 200001
Ending_Date_of_Attribute_Values: 200011
Attribute:

Attribute_Label: ID
Attribute_Definition:
A unique identifier that links to the SOC_LUT table. ID is a concatenation of atlas number (104), element number (11), and record number. ID values of 9999 are holes in polygons and do not contain information.
Attribute_Definition_Source: NOAA
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 1041100002
Range_Domain_Maximum: 1041100419
Beginning_Date_of_Attribute_Values: 200102
Ending_Date_of_Attribute_Values: 200102
Attribute:

Attribute_Label: HUNUM

Attribute_Definition: An identifier that links directly to the SOC_DAT table.
Attribute_Definition_Source: NOAA
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Maximum: 4
Range_Domain_Minimum: 403
Beginning_Date_of_Attribute_Values: 200102
Ending_Date_of_Attribute_Values: 200102

Distribution_Information:

Distributor:

Contact_Information:

Contact_Person_Primary:

Contact_Person: John Kaperick
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Address:

Address_Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6400
Contact_Facsimile_Telephone: (206) 526-6329
Resource_Description: ESI Atlas for Golfo de Fonseca, Honduras and Nicaragua
Distribution_Liability:
Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement copy of the product when the product is determined unreadable by computer-input peripherals, or when the physical medium is delivered in damaged condition.
Custom_Order_Process:
Contact NOAA for distribution options (see Distribution_Information).

Metadata_Reference_Information:

Metadata_Date: 200102
Metadata_Review_Date: 200102
Metadata_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Jill Petersen
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Position: GIS Manager
Contact_Address:

Address_Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: jill_petersen@hazmat.noaa.gov.us
Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

Golfo de Fonseca ESI; Honduras and Nicaragua: SOCECON (Socioeconomic Lines and Points)

Metadata:

Identification_Information:

Citation:

Citation_Information:

Originator:
United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.
Publication_Date: 200102
Title: Golfo de Fonseca ESI; Honduras and Nicaragua: SOCECON (Socioeconomic Lines and Points)
Edition: First
Geospatial_Data_Presentation_Form: Atlas
Series_Information:

Series_Name: None
Issue_Identification: Golfo de Fonseca
Publication_Information:

Publication_Place: Seattle, Washington
Publisher:
National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington
Other_Citation_Details:
Prepared by Research Planning, Inc., Columbia, South Carolina for the United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro

America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.

Description:

Abstract:

This data set comprises the Environmental Sensitivity Index (ESI) data for Golfo de Fonseca. ESI data characterize estuarine 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. This data set contains line and point data for human-use resources.

Purpose:

The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response and for coastal zone planning and management.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 200001
Ending_Date: 200102

Currentness_Reference: Project time span

Status:

Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -87.875
East_Bounding_Coordinate: -87.000
North_Bounding_Coordinate: 13.500
South_Bounding_Coordinate: 12.750

Keywords:

Theme:

Theme_Keyword_Thesaurus: None
Theme_Keyword: ESI
Theme_Keyword: Sensitivity maps
Theme_Keyword: Coastal resources
Theme_Keyword: Oil spill planning
Theme_Keyword: Coastal zone management
Theme_Keyword: Socioeconomic uses
Theme_Keyword: Human uses
Theme_Keyword: Road
Theme_Keyword: Archaeological site
Theme_Keyword: Historic site
Theme_Keyword: Artisanal fishing
Theme_Keyword: Subsistence fishing
Theme_Keyword: Fishing association
Theme_Keyword: Fishing cooperative
Theme_Keyword: Boat ramp
Theme_Keyword: Coast Guard
Theme_Keyword: Commercial fishing
Theme_Keyword: Harbor

Theme_Keyword: Marina
Theme_Keyword: Recreational beach
Place:

Place_Keyword_Thesaurus: None
Place_Keyword: Gulf of Fonseca
Place_Keyword: Golfo de Fonseca
Place_Keyword: Pacific coast of Honduras
Place_Keyword: Pacific coast of Nicaragua
Place_Keyword: Honduras
Place_Keyword: Nicaragua

Access_Constraints: None
Use_Constraints:
DO NOT USE 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 Data_Set_Credit (below) would be appreciated in products derived from these data.
Browse_Graphic:

Browse_Graphic_File_Name: fonsecadatafig.jpg
Browse_Graphic_File_Description:
Relationships between spatial data layers and attribute data tables for the Golfo de Fonseca data.
Browse_Graphic_File_Type: JPEG
Data_Set_Credit:
This project was supported by the United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.
Native_Data_Set_Environment:
The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 8.0.2) and ORACLE(r) RDBMS (version 8.0.5.0.0). The hardware configuration is Hewlett Packard workstations (models 715/50 and 712/80i with 4 X-terminals) with UNIX operating system (HP-UX Release A.10.20). The following files are included in the data set: bio_lut.e00, biofile.e00, biores.e00, birds.e00, esi.e00, fish.e00, hydro.e00, index.e00, invert.e00, mgt.e00, m_mammal.e00, reptiles.e00, saltpond.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00.

Data_Quality_Information:

Attribute_Accuracy:

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.
Logical_Consistency_Report:
The human-use resources were obtained in either digital format or in hardcopy format on 1:50,000 scale maps or from expert knowledge. Under this project, new digital data sources were imported, projected, checked for quality control, and integrated into the spatial data structure (for selected resources). The data were checked using both digital and on-screen procedures. To finalize the data

checking process, each data layer was checked using a standardized form by two GIS personnel (a technician and the GIS manager), and each attribute database was 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(r) to ARC/INFO(r) consistencies. A final review was made by the GIS manager, where the data were written to tape and metadata were written. ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the CDs for ease of use of the ESI data. The database files are distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats. The section Spatial_Data_Organization_Information refers to the source files in ARC export format only.

Completeness_Report:

Several human-use, or socioeconomic, features are included in ESI atlases. Entity points and complete chains (arcs) are digitized into the data layer SOCECON, and managed area polygonal data are stored in the data layer MGT . The SOCECON data set is linked to the data table SOC_DAT using the SOC_LUT lookup table and the items HUNUM and ID. HUNUM is a unique reference number and ID is a unique combination of the atlas number (for Golfo de Fonseca this is 104), an element specific number (SOCECON = 10) and a unique record number. The table SOC_DAT contains the human-use number (HUNUM), feature type (TYPE), name of the facility (NAME), owner/manager or contact person (CONTACT), telephone number (PHONE) [Note: Some phone numbers for Honduras and Nicaragua contain only nine digits, xxx/xxx-xxx], geographic source (G_SOURCE), and attribute source (A_SOURCE). Detailed contact information is included for select management features, where available. Source information is included for all features.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

The SOCECON data use 1:50,000 topographic quadrangles as the basemap.

Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Originator: Wainwright, F.
Publication_Date: Unpublished Material
Title: Expert knowledge of various resources in the Golfo de Fonseca
Geospatial_Data_Presentation_Form: Expert knowledge

Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000

Source_Currentness_Reference: Interview Date
Source_Citation_Abbreviation: None
Source_Contribution: Socioeconomic information

Source_Information:

Source_Citation:

Citation_Information:

Originator: Espinoza, J. and X. Rodriguez
Publication_Date: Unpublished Material
Title:
Expert knowledge of Turtle Nesting Sites and Artesanal Fishing and Invertebrates
Geospatial_Data_Presentation_Form: Expert knowledge
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Interview Date
Source_Citation_Abbreviation: None
Source_Contribution: Socioeconomic information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Research Planning, Inc.
Publication_Date: Unpublished Material
Title: Overflight ESI and Socioeconomic information
Geospatial_Data_Presentation_Form: Hard maps
Source_Scale_Denominator: 50000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Field Work Date
Source_Citation_Abbreviation: None
Source_Contribution: Socioeconomic information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Palacios, N. and B. Brenes
Publication_Date: Unpublished Material
Title:
Informe de Registro de las Embarcaciones Artesanales en el Pacifico Nicaraguense
Geospatial_Data_Presentation_Form: Hard table
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1999
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Socioeconomic information
Process_Step:

Process_Description:
All the digital data were checked using both digital and on-screen procedures, plotted, checked by the biological expert, edited to remove any errors, and plotted for review by the regional specialists. The reviewed maps were updated on the computer, checked once again, and plotted at final map scale. A team of specialists reviewed the entire series of maps, checked all data, and made final edits. The data were merged to form the study-wide layers that are described in the document. The data merging included a final quality control check where topological consistency, rules for geography, and database to geography were checked and validated for all relationships.
Process_Date: 200102
Process_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: NOAA, Office of Response and Restoration
Contact_Person: Jill Petersen
Contact_Address:

Address_Type: Physical address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: jill_petersen@hazmat.noaa.gov.us

---

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Complete chain
Point_and_Vector_Object_Count: 1
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Link

Point_and_Vector_Object_Count: 13
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Entity Point
Point_and_Vector_Object_Count: 59
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Node, planar graph
Point_and_Vector_Object_Count: 3

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Geographic:

Latitude_Resolution: 0.00005
Longitude_Resolution: 0.00005
Geographic_Coordinate_Units: Decimal degrees
Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1927
Ellipsoid_Name: Clarke 1866
Semi-major_Axis: 6378206.4
Denominator_of_Flattening_Ratio: 294.98

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: Complete Chain
Entity_Type_Definition: Roads
Entity_Type_Definition_Source: Research Planning, Inc.
Attribute:

Attribute_Label: TYPE
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.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: R

Enumerated_Domain_Value_Definition: Road
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.

Detailed_Description:

Entity_Type:

Entity_Type_Label: Entity point
Entity_Type_Definition:
Aquaculture (Acuacultutra) - Location of aquaculture sites and facilities (mostly shrimp farms). Location of surface water intakes associated with marine shrimp hatcheries. When known, the site name, owner/manager, and telephone number are provided on the data tables for each map. Archaeological/Historical Site (Sitio Arqueologico/Histórico) - Location of archaeological and historic sites for coastal areas. This information was provided by expert sources. Artisanal Fishing (Pesca Artesanal) - General areas where artisanal/subsistence fishing take place. Fishing activities for shrimp, bivalves, other shellfish, fish, etc. may take place throughout the study area. This information was provided by the expert sources. Fishing Association (Asociaciones de Pesca) - Locations of fishing associations and fisheries cooperatives in coastal areas. Boat Ramp (Atracadero) - Location of boat ramps. This information was gathered from overflight observations, aerial photographs, and expert sources. Coast Guard (Guarda Costa) - Location of Coast Guard facilities. Commercial Fishing (Pesca Comercial) - General areas where commercial fishing take place. Fishing activities, especially harvest of shrimp, bivalves, and fish, may take place throughout the study area. This information was provided by the Fisheries Department and expert sources. Harbor/Marina (Puerto/Marina) - Location of harbors/marinas. This information was gathered from overflight observations, aerial photographs, and expert sources. Recreational Beach (Playa Recreacional) - Location of recreational beaches used for activities, such as swimming, sun-bathing, fishing, etc. This information was provided by expert sources.
Entity_Type_Definition_Source: Research Planning, Inc.
Attribute:

Attribute_Label: TYPE
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.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: AQ
Enumerated_Domain_Value_Definition: Spring Laboratories Aquaculture
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: HS
Enumerated_Domain_Value_Definition: Archaeological/Historical site
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: S

Enumerated_Domain_Value_Definition: Subsistence/Artisanal Fishing/Fishing Association
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: BR
Enumerated_Domain_Value_Definition: Boat Ramp
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: CG
Enumerated_Domain_Value_Definition: Coast Guard
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: CF
Enumerated_Domain_Value_Definition: Commercial Fishing
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: M
Enumerated_Domain_Value_Definition: Marina
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Beginning_Date_of_Attribute_Values: 200001
Ending_Date_of_Attribute_Values: 200011
Attribute:

Attribute_Label: ID
Attribute_Definition:
A unique identifier that links to the SOC_LUT table. ID is a concatenation of atlas number (104), element number (10), and record number.
Attribute_Definition_Source: NOAA
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 1041000001
Range_Domain_Maximum: 1041000059
Beginning_Date_of_Attribute_Values: 200102
Ending_Date_of_Attribute_Values: 200102
Attribute:

Attribute_Label: HUNUM
Attribute_Definition: An identifier that links directly to the SOC_DAT table.
Attribute_Definition_Source: NOAA
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 182
Range_Domain_Maximum: 223
Beginning_Date_of_Attribute_Values: 200102
Ending_Date_of_Attribute_Values: 200102

Distribution_Information:

Distributor:

Contact_Information:

Contact_Person_Primary:

Contact_Person: John Kaperick
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Address:

Address_Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6400
Contact_Facsimile_Telephone: (206) 526-6329
Resource_Description: ESI Atlas for Golfo de Fonseca, Honduras and Nicaragua
Distribution_Liability:
Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement copy of the product when the product is determined unreadable by computer-input peripherals, or when the physical medium is delivered in damaged condition.
Custom_Order_Process:
Contact NOAA for distribution options (see Distribution_Information).

Metadata_Reference_Information:

Metadata_Date: 200102
Metadata_Review_Date: 200102
Metadata_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Jill Petersen
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Position: GIS Manager

Contact_Address:

Address_Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: jill_petersen@hazmat.noaa.gov.us
Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

Golfo de Fonseca ESI; Honduras and Nicaragua: SALTPOND

Metadata:

Identification_Information:

Citation:

Citation_Information:

Originator:
United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.
Publication_Date: 200102
Title: Golfo de Fonseca ESI; Honduras and Nicaragua: SALTPOND
Edition: First
Geospatial_Data_Presentation_Form: Atlas
Series_Information:

Series_Name: None
Issue_Identification: Golfo de Fonseca
Publication_Information:

Publication_Place: Seattle, Washington
Publisher:
National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington
Other_Citation_Details:
Prepared by Research Planning, Inc., Columbia, South Carolina for the United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.

Description:

Abstract:

This data set comprises the Environmental Sensitivity Index (ESI) data for Golfo de Fonseca. ESI data characterize estuarine 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. This data set contains data for saltpond features.

Purpose:

The ESI data were collected, mapped, and digitized to provide environmental data for oil spill planning and response and for coastal zone planning and management.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 200001
Ending_Date: 200102

Currentness_Reference: Project time span

Status:

Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -87.875
East_Bounding_Coordinate: -87.000
North_Bounding_Coordinate: 13.500
South_Bounding_Coordinate: 12.750

Keywords:

Theme:

Theme_Keyword_Thesaurus: None
Theme_Keyword: ESI
Theme_Keyword: Sensitivity maps
Theme_Keyword: Coastal resources
Theme_Keyword: Oil spill planning
Theme_Keyword: Coastal zone management
Theme_Keyword: Saltpond

Place:

Place_Keyword_Thesaurus: None
Place_Keyword: Gulf of Fonseca
Place_Keyword: Golfo de Fonseca
Place_Keyword: Pacific coast of Honduras
Place_Keyword: Pacific coast of Nicaragua
Place_Keyword: Honduras
Place_Keyword: Nicaragua

Access_Constraints: None

Use_Constraints:

DO NOT USE 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 Data_Set_Credit (below) would be appreciated in products derived from these data.

Browse_Graphic:

Browse_Graphic_File_Name: fonsecadatafig.jpg
Browse_Graphic_File_Description:
Relationships between spatial data layers and attribute data tables for the Golfo de Fonseca data.
Browse_Graphic_File_Type: JPEG

Data_Set_Credit:
This project was supported by the United States Department of Commerce; National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division; USAID, The U.S. Agency for International Development; PROARCA/Costas, Programa Ambiental Regional para Centro America; SERNA, Secretaria Nacional de Recursos Naturales de Honduras; and MARENA, Ministerio del Ambiente y Recursos Naturales de Nicaragua.

Native_Data_Set_Environment:
The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 8.0.2) and ORACLE(r) RDBMS (version 8.0.5.0.0). The hardware configuration is Hewlett Packard workstations (models 715/50 and 712/80i with 4 X-terminals) with UNIX operating system (HP-UX Release A.10.20). The following files are included in the data set: bio_lut.e00, biofile.e00, biores.e00, birds.e00, esi.e00, fish.e00, hydro.e00, index.e00, invert.e00, mgt.e00, m_mammal.e00, reptiles.e00, saltpond.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00.

Data_Quality_Information:

Attribute_Accuracy:

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.

Logical_Consistency_Report:
The human-use resources were obtained in either digital format or in hardcopy format on 1:50,000 scale maps. Under this project, new digital data sources were imported, projected, checked for quality control, and integrated into the spatial data structure (for selected resources). The data were checked using both digital and on-screen procedures. To finalize the data checking process, each data layer was checked using a standardized form by two GIS personnel (a technician and the GIS manager), and each attribute database was 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(r) to ARC/INFO(r) consistencies. A final review was made by the GIS manager, where the data were written to tape and the metadata were written. ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the CDs for ease of use of the ESI data. The database files are distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats. The section Spatial_Data_Organization_Information refers to the source files in ARC export format only.

Completeness_Report:
GT-Polygons of saltpond/shrimp farm features are digitized into the data layer SALTPOND.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:
The SALTPOND data use 1:50,000 topographic quadrangles as the basemap.

Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Originator: Wainwright, F.
Publication_Date: Unpublished Material
Title: Expert knowledge of various resources in the Golfo de Fonseca
Geospatial_Data_Presentation_Form: Expert knowledge
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Interview Date
Source_Citation_Abbreviation: None
Source_Contribution: Management information

Source_Information:

Source_Citation:

Citation_Information:

Originator: Research Planning, Inc.
Publication_Date: Unpublished Material
Title: Overflight ESI and Socioeconomic information
Geospatial_Data_Presentation_Form: Hard maps
Source_Scale_Denominator: 50,000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Field Work Date
Source_Citation_Abbreviation: None
Source_Contribution: Management information

Source_Information:

Source_Citation:

Citation_Information:

Originator: Perez Zelaya, D. O.(MARENA)
Publication_Date: Unpublished Material
Title: Expert knowledge of Shrimp Farm Information

Geospatial_Data_Presentation_Form: Expert knowledge
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Interview Date
Source_Citation_Abbreviation: None
Source_Contribution: Management information
Process_Step:

Process_Description:
All the digital data were checked using both digital and on-screen procedures, plotted, checked by the biological expert, edited to remove any errors, and plotted for review by the regional specialists. The reviewed maps were updated on the computer, checked once again, and plotted at final map scale. A team of specialists reviewed the entire series of maps, checked all data, and made final edits. The data were merged to form the study-wide layers that are described in the document. The data merging included a final quality control check where topological consistency, rules for geography, and database to geography were checked and validated for all relationships.
Process_Date: 200102
Process_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: NOAA, Office of Response and Restoration
Contact_Person: Jill Petersen
Contact_Address:

Address_Type: Physical address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: jill_petersen@hazmat.noaa.gov.us

---

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:

SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: GT-polygon composed of rings

Point_and_Vector_Object_Count: 1141
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Area point
Point_and_Vector_Object_Count: 1141
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Complete chain
Point_and_Vector_Object_Count: 3127
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Link
Point_and_Vector_Object_Count: 10997
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Node, planar graph
Point_and_Vector_Object_Count: 2214

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Geographic:

Latitude_Resolution: 0.00005
Longitude_Resolution: 0.00005
Geographic_Coordinate_Units: Decimal degrees
Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1927
Ellipsoid_Name: Clarke 1866
Semi-major_Axis: 6378206.4
Denominator_of_Flattening_Ratio: 294.98

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: GT-Polygon
Entity_Type_Definition:
The human-use features depicted on the maps are those that could be impacted by an oil spill or could provide access for response operations. Salt ponds (camaroneras/salineras) - Location of salt ponds or shrimp farms. Many of these areas serve a dual use as salt farms or shrimp farms, depending on the season. If the polygon is also used as a shrimp farm it appears in the MGT data layer as aquaculture.
Entity_Type_Definition_Source: Research Planning, Inc.

Attribute:

Attribute_Label: POND
Attribute_Definition:
Identifies a polygon 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.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Y
Enumerated_Domain_Value_Definition: Salt pond/shrimp farm
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Beginning_Date_of_Attribute_Values: 200001
Ending_Date_of_Attribute_Values: 200011

Distribution_Information:

Distributor:

Contact_Information:

Contact_Person_Primary:

Contact_Person: John Kaperick
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Address:

Address_Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6400
Contact_Facsimile_Telephone: (206) 526-6329
Resource_Description: ESI Atlas for Golfo de Fonseca, Honduras and Nicaragua
Distribution_Liability:
Although these data have been processed successfully on a computer system at the National Oceanic and Atmospheric Administration, no warranty, expressed or implied, is made by NOAA regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. NOAA warrants the delivery of this product in computer-readable format, and will offer a replacement copy of the product when the product is determined unreadable by computer-input peripherals, or when the physical medium is delivered in damaged condition.
Custom_Order_Process:
Contact NOAA for distribution options (see Distribution_Information).

Metadata_Reference_Information:

Metadata_Date: 200102
Metadata_Review_Date: 200102
Metadata_Contact:

Contact_Information:

Contact_Person_Primary:

Contact_Person: Jill Petersen
Contact_Organization: NOAA, Office of Response and Restoration
Contact_Position: GIS Manager
Contact_Address:

Address_Type: Physical Address
Address: 7600 Sand Point Way N.E.
City: Seattle
State_or_Province: Washington
Postal_Code: 98115-6349
Contact_Voice_Telephone: (206) 526-6944
Contact_Facsimile_Telephone: (206) 526-6329
Contact_Electronic_Mail_Address: jill_petersen@hazmat.noaa.gov.us
Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

Relationships between spatial data layers and attribute data tables