U.S. Virgin Islands and British Virgin Islands ESI: HYDRO (Hydrology)

Metadata:

- [Identification_Information](#)
- [Data_Quality_Information](#)
- [Spatial_Data_Organization_Information](#)
- [Spatial_Reference_Information](#)
- [Entity_and_Attribute_Information](#)
- [Distribution_Information](#)
- [Metadata_Reference_Information](#)

Identification_Information:

    Citation:

        Citation_Information:

            Originator:
                National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.
            Publication_Date: 200108
            Title: U.S. Virgin Islands and British Virgin Islands ESI: HYDRO (Hydrology)
            Edition: First
            Geospatial_Data_Presentation_Form: Atlas
            Series_Information:

                Series_Name: None
                Issue_Identification: United States Virgin Islands and British Virgin Islands
            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 National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.
    Description:

Abstract:
This data set comprises the Environmental Sensitivity Index (ESI) data for the Virgin Islands. 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. The Clean Water Act with amendments by the Oil Pollution Act of 1990 requires response plans for immediate and effective protection of sensitive resources.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 199807
Ending_Date: 200107
Currentness_Reference: Project time span

Status:

Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -65.167
East_Bounding_Coordinate: -64.065
North_Bounding_Coordinate: 18.943
South_Bounding_Coordinate: 17.467

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: US Virgin Islands
Place_Keyword: British Virgin Islands

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: vidatafig.jpg
Browse_Graphic_File_Description:
Relationships between spatial data layers and attribute data tables for the Virgin Islands data.

Browse_Graphic_File_Type: JPEG
Data_Set_Credit:
> This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.

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: benthic.e00, birds.e00, bio_lut.e00, biofile.e00, biores.e00, breed.e00, breed_dt.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, invertl.e00, mgt.e00, m_mammal.e00, reptiles.e00, seasonal.e00, shelfbnd.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00, wetlands.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 1:24,000 USGS 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 and checked once again for completeness and topological and logical consistency. Any errors in the shoreline classification are updated prior to digitization of the biological and human-use layers. All layers use the shoreline as the geographic reference so that there are no slivers in the geographic coordinates. The hardcopy biological information is compiled onto 1:24,000 USGS topographic quadrangles by a biological expert using data from regional specialists in the form of maps, tables, charts, written descriptions of wildlife distributions, and personal 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 1:55,000 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 CD-ROM 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 shoreline habitats of the U.S. Virgin Islands were previously mapped during overflights and ground surveys conducted for the Virgin Islands Resource Management Cooperative and the National Oceanic and Atmospheric Administration (NOAA), published in 1986. For the current project, the original ESI maps were re-examined and fully updated using the sources and methods described below. As a first step, vertical aerial photographs were examined at the offices of the USVI Department of Planning and Natural Resources (DPNR) in St. Thomas and the offices of the BVI Conservation and Fisheries Department (CFD) on Tortola. The initial aerial photograph classification was followed by overflight surveys of the entire study area, flying at elevations of 400-600 feet and slow air speed. Overflights were conducted using U.S. Coast Guard (USCG) helicopters, pilots, and support crew. During this work, an experienced coastal geologist delineated the intertidal shoreline habitats directly onto 1:24,000-scale USGS or 1:25,000-scale UKDOS topographic maps. Where appropriate, multiple habitats were described for each shoreline segment. Data from the National Wetlands Inventory (NWI) for the USVI, published in draft form in 1989 (based on 1:40,000 1983 CIR and 1985 B-W photography), were also used as a supplementary data source, particularly for mangrove areas and tidal flats. In many cases, the depiction of mangroves was modified substantially from the original NWI data, based on the more recent aerial photography and overflights, as well as information provided by expert reviewers. Mangrove polygons for the BVIs were based primarily on digital data from the 1993 Coastal Resource Atlas of the British Virgin Islands produced by the Natural Resources Institute (NRI), Overseas Development Administration (source scale 1:10,000). Mangrove polygons from the NRI data set were generally not altered, although in some cases mangrove areas identified during the overflights and by expert reviewers may have been added or changed slightly.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

The ESI data use USGS 1:24,000 topographic quadrangles as the basemap. It is estimated that the ESI shoreline classification has a minimum mapping unit of 50 feet.

Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Originator: Research Planning, Inc.
Publication_Date: Unpublished Material
Title: Overflight maps
Geospatial_Data_Presentation_Form: Maps
Source_Scale_Denominator: 24000-25000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1998
Source_Currentness_Reference: Date of survey
Source_Citation_Abbreviation: None

Source_Contribution: ESI information from overflight
Source_Information:

Source_Citation:

Citation_Information:

Originator: National Wetlands Inventory
Publication_Date: Unpublished Material
Title: National Wetlands Inventory
Geospatial_Data_Presentation_Form: Vector Digital Data
Type_of_Source_Media: Online
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1998
Source_Currentness_Reference: Date of survey
Source_Citation_Abbreviation: None
Source_Contribution: ESI information
Source_Information:

Source_Citation:

Citation_Information:

Originator: USGS
Publication_Date: Unknown
Title: DLG's
Geospatial_Data_Presentation_Form: Vector digital data
Type_of_Source_Media: Online and CD-ROM
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Date data were received
Source_Citation_Abbreviation: None
Source_Contribution: ESI shoreline data
Source_Information:

Source_Citation:

Citation_Information:

Originator: NOAA, NOS
Publication_Date: Unknown
Title: Digital NOS Topographic sheets
Geospatial_Data_Presentation_Form: Vector digital data
Type_of_Source_Media: CD-ROM
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Date data were reviewed
Source_Citation_Abbreviation: None
Source_Contribution: ESI shoreline 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: 200108
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@noaa.gov

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: 1290
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Area point
Point_and_Vector_Object_Count: 1290

SDTS_Terms_Description:

 SDTS_Point_and_Vector_Object_Type: Complete chain
 Point_and_Vector_Object_Count: 1772
SDTS_Terms_Description:

 SDTS_Point_and_Vector_Object_Type: Link
 Point_and_Vector_Object_Count: 126827
SDTS_Terms_Description:

 SDTS_Point_and_Vector_Object_Type: Node, planar graph
 Point_and_Vector_Object_Count: 327
SDTS_Terms_Description:

 SDTS_Point_and_Vector_Object_Type: Node, planar graph
 Point_and_Vector_Object_Count: 1776

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

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: S
  Enumerated_Domain_Value_Definition: Shoreline
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200101
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: 1
  Enumerated_Domain_Value_Definition: Original digital information
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

  Enumerated_Domain:

  Enumerated_Domain_Value: 2
  Enumerated_Domain_Value_Definition: Low-altitude overflight
  Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

  Enumerated_Domain:

  Enumerated_Domain_Value: 5
  Enumerated_Domain_Value_Definition: Digitized from scanned 1:24,000

USGS topographic quadrangle
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 6
Enumerated_Domain_Value_Definition: National Wetland Inventory
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 7
Enumerated_Domain_Value_Definition: Research Planning Inc. Index
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10
Enumerated_Domain_Value_Definition: Digital data from the Natural Resource
Institute (BVI)
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 12
Enumerated_Domain_Value_Definition: Natural Resource Institute (BVI)
Lagoons data
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 13
Enumerated_Domain_Value_Definition: Digitized from scanned BVI
topographic quadrangle
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200101
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: W
        Enumerated_Domain_Value_Definition: Water
        Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200101

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 Virgin Islands
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: 200108
    Metadata_Review_Date: 200108
    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@noaa.gov
    Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
    Metadata_Standard_Version: FGDC-STD-001-1998

U.S. Virgin Islands and British Virgin Islands ESI: ESI (Environmental Sensitivity Index Shoreline Types)

Metadata:

Identification_Information:

    Citation:

        Citation_Information:

            Originator:
National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.

            Publication_Date: 200108

            Title:
U.S. Virgin Islands and British Virgin Islands ESI: ESI (Environmental Sensitivity Index Shoreline Types)

            Edition: First

            Geospatial_Data_Presentation_Form: Atlas

            Series_Information:

                Series_Name: None

                Issue_Identification: United States Virgin Islands and British Virgin Islands

            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 National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast

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Description:

   Abstract:
      This data set comprises the Environmental Sensitivity Index (ESI) data for the Virgin Islands. 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. The Clean Water Act with amendments by the Oil Pollution Act of 1990 requires response plans for immediate and effective protection of sensitive resources.

Time_Period_of_Content:

   Time_Period_Information:

      Range_of_Dates/Times:

         Beginning_Date: 199807
         Ending_Date: 200107
   Currentness_Reference: Project time span

Status:

   Progress: Complete
   Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

   Bounding_Coordinates:

      West_Bounding_Coordinate: -65.167
      East_Bounding_Coordinate: -64.065
      North_Bounding_Coordinate: 18.943
      South_Bounding_Coordinate: 17.467

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: US Virgin Islands
      Place_Keyword: British Virgin Islands

Access_Constraints: None
Use_Constraints:
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Browse_Graphic:

    Browse_Graphic_File_Name: vidatafig.jpg
    Browse_Graphic_File_Description:
        Relationships between spatial data layers and attribute data tables for the Virgin Islands data.
    Browse_Graphic_File_Type: JPEG

Data_Set_Credit:
    This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.

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: benthic.e00, birds.e00, bio_lut.e00, biofile.e00, biores.e00, breed.e00, breed_dt.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, invertl.e00, mgt.e00, m_mammal.e00, reptiles.e00, seasonal.e00, shelfbnd.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00, wetlands.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.

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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 CD-ROM 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 shoreline habitats of the U.S. Virgin Islands were previously mapped during overflights and ground surveys conducted for the Virgin Islands Resource Management Cooperative and the National Oceanic and Atmospheric Administration (NOAA), published in 1986. For the current project, the original ESI maps were re-examined and fully updated using the sources and methods described below. As a first step, vertical aerial photographs were examined at the offices of the USVI Department of Planning and Natural Resources (DPNR) in St. Thomas and the offices of the BVI Conservation and Fisheries Department (CFD) on Tortola. The initial aerial photograph classification was followed by overflight surveys of the entire study area, flying at elevations of 400-600 feet and slow air speed. Overflights were conducted using U.S. Coast Guard (USCG) helicopters, pilots, and support crew. During this work, an experienced coastal geologist delineated the intertidal shoreline habitats directly onto 1:24,000-scale USGS or 1:25,000-scale UKDOS topographic maps. Where appropriate, multiple habitats were described for each shoreline segment. Data from the National Wetlands Inventory (NWI) for the USVI, published in draft form in 1989 (based on 1:40,000 1983 CIR and 1985 B-W photography), were also used as a supplementary data source, particularly for mangrove areas and tidal flats. In many cases, the depiction of mangroves was modified substantially from the original NWI data, based on the more recent aerial photography and overflights, as well as information provided by expert reviewers. Mangrove polygons for the BVIs were based primarily on digital data from the 1993 Coastal Resource Atlas of the British Virgin Islands produced by the Natural Resources Institute (NRI), Overseas Development Administration (source scale 1:10,000). Mangrove polygons from the NRI data set were generally not altered, although in some cases mangrove areas identified during the overflights and by expert reviewers may have been added or changed slightly.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

The ESI data use USGS 1:24,000 topographic quadrangles as the basemap. It is estimated that the ESI shoreline classification has a minimum mapping unit of 50 feet.

Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Originator: Research Planning, Inc.
Publication_Date: Unpublished Material
Title: Overflight maps
Geospatial_Data_Presentation_Form: Maps
Source_Scale_Denominator: 24000-25000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1998
Source_Currentness_Reference: Date of survey
Source_Citation_Abbreviation: None
Source_Contribution: ESI information from overflight
Source_Information:

Source_Citation:

Citation_Information:

Originator: National Wetlands Inventory
Publication_Date: Unpublished Material
Title: National Wetlands Inventory
Geospatial_Data_Presentation_Form: Vector Digital Data
Type_of_Source_Media: Online
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1998
Source_Currentness_Reference: Date of survey
Source_Citation_Abbreviation: None
Source_Contribution: ESI information
Source_Information:

Source_Citation:

Citation_Information:

Originator: USGS
Publication_Date: Unknown
Title: DLG's
Geospatial_Data_Presentation_Form: Vector digital data
Type_of_Source_Media: Online and CD-ROM
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Date data were received
Source_Citation_Abbreviation: None
Source_Contribution: ESI shoreline data
Source_Information:

Source_Citation:

Citation_Information:

Originator: NOAA, NOS
Publication_Date: Unknown

Title: Digital NOS T-sheets
Geospatial_Data_Presentation_Form: Vector digital data
Type_of_Source_Media: CD-ROM
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Date data were reviewed
Source_Citation_Abbreviation: None
Source_Contribution: ESI shoreline 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: 200108
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@noaa.gov

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:* 750
> *SDTS_Terms_Description:*
>
> > *SDTS_Point_and_Vector_Object_Type:* Area point
> > *Point_and_Vector_Object_Count:* 750
> *SDTS_Terms_Description:*
>
> > *SDTS_Point_and_Vector_Object_Type:* Complete chain
> > *Point_and_Vector_Object_Count:* 3876
> *SDTS_Terms_Description:*
>
> > *SDTS_Point_and_Vector_Object_Type:* Link
> > *Point_and_Vector_Object_Count:* 141061
> *SDTS_Terms_Description:*
>
> > *SDTS_Point_and_Vector_Object_Type:* Node, planar graph
> > *Point_and_Vector_Object_Count:* 3649

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

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 July 1998 for US Virgin Islands and June 1999 for British Virgin Islands.
> > > *Entity_Type_Definition_Source:* Research Planning, Inc.

Attribute:

>*Attribute_Label:* ESI
>*Attribute_Definition:*
>>To determine the sensitivity of a particular intertidal shoreline habitat, the following factors are integrated: 1) Shoreline type (substrate, grain size, tidal elevation, origin); 2) Exposure to wave and tidal energy; 3) Biological productivity and sensitivity; and 4) Ease of cleanup. Prediction of the behavior and persistence of oil in intertidal habitats is based on an understanding of the dynamics of the coastal environments, not just the substrate type and grain size. The intensity of energy expended upon a shoreline by wave action, tidal currents, and river currents directly affects the persistence of stranded oil. The need for shoreline cleanup activities is determined, in part, by the slowness of natural processes in removal of oil stranded on the shoreline. The potential for biological injury, and ease of cleanup of spilled oil are also important factors in the ESI ranking. Generally speaking, areas exposed to high levels of physical energy, such as wave action and tidal currents, and low biological activity rank low on the scale, whereas sheltered areas with associated high biological activity have the highest ranking. The list below includes the shoreline habitats delineated for the Virgin Islands, presented in order of increasing sensitivity to spilled oil: 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; 9B) Sheltered, Vegetated Low Banks; 10D) 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 Wave-cut Platforms in Bedrock
>>>*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/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: 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/3A/2A
Enumerated_Domain_Value_Definition:
Exposed, Solid Man-made Structures/Fine- to Medium-grained Sand
Beaches/Exposed Wave-cut Platforms in Bedrock
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/6B
Enumerated_Domain_Value_Definition: Exposed, Solid Man-made
Structures/Riprap
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/2A
Enumerated_Domain_Value_Definition:
    Fine- to Medium-grained Sand Beaches/Exposed Wave-cut Platforms
    in Bedrock
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: 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: 4/2A
Enumerated_Domain_Value_Definition:
    Coarse-grained Sand Beaches/Exposed Wave-cut Platforms in
    Bedrock
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: 5/2A
Enumerated_Domain_Value_Definition:

Mixed Sand and Gravel Beaches/Exposed Wave-cut Platforms in
Bedrock
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: 6A
Enumerated_Domain_Value_Definition: Gravel Beaches
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

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

Enumerated_Domain:

Enumerated_Domain_Value: 6A/3A
Enumerated_Domain_Value_Definition: Gravel Beaches/Fine- to Medium-
grained Sand 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: 7
Enumerated_Domain_Value_Definition: Exposed 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:* 8B/7
> *Enumerated_Domain_Value_Definition:* Sheltered, Solid Man-made
> Structures/Exposed 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:* 9A
> *Enumerated_Domain_Value_Definition:* Sheltered Tidal Flats
> *Enumerated_Domain_Value_Definition_Source:* Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

> *Enumerated_Domain_Value:* 9B
> *Enumerated_Domain_Value_Definition:* Sheltered, Vegetated Low Banks
> *Enumerated_Domain_Value_Definition_Source:* Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

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

Attribute_Domain_Values:

Enumerated_Domain:

> *Enumerated_Domain_Value:* 10D/2A
> *Enumerated_Domain_Value_Definition:* Mangroves/Exposed Wave-cut
> Platforms in Bedrock
> *Enumerated_Domain_Value_Definition_Source:* Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

> *Enumerated_Domain_Value:* 10D/3A
> *Enumerated_Domain_Value_Definition:* Mangroves/Fine- to Medium-grained
> Sand Beaches
> *Enumerated_Domain_Value_Definition_Source:* Research Planning, Inc.

Attribute_Domain_Values:

Enumerated_Domain:

> *Enumerated_Domain_Value:* 10D/3A/7
> *Enumerated_Domain_Value_Definition:*
> > 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: 10D/5
Enumerated_Domain_Value_Definition: Mangroves/Mixed Sand and Gravel
Beaches
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10D/6A
Enumerated_Domain_Value_Definition: Mangroves/Gravel Beaches
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10D/6B/7
Enumerated_Domain_Value_Definition: Mangroves/Riprap/Exposed Tidal
Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10D/7
Enumerated_Domain_Value_Definition: 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: 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: 199807
Ending_Date_of_Attribute_Values: 200101
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: 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: 199807
Ending_Date_of_Attribute_Values: 200101
Attribute:

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

Enumerated_Domain:

Enumerated_Domain_Value: 1
Enumerated_Domain_Value_Definition: Original digital information (from NOAA, NOS T-sheets)
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 2
Enumerated_Domain_Value_Definition: Low-altitude overflight
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 5
Enumerated_Domain_Value_Definition: Digitized from scanned 1:24,000 USGS topographic quadrangle
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 6
Enumerated_Domain_Value_Definition: National Wetland Inventory
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 7
Enumerated_Domain_Value_Definition: Research Planning Inc. Index
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 8
Enumerated_Domain_Value_Definition: USGS Digital Line Graph data
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10
Enumerated_Domain_Value_Definition: Digital data from the Natural Resource Institute (BVI)
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 12
Enumerated_Domain_Value_Definition: Natural Resource Institute (BVI) Lagoons data
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 13
Enumerated_Domain_Value_Definition: Digitized from scanned BVI topographic quadrangle
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200101
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: 199807
Ending_Date_of_Attribute_Values: 200101
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 July 1998 for US Virgin Islands and June 1999 for the British Virgin
        Islands.
    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: 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: 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 Flats
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10D
Enumerated_Domain_Value_Definition: Mangroves
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: 199807
Ending_Date_of_Attribute_Values: 200101
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: 199807
Ending_Date_of_Attribute_Values: 200101
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: 199807
Ending_Date_of_Attribute_Values: 200101

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 Virgin Islands
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: 200108
    Metadata_Review_Date: 200108
    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@noaa.gov
Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

U.S. Virgin Islands and British Virgin Islands ESI: INDEX

Metadata:

- [Identification_Information](#)
- [Data_Quality_Information](#)
- [Spatial_Data_Organization_Information](#)
- [Spatial_Reference_Information](#)
- [Entity_and_Attribute_Information](#)
- [Distribution_Information](#)
- [Metadata_Reference_Information](#)

Identification_Information:

    Citation:

        Citation_Information:

            Originator:
National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.

Publication_Date: 200108
Title: U.S. Virgin Islands and British Virgin Islands ESI: INDEX
Edition: First
Geospatial_Data_Presentation_Form: Atlas
Series_Information:

    Series_Name: None
Issue_Identification: United States Virgin Islands and British Virgin Islands
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 National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.

    Description:

Abstract:

This data set comprises the Environmental Sensitivity Index (ESI) data for the Virgin Islands. 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 the study area Index.

Purpose:

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

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 199807
Ending_Date: 200107
Currentness_Reference: Project time span

Status:

Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -65.167
East_Bounding_Coordinate: -64.065
North_Bounding_Coordinate: 18.943
South_Bounding_Coordinate: 17.467

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: US Virgin Islands
Place_Keyword: British Virgin Islands

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: vidatafig.jpg
Browse_Graphic_File_Description:

Relationships between spatial data layers and attribute data tables for the Virgin Islands data.
Browse_Graphic_File_Type: JPEG
Data_Set_Credit:
This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.
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: benthic.e00, birds.e00, bio_lut.e00, biofile.e00, biores.e00, breed.e00, breed_dt.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, invertl.e00, mgt.e00, m_mammal.e00, reptiles.e00, seasonal.e00, shelfbnd.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00, wetlands.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 1:24,000 USGS 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 and checked once again for completeness and topological and logical consistency. Any errors in the shoreline classification are updated prior to digitization of the biological and human-use layers. All layers use the shoreline as the geographic reference so that there are no slivers in the geographic coordinates. The hardcopy biological information is compiled onto 1:24,000 USGS topographic quadrangles by a biological expert using data from regional specialists in the form of maps, tables, charts, written descriptions of wildlife distributions, and personal 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 1:55,000 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 CD-ROM 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 shoreline habitats of the U.S. Virgin Islands were previously mapped during overflights and ground surveys conducted for the Virgin Islands Resource Management Cooperative and the National Oceanic and Atmospheric Administration (NOAA), published in 1986. For the current project, the original ESI maps were re-examined and fully updated using the sources and methods described below. As a first step, vertical aerial photographs were examined at the offices of the USVI Department of Planning and Natural Resources (DPNR) in St. Thomas and the offices of the BVI Conservation and Fisheries Department (CFD) on Tortola. The initial aerial photograph classification was followed by overflight surveys of the entire study area, flying at elevations of 400-600 feet and slow air speed. Overflights were conducted using U.S. Coast Guard (USCG) helicopters, pilots, and support crew. During this work, an experienced coastal geologist delineated the intertidal shoreline habitats directly onto 1:24,000-scale USGS or 1:25,000-scale UKDOS topographic maps. Where appropriate, multiple habitats were described for each shoreline segment. Data from the National Wetlands Inventory (NWI) for the USVI, published in draft form in 1989 (based on 1:40,000 1983 CIR and 1985 B-W photography), was also used as a supplementary data source, particularly for mangrove areas and tidal flats. In many cases, the depiction of mangroves was modified substantially from the original NWI data, based on the more recent aerial photography and overflights, as well as information provided by expert reviewers. Mangrove polygons for the BVIs were based primarily on digital data from the 1993 Coastal Resource Atlas of the British Virgin Islands produced by the Natural Resources Institute (NRI), Overseas Development Administration (source scale 1:10,000). Mangrove polygons from the NRI data set were generally not altered, although in some cases mangrove areas identified during the overflights and by expert reviewers may have been added or changed slightly.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

The ESI data use USGS 1:24,000 topographic quadrangles as the basemap. It is estimated that the ESI shoreline classification has a minimum mapping unit of 50 feet.

Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Originator: Research Planning, Inc.
Publication_Date: Unpublished Material
Title: RPI Generated Index
Geospatial_Data_Presentation_Form: Vector digital data
Source_Scale_Denominator: 24000-25000
Type_of_Source_Media: CD-ROM
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000

Source_Currentness_Reference: Date of creation
Source_Citation_Abbreviation: None
Source_Contribution: Index data
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: 200108
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@noaa.gov

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: 15
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Area point
Point_and_Vector_Object_Count: 15
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Complete chain
Point_and_Vector_Object_Count: 57

SDTS_Terms_Description:

　　SDTS_Point_and_Vector_Object_Type: Link
　　Point_and_Vector_Object_Count: 410
SDTS_Terms_Description:

　　SDTS_Point_and_Vector_Object_Type: Node, planar graph
　　Point_and_Vector_Object_Count: 46

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

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 15.
　　　　　　Attribute_Definition_Source: Research Planning, Inc.
　　　　　　Attribute_Domain_Values:

　　　　　　　　Range_Domain:

　　　　　　　　　　Range_Domain_Minimum: 1

Range_Domain_Maximum: 15
Attribute_Units_of_Measure: Nominal
Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200101
Attribute:

Attribute_Label: TOPO-NAME
Attribute_Definition:
USGS 1:25,000 topographic map name. Some polygons straddle two or more maps and all map names are included in this attribute. The date (latest/revised) of the USGS maps are also included in this field
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Frederiksted, V.I. (1982)
Enumerated_Domain_Value_Definition: USGS 1:25,000 Topographic map name
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Jost Van Dyke, U.K. (1984)
Enumerated_Domain_Value_Definition: USGS 1:25,000 Topographic map name
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Tortola, U.K. (1984)
Enumerated_Domain_Value_Definition: USGS 1:25,000 Topographic map name
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Beef Island, U.K. (1984)
Enumerated_Domain_Value_Definition: USGS 1:25,000 Topographic map name
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Virgin Gorda, U.K. (1984)
Enumerated_Domain_Value_Definition: USGS 1:25,000 Topographic map name
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Anegada, U.K. (1959)

Enumerated_Domain_Value_Definition: USGS 1:25,000 Topographic map name
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

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Enumerated_Domain_Value: Christiansted, V.I. (1982)
Enumerated_Domain_Value_Definition: USGS 1:25,000 Topographic map name
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: East Point, V.I. (1982)
Enumerated_Domain_Value_Definition: USGS 1:25,000 Topographic map name
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Western St. Thomas, V.I. (1982)
Enumerated_Domain_Value_Definition: USGS 1:25,000 Topographic map name
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Central St. Thomas, V.I. (1982)
Enumerated_Domain_Value_Definition: USGS 1:25,000 Topographic map name
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

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Enumerated_Domain_Value: Eastern St. Thomas, V.I. (1982)
Enumerated_Domain_Value_Definition: USGS 1:25,000 Topographic map name
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Western St. John, V.I. (1982)
Enumerated_Domain_Value_Definition: USGS 1:25,000 Topographic map name
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Eastern St. John, V.I. (1982)
Enumerated_Domain_Value_Definition: USGS 1:25,000 Topographic map

name
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Peter Island, U.K. (1984)
Enumerated_Domain_Value_Definition: USGS 1:25,000 Topographic map
name
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200101
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: 55,000
Enumerated_Domain_Value_Definition: Scale = 1:55,000
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 58,000
Enumerated_Domain_Value_Definition: Scale = 1:58,000
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 60,000
Enumerated_Domain_Value_Definition: Scale = 60,000
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200101
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: 90.000
Attribute_Units_of_Measure: Degree
Beginning_Date_of_Attribute_Values: 199807

Ending_Date_of_Attribute_Values: 200101
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: 11,17
Enumerated_Domain_Value_Definition: Page size = 11' by 17'
Enumerated_Domain_Value_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: 199807
Ending_Date_of_Attribute_Values: 200101

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 Virgin Islands
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: 200108
Metadata_Review_Date: 200108
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@noaa.gov
Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

U.S. Virgin Islands and British Virgin Islands ESI: BIRDS

Metadata:

Identification_Information:

    Citation:

        Citation_Information:

            Originator:
National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.
Publication_Date: 200108
Title: U.S. Virgin Islands and British Virgin Islands ESI: BIRDS
Edition: First
Geospatial_Data_Presentation_Form: Atlas
Series_Information:

            Series_Name: None
Issue_Identification: United States Virgin Islands and British Virgin Islands
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 National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.
    Description:

Abstract:
This data set comprises the Environmental Sensitivity Index (ESI) data for the Virgin Islands. 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. The Clean Water Act, with amendments by the Oil Pollution Act of 1990, requires response plans for immediate and effective protection of sensitive resources.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 199807
Ending_Date: 200107
Currentness_Reference: Project time span

Status:

Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -65.167
East_Bounding_Coordinate: -64.065
North_Bounding_Coordinate: 18.943
South_Bounding_Coordinate: 17.467

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: Gull
Theme_Keyword: Tern
Theme_Keyword: Passerine
Theme_Keyword: Pelagic
Theme_Keyword: Raptor
Theme_Keyword: Shorebird
Theme_Keyword: Wading
Theme_Keyword: Waterfowl

Place:

Place_Keyword_Thesaurus: None
Place_Keyword: US Virgin Islands
Place_Keyword: British Virgin Islands

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:* vidatafig.jpg
>*Browse_Graphic_File_Description:*
>>Relationships between spatial data layers and attribute data tables for the Virgin Islands data.
>*Browse_Graphic_File_Type:* JPEG

Data_Set_Credit:
>This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.

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: benthic.e00, birds.e00, bio_lut.e00, biofile.e00, biores.e00, breed.e00, breed_dt.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, invertl.e00, mgt.e00, m_mammal.e00, reptiles.e00, seasonal.e00, shelfbnd.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00, wetlands.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 1:24,000 USGS 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 and 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 1:24,000 USGS topographic quadrangles by a biological expert using data from regional specialists in the form of maps, tables, charts, written descriptions of wildlife distributions, and personal 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 1:55,000 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 CD-ROM 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 are also modified to include the atlas number, so multiple atlases can be combined and RARNUMs remain unique. RARNUMs are redefined on an element basis, so "resource at risk" groupings will contain only a single element. HUNUMs are also modified to include the atlas number. ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the CDs for ease of use of the ESI data. The database files are 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 US Fish and Wildlife Service, 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. Seven major categories, or ELEMENTs, of biological resources were considered during data compilation: birds; fish; invertebrates; habitats; 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, BREED, SEASONAL, 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 Virgin Islands this is 67), an element specific number (birds are layer 1, fish are layer 2, etc.) and a unique record number. The RARNUM represents a unique combination of species, seasonalities, concentrations, and source information. For each of these groupings, a number is generated. That number is concatenated with the atlas number to create a "resource at risk" number that is unique across atlases.] The items in BIORES include: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, ELEMENT, EL_SPE, and EL_SPE_SEA. SPECIES_ID is the numeric identifier of each species and is unique within each ELEMENT. CONC is the concentration of the species and can be descriptive (LOW, MEDIUM, HIGH, etc.) or an actual count of the number of individuals or nests associated with a polygon or point. SEASON_ID contains a numeric identifier for the unique monthly presence and life history characteristics of each species at a given location. There can be one seasonality record per species, or the same species can have different monthly presence or breeding activities at different sites. When this occurs, a new record with a different SEASON_ID is referenced. G_SOURCE contains the SOURCE_ID for geographic information, and S_SOURCE contains the SOURCE_ID for seasonality information. Both items link to the SOURCES data table. EL_SPE is a concatenation of ELEMENT and SPECIES_ID and links to the SPECIES and STATUS data tables. EL_SPE_SEA is a concatenation of ELEMENT, SPECIES_ID, and SEASON_ID and links to the SEASONAL and BREED data tables. The SPECIES data table contains the SPECIES_ID (described above), common name (NAME), scientific name (GEN_SPEC), biological element (ELEMENT), biological subelement (SUBELEMENT), Natural Heritage Program global conservation status rank (NHP), date the list of NHP ranks was published (DATE_PUB), and EL_SPE. The item SUBELEMENT

refers to the grouping of the species: (ELEMENT, subelement): BIRDS: bird; gull_tern, passerine, pelagic, raptor, shorebird, wading, waterfowl. The STATUS data table contains records for each species that is threatened or endangered on state or federal lists. The items include: ELEMENT, SPECIES_ID, STATE (two-letter state abbreviation, populated with "VI" for U.S. Virgin Islands), S_F [state (USVI territory) or federal (U.S.) listing], T_E (threatened or endangered status), DATE_PUB (publication date of the source used to assign T or E status), and EL_SPE. The SEASONAL data table indicates the presence of a particular species in a particular location by month (JAN-DEC). The BIORES table is linked to the SEASONAL table using the item EL_SPE_SEA (a concatenation of the first letter of the ELEMENT, SPECIES_ID, and SEASON_ID). The BREED data table contains the life stage or life history data for each unique combination of ELEMENT, SPECIES_ID, and SEASON_ID (or EL_SPE_SEA). It contains up to 12 records corresponding to each month of the year that the species is present in that location. The items BREED1-BREED5 will reflect different life activities, depending on the ELEMENT referenced. For BIRDS, BREED1 = nesting. There are no BREED2-BREED5 activities for BIRDS, so those columns are populated with a dash (-). 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. 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, GEN_SPEC, S_F, T_E, NHP, DATE_PUB, CONC, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC, BREED1, BREED2, BREED3, BREED4, BREED5, RARNUM, G_SOURCE, S_SOURCE, and BREED. All of these items are the same as their counterparts in the individual files described above, except the BREED1-BREED5 items. BREED is a newly generated variable used to link to the BREED_DT file, a modified, more compact version of the aforementioned BREED file. BREED1-BREED5 give a text summary of when each life stage occurs within that polygon. The life stages referred to are the same as those listed in the previous table. The link to the BIOFILE may be made through BIO_LUT using ID to link to RARNUM, or it may be linked directly to the RARNUM in each of the biology cover's attribute files. As mentioned, BREED_DT is an auxiliary support file to the flat file structure, which allows the user to do searches based on month for seasonal breeding activities. The link from the flat file to BREED_DT is the BREED item. A second supporting data file is SOURCES. This is the same as the 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 1:24,000 USGS 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:
BVI Conservation and Fisheries Department; Contact: B. Lettsome,
Chief Conservation and Fisheries Officer, BVI CFD
Publication_Date: Unpublished Material
Title: Wildlife and Fisheries Resources for the British Virgin Islands
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Bird data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Raffaele, H., et al.
Publication_Date: 1998
Title: A Guide to the Birds of the West Indies
Geospatial_Data_Presentation_Form: Document
Publication_Information:

Publication_Place: Princeton, NJ
Publisher: Princeton University Press
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1998
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Bird data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Boulon, R.H.
Publication_Date: 1999
Title: Shoreline Guide to the U.S. Virgin Islands
Geospatial_Data_Presentation_Form: Document
Publication_Information:

Publication_Place: St. Thomas, USVI
Publisher:

USVI Department of Planning and Natural Resources, Division of Fish and Wildlife
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1999
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Bird data
Source_Information:

Source_Citation:

Citation_Information:

Originator:
Knowles, W., USVI Department of Planning and Natural Resources, Division of Fish and Wildlife
Publication_Date: Unpublished Material
Title: Coastal and Wetland Wildlife Resources for St. Croix
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Bird data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Hillis-Starr, Z., National Park Service
Publication_Date: Unpublished Material
Title:
Various Natural and Human-use Resources of Buck Island Reef National Monument
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: 1999
Source_Currentness_Reference: Date of study

Source_Citation_Abbreviation: None
Source_Contribution: Bird data
Source_Information:

Source_Citation:

Citation_Information:

Originator:
Pierce, J., USVI Department of Planning and Natural Resources,
Division of Fish and Wildlife
Publication_Date: Unpublished Material
Title:
Seabird Colonies, Seasonality, and Related Information for the Virgin
Islands
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Bird data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Dammann, A.E. and D.W. Nellis
Publication_Date: 1992
Title: A Natural History Atlas to the Cays of the U.S. Virgin Islands
Geospatial_Data_Presentation_Form: Document
Publication_Information:

Publication_Place: Sarasota, FL
Publisher: Pineapple Press
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1992
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Bird data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Virgin Island National Park
Publication_Date: Unpublished Material
Title:
Rare and Unique Plants and Animals of Virgin Islands National Park
Geospatial_Data_Presentation_Form: Document and Map
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: UNKNOWN
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Bird data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Evans, M., United States Fish and Wildlife Service
Publication_Date: Unpublished Material
Title:
Natural and Human-use Resources of Sandy Point NWR and Other
USVI Locations
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Bird data
Source_Information:

Source_Citation:

Citation_Information:

Originator:
Davis, C., University of the Virgin Islands Cooperative Extension
Service
Publication_Date: Unpublished Material
Title: Edits and Additions to Natural Resource Locations for St. Croix
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Bird data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Thomson, J., Friends of Sandy Point
Publication_Date: Unpublished Material
Title: Review Edits for St. Croix
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Bird data
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: 200108
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@noaa.gov

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: 388
        SDTS_Terms_Description:

            SDTS_Point_and_Vector_Object_Type: Area point
            Point_and_Vector_Object_Count: 388
        SDTS_Terms_Description:

            SDTS_Point_and_Vector_Object_Type: Complete chain
            Point_and_Vector_Object_Count: 506
        SDTS_Terms_Description:

            SDTS_Point_and_Vector_Object_Type: Link
            Point_and_Vector_Object_Count: 84137
        SDTS_Terms_Description:

            SDTS_Point_and_Vector_Object_Type: Node, planar graph
            Point_and_Vector_Object_Count: 486

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

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, and oil spill vulnerability and sensitivity. The SPECIES table lists all the birds included on the maps, sorted by subgroup. These species are included either because of their likelihood of direct or indirect impact by an oil spill or similar incident, their general rarity or imperilment, or their special protection status as threatened or endangered. Marine, wetland, and aquatic species; nesting sites and colonies; and protected species are especially emphasized. Seabird concentration areas and nesting colonies in this atlas were based mainly on information provided by U.S. Virgin Islands (USVI) Department of Planning and Natural Resources (DPNR) Division of Fish and Wildlife and British Virgin Islands (BVI) Conservation and Fisheries Department (CFD) biologists. Concentration areas for wetland and aquatic birds were based mainly on information presented in several USVI DPNR Division of Fish and Wildlife reports, and through discussions with DPNR, U.S. Fish & Wildlife Service (USFWS), National Park Service (NPS), and BVI CFD biologists and resource managers.
        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 (67), 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 Virgin Islands ESI data set (SPECIES ID, NAME): 18, Green-winged teal; 34, American coot; 54, Great blue heron; 70, Killdeer; 77, Osprey; 86, Least tern; 87, Little blue heron; 88, Great egret; 89, Snowy egret; 93, Cattle egret; 94, Tricolored heron; 95, Roseate tern; 98, Laughing gull; 107, Peregrine falcon; 118, Brown pelican; 119, Magnificent frigatebird; 120, Yellow-crowned night-heron; 126, Brown noddy; 127, Sooty tern; 128, Masked (blue-faced) booby; 135, Sandwich tern; 137, Royal tern; 139, Snowy plover; 142, Black-necked stilt; 148, Ruddy duck; 152, American oystercatcher; 154, Wilson's plover; 155, Willet; 179, Pied-billed grebe; 188, Sora; 190, Blue-winged teal; 192, Common moorhen; 216, Belted kingfisher; 252, White-tailed tropicbird; 260, Red-footed booby; 261, Brown booby; 269, Least grebe; 283, Bridled tern; 287, Audubon's shearwater; 297, White-crowned pigeon; 307, Caribbean coot; 342, Red-billed tropicbird; 367, Greater flamingo; 440, Scaly-naped pigeon; 444, White-cheeked pintail; 449, Zenaida dove; 458, Northern waterthrush; 564, Common ground-dove; 1001, Gulls; 1002, Shorebirds; 1003, Waterfowl; 1004, Wading birds; 1008, Terns; 1012, Neotropical migrants; 1018, Passerine birds; 1022, Seabirds.
        Attribute_Definition_Source: NOAA
        Attribute_Domain_Values:

        Range_Domain:

            Range_Domain_Minimum: 670100001
            Range_Domain_Maximum: 670100389
            Attribute_Units_of_Measure: Ordered
      Beginning_Date_of_Attribute_Values: 199807
      Ending_Date_of_Attribute_Values: 200107
    Attribute:

Attribute_Label: RARNUM
Attribute_Definition:
> An identifier that links directly to the BIORES table or the flat format BIOFILE table.
> RARNUM values of 0 are holes in polygons and do not contain information.
Attribute_Definition_Source: NOAA
Attribute_Domain_Values:

> *Range_Domain:*

>> *Range_Domain_Minimum:* 67000001
>> *Range_Domain_Maximum:* 67000102
Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200107

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 Virgin Islands
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:* 200108

Metadata_Review_Date: 200108
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@noaa.gov
Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

U.S. Virgin Islands and British Virgin Islands ESI: FISH (Fish Polygons)

Metadata:

- Identification_Information
- Data_Quality_Information
- Spatial_Data_Organization_Information
- Spatial_Reference_Information
- Entity_and_Attribute_Information
- Distribution_Information
- Metadata_Reference_Information

Identification_Information:

 Citation:

  Citation_Information:

   Originator:
    National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.
   Publication_Date: 200108
   Title: U.S. Virgin Islands and British Virgin Islands ESI: FISH (Fish Polygons)
   Edition: First
   Geospatial_Data_Presentation_Form: Atlas
   Series_Information:

    Series_Name: None
    Issue_Identification: United States Virgin Islands and British Virgin Islands
   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 National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.
 Description:

Abstract:

> This data set comprises the Environmental Sensitivity Index (ESI) data for the Virgin Islands. 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 polygonal data for fish.

Purpose:

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

Time_Period_of_Content:

> *Time_Period_Information:*

>> *Range_of_Dates/Times:*

>>> *Beginning_Date:* 199807
>>> *Ending_Date:* 200107

> *Currentness_Reference:* Project time span

Status:

> *Progress:* Complete
> *Maintenance_and_Update_Frequency:* None Scheduled

Spatial_Domain:

> *Bounding_Coordinates:*

>> *West_Bounding_Coordinate:* -65.167
>> *East_Bounding_Coordinate:* -64.065
>> *North_Bounding_Coordinate:* 18.943
>> *South_Bounding_Coordinate:* 17.467

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:* Diadromous
>> *Theme_Keyword:* Nursery
>> *Theme_Keyword:* Resident
>> *Theme_Keyword:* Benthic
>> *Theme_Keyword:* Pelagic

> *Place:*

>> *Place_Keyword_Thesaurus:* None
>> *Place_Keyword:* US Virgin Islands
>> *Place_Keyword:* British Virgin Islands

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: vidatafig.jpg
Browse_Graphic_File_Description:
Relationships between spatial data layers and attribute data tables for the Virgin Islands data.
Browse_Graphic_File_Type: JPEG

Data_Set_Credit:
This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.

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: benthic.e00, birds.e00, bio_lut.e00, biofile.e00, biores.e00, breed.e00, breed_dt.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, invertl.e00, mgt.e00, m_mammal.e00, reptiles.e00, seasonal.e00, shelfbnd.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00, wetlands.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 1:24,000 USGS 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 and 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 1:24,000 USGS topographic quadrangles by a biological expert using data from regional specialists in the form of maps, tables, charts, written descriptions of wildlife distributions, and personal 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 1:55,000 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 CD-ROM 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 are also modified to include the atlas number, so multiple atlases can be combined and RARNUMs remain unique. RARNUMs are redefined on an element basis, so "resource at risk" groupings will contain only a single element. HUNUMs are also modified to include the atlas number. ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the CDs for ease of use of the ESI data. The database files are 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 US Fish and Wildlife Service, 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. Seven major categories, or ELEMENTs, of biological resources were considered during data compilation: birds; fish; invertebrates; habitats; 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, BREED, SEASONAL, 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 Virgin Islands this is 67), an element specific number (birds are layer 1, fish are layer 2, etc.) and a unique record number. The RARNUM represents a unique combination of species, seasonalities, concentrations, and source information. For each of these groupings, a number is generated. That number is concatenated with the atlas number to create a "resource at risk" number that is unique across atlases.] The items in BIORES include: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, ELEMENT, EL_SPE, and EL_SPE_SEA. SPECIES_ID is the numeric identifier of each species and is unique within each ELEMENT. CONC is the concentration of the species and can be descriptive (LOW, MEDIUM, HIGH, etc.) or an actual count of the number of individuals or nests associated with a polygon or point. SEASON_ID contains a numeric identifier for the unique monthly presence and life history characteristics of each species at a given location. There can be one seasonality record per species, or the same species can have different monthly presence or breeding activities at different sites. When this occurs, a new record with a different SEASON_ID is referenced. G_SOURCE contains the SOURCE_ID for geographic information, and S_SOURCE contains the SOURCE_ID for seasonality information. Both items link to the SOURCES data table. EL_SPE is a concatenation of ELEMENT and SPECIES_ID and links to the SPECIES and STATUS data tables. EL_SPE_SEA is a concatenation of ELEMENT, SPECIES_ID, and SEASON_ID and links to the SEASONAL and BREED data tables. The SPECIES data table contains the SPECIES_ID (described above), common name (NAME), scientific name (GEN_SPEC), biological element (ELEMENT), biological subelement (SUBELEMENT), Natural Heritage Program global conservation status rank (NHP), date the list of NHP ranks was published (DATE_PUB), and EL_SPE. The item SUBELEMENT refers to the grouping of the species: (ELEMENT, subelement): FISH: diadromous, e_nursery, e_resident, fish, m_benthic, m_pelagic. The STATUS data table contains records for each species that is threatened or endangered on state or federal lists. The items include: ELEMENT,

SPECIES_ID, STATE (two-letter state abbreviation, populated with "VI" for U.S. Virgin Islands), S_F [state (USVI territory) or federal (U.S.) listing], T_E (threatened or endangered status), DATE_PUB (publication date of the source used to assign T or E status), and EL_SPE. The SEASONAL data table indicates the presence of a particular species in a particular location by month (JAN-DEC). The BIORES table is linked to the SEASONAL table using the item EL_SPE_SEA (a concatenation of the first letter of the ELEMENT, SPECIES_ID, and SEASON_ID). The BREED data table contains the life stage or life history data for each unique combination of ELEMENT, SPECIES_ID, and SEASON_ID (or EL_SPE_SEA). It contains up to 12 records corresponding to each month of the year that the species is present in that location. The items BREED1-BREED5 will reflect different life activities, depending on the ELEMENT referenced. For FISH, BREED1 = spawning, BREED2 = eggs, BREED3 = larvae, BREED4 = juveniles, and BREED5 = adults. 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. 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, GEN_SPEC, S_F, T_E, NHP, DATE_PUB, CONC, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC, BREED1, BREED2, BREED3, BREED4, BREED5, RARNUM, G_SOURCE, S_SOURCE, and BREED. All of these items are the same as their counterparts in the individual files described above, except the BREED1-BREED5 items. BREED is a newly generated variable used to link to the BREED_DT file, a modified, more compact version of the aforementioned BREED file. BREED1-BREED5 give a text summary of when each life stage occurs within that polygon. The life stages referred to are the same as those listed in the previous table. The link to the BIOFILE may be made through BIO_LUT using ID to link to RARNUM, or it may be linked directly to the RARNUM in each of the biology cover's attribute files. As mentioned, BREED_DT is an auxiliary support file to the flat file structure, which allows the user to do searches based on month for seasonal breeding activities. The link from the flat file to BREED_DT is the BREED item. A second supporting data file is SOURCES. This is the same as the 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 1:24,000 USGS 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:
          BVI Conservation and Fisheries Department; Contact: B. Lettsome, Chief Conservation and Fisheries Officer, BVI CFD

Publication_Date: Unpublished Material
Title: Wildlife and Fisheries Resources for the British Virgin Islands
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Fish data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Raffaele, H., et al.
Publication_Date: 1998
Title: A Guide to the Birds of the West Indies
Geospatial_Data_Presentation_Form: Document
Publication_Information:

Publication_Place: Princeton, NJ
Publisher: Princeton University Press
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1998
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Fish data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Boulon, R.H.
Publication_Date: 1999
Title: Shoreline Guide to the U.S. Virgin Islands
Geospatial_Data_Presentation_Form: Document
Publication_Information:

Publication_Place: St. Thomas, USVI
Publisher:
USVI Department of Planning and Natural Resources, Division
of Fish and Wildlife
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1999
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Fish data
Source_Information:

Source_Citation:

Citation_Information:

Originator:
Knowles, W., USVI Department of Planning and Natural Resources,
Division of Fish and Wildlife
Publication_Date: Unpublished Material
Title: Coastal and Wetland Wildlife Resources for St. Croix
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Fish data
Source_Information:

Source_Citation:

Citation_Information:

Originator:
Boulon, R., USVI Department of Planning and Natural Resources,
Division of Fish and Wildlife
Publication_Date: Unpublished Material
Title:
Natural Resource Information for USVI, Particularly St. Thomas and
St. John
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Fish data

Source_Information:

    Source_Citation:

        Citation_Information:

            Originator:
                Caribbean Fishery Management Council and National Marine and
                Fisheries Service; Contact: G. Garcia-Moliner, Caribbean Fishery
                Management Council, San Juan, PR
            Publication_Date: Unpublished material
            Title:
                Fishery Management Plans for Reef Fish, Lobster and Conch for the
                U.S. Caribbean
            Geospatial_Data_Presentation_Form: Document
    Type_of_Source_Media: Paper
    Source_Time_Period_of_Content:

        Time_Period_Information:

            Range_of_Dates/Times:

                Beginning_Date: 1981
                Ending_Date: 1996
            Source_Currentness_Reference: Date of study
        Source_Citation_Abbreviation: None
        Source_Contribution: Fish data
Source_Information:

    Source_Citation:

        Citation_Information:

            Originator: Yoshioka, B., United States Fish and Wildlife Service
            Publication_Date: Unpublished material
            Title:
                Native Stream Fish and Shrimp Distribution, Seasonality, and Life-
                History
            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: 1999
            Source_Currentness_Reference: Date of communication
        Source_Citation_Abbreviation: None
        Source_Contribution: Fish data
Source_Information:

    Source_Citation:

        Citation_Information:

            Originator: Tobias, W.

Publication_Date: 1998
Title:
    Determination of Mangrove Habitat for Nursery Grounds of
    Recreational Fisheries
Geospatial_Data_Presentation_Form: Document
Publication_Information:

    Publication_Place: St. Croix, USVI
    Publisher:
        United States Fish and Wildlife Service, Sportfish Restoration
        Program
Type_of_Source_Media: Personal communication
Source_Time_Period_of_Content:

    Time_Period_Information:

        Single_Date/Time:

            Calendar_Date: 1998
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Fish data
Source_Information:

    Source_Citation:

        Citation_Information:

            Originator:
                Tobias, W., USVI Department of Planning and Natural Resources,
                Division of Fish and Wildlife
            Publication_Date: Unpublished Material
            Title: Fisheries and Human-use Resources for St. Croix
            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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Fish data
Source_Information:

    Source_Citation:

        Citation_Information:

            Originator: O'Reilly, R., Natural Resources Conservation Service
            Publication_Date: Unpublished Material
            Title: Endangered Plants and Other Resources for St. Croix
            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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Fish data
Source_Information:

Source_Citation:

Citation_Information:

Originator:
Gomez, R., USVI Department of Planning and Natural Resources, Division of Fish and Wildlife
Publication_Date: Unpublished Material
Title: Fisheries Resources for St. Thomas and St. John
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Fish data
Source_Information:

Source_Citation:

Citation_Information:

Originator:
Caribbean Fishery Management Council and NOAA Strategic Environmental Assessment Division
Publication_Date: 1998
Title: Essential Fish Habitat Amendments to FMPS of the U.S. Caribbean
Geospatial_Data_Presentation_Form: Document
Publication_Information:

Publication_Place: San Juan, PR
Publisher: Caribbean Fishery Management Council
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1998
Source_Currentness_Reference: Date of study

Source_Citation_Abbreviation: None
Source_Contribution: Fish data
Source_Information:

Source_Citation:

Citation_Information:

Originator:
Caribbean Fishery Management Council and National Marine and Fisheries Service, Contact: G. Garcia-Moliner, Caribbean Fishery Management Council, San Juan, PR
Publication_Date: Unpublished Material
Title:
FMPS for Coastal Migratory Pelagics, Tunas, Swordfish, Sharks, and Billfish
Geospatial_Data_Presentation_Form: Document
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 1983
Ending_Date: 1998
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Fish data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Tobias, W.
Publication_Date: 1993
Title: Westend Saltpond Water Quality and Population Dynamics
Geospatial_Data_Presentation_Form: Document
Publication_Information:

Publication_Place: St. Croix, USVI
Publisher:
Final Reports, United States Fish and Wildlife Service, Dingell-Johnson Study
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1993
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Fish data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Tobias, W.
Publication_Date: 1998
Title:
Nearshore Habitats as Nursery Grounds for Recreational Fishes,
Backreef Areas
Geospatial_Data_Presentation_Form: Document
Publication_Information:

Publication_Place: St. Croix, USVI
Publisher:
Final Report, United States Fish and Wildlife Service,
Sportfish Restoration Program
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1998
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Fish data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Sadovoy, Y., A. Rosario, & A. Roman
Publication_Date: Unpublished material
Title:
Reproduction in an aggregating Grouper, The Red Hind, Epinephelus
Guttatus
Geospatial_Data_Presentation_Form: Document
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 1987
Ending_Date: 1992
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Fish data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Erdman, D.S.
Publication_Date: 1976
Title: Spawning Patterns of Fishes from the Northern Caribbean
Geospatial_Data_Presentation_Form: Document
Publication_Information:

Publication_Place: San Juan, PR
Publisher: Department of Agriculture
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 1954
Ending_Date: 1976
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Fish data
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: 200108
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@noaa.gov

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: 929
        SDTS_Terms_Description:

            SDTS_Point_and_Vector_Object_Type: Area point
            Point_and_Vector_Object_Count: 929
        SDTS_Terms_Description:

            SDTS_Point_and_Vector_Object_Type: Complete chain
            Point_and_Vector_Object_Count: 1339
        SDTS_Terms_Description:

            SDTS_Point_and_Vector_Object_Type: Link
            Point_and_Vector_Object_Count: 189095
        SDTS_Terms_Description:

            SDTS_Point_and_Vector_Object_Type: Node, planar graph
            Point_and_Vector_Object_Count: 1288

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

Entity_and_Attribute_Information:

    Detailed_Description:

        Entity_Type:

            Entity_Type_Label: GT-polygon

Entity_Type_Definition:
> Finfish depicted in this atlas include selected marine, estuarine, and diadromous species. Species of commercial, recreational, ecological, and/or conservation interest are emphasized. Major finfish (and invertebrate) distributions were mapped using three major geographic divisions: nearshore and shelf waters, offshore waters, and estuarine areas/back-reef embayments. In a few locations, inland streams or guts with recently documented occurrences of native stream fish (and invertebrates) were mapped. Note that native stream fish are likely to occur in other streams and guts as well, even though they are not shown on the maps.

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 (67), 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 Virgin Islands ESI data set (SPECIES ID, NAME): 131, Great barracuda; 132, Groupers; 141, Common snook; 143, Tarpon; 253, Butterfly fish; 255, Damselfish; 282, Mullet; 303, Permit; 332, Tiger shark; 382, Mountain mullet; 389, Nassau grouper; 416, Mojarras; 509, Red hind; 510, Yellowfin grouper; 514, Mutton snapper; 516, Margate; 517, Dwarf herring (blue fry); 525, Bonefish; 527, Mangrove molly; 1002, Reef fish; 1003, Pelagic fish; 1004, Nursery fish; 1006, Native stream fish; 1007, Parrotfish; 1008, Jacks; 1010, Wrasses; 1011, Forage fish; 1017, Grunts; 1019, Snappers.

Attribute_Definition_Source: NOAA
Attribute_Domain_Values:

> *Range_Domain:*

> > *Range_Domain_Minimum:* 670200002
> > *Range_Domain_Maximum:* 670200930
> > *Attribute_Units_of_Measure:* Ordered

Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200107

Attribute:

Attribute_Label: RARNUM
Attribute_Definition:
> An identifier that links directly to the BIORES table or the flat format BIOFILE table. RARNUM values of 0 are holes in polygons and do not contain information.

Attribute_Definition_Source: NOAA
Attribute_Domain_Values:

> *Range_Domain:*

> > *Range_Domain_Minimum:* 67000103
> > *Range_Domain_Maximum:* 67000138

Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200107

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 Virgin Islands
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: 200108
    Metadata_Review_Date: 200108
    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@noaa.gov

Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

U.S. Virgin Islands and British Virgin Islands ESI: FISHL (Fish Lines)

Metadata:

- Identification_Information
- Data_Quality_Information
- Spatial_Data_Organization_Information
- Spatial_Reference_Information
- Entity_and_Attribute_Information
- Distribution_Information
- Metadata_Reference_Information

Identification_Information:

    Citation:

        Citation_Information:

            Originator:
National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.
Publication_Date: 200108
Title: U.S. Virgin Islands and British Virgin Islands ESI: FISHL (Fish Lines)
Edition: First
Geospatial_Data_Presentation_Form: Atlas
Series_Information:

            Series_Name: None
Issue_Identification: United States Virgin Islands and British Virgin Islands
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 National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.
    Description:

Abstract:

This data set comprises the Environmental Sensitivity Index (ESI) data for the Virgin Islands. 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 line data for fish.

Purpose:

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

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 199807
Ending_Date: 200107
Currentness_Reference: Project time span

Status:

Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -65.167
East_Bounding_Coordinate: -64.065
North_Bounding_Coordinate: 18.943
South_Bounding_Coordinate: 17.467

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: Diadromous

Place:

Place_Keyword_Thesaurus: None
Place_Keyword: US Virgin Islands
Place_Keyword: British Virgin Islands

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: vidatafig.jpg

Browse_Graphic_File_Description:
Relationships between spatial data layers and attribute data tables for the Virgin Islands data.
Browse_Graphic_File_Type: JPEG
Data_Set_Credit:
This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.
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: benthic.e00, birds.e00, bio_lut.e00, biofile.e00, biores.e00, breed.e00, breed_dt.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, invertl.e00, mgt.e00, m_mammal.e00, reptiles.e00, seasonal.e00, shelfbnd.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00, wetlands.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 1:24,000 USGS 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 and 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 1:24,000 USGS topographic quadrangles by a biological expert using data from regional specialists in the form of maps, tables, charts, written descriptions of wildlife distributions, and personal 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 1:55,000 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 CD-ROM 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 are also modified to include the atlas number, so multiple atlases can be combined and RARNUMs remain unique. RARNUMs are redefined on an element basis, so "resource at risk" groupings will contain only a single element. HUNUMs are also modified to include the atlas number. ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the CDs for ease of use of the ESI data. The database files are 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 US Fish and Wildlife Service, 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. Seven major categories, or ELEMENTs, of biological resources were considered during data compilation: birds; fish; invertebrates; habitats; 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, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, that are used to store the complex biological data. The biological lines (FISHL) 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 Virgin Islands this is 67), an element specific number (birds are layer 1, fish are layer 2, etc.) and a unique record number. The RARNUM represents a unique combination of species, seasonalities, concentrations, and source information. For each of these groupings, a number is generated. That number is concatenated with the atlas number to create a "resource at risk" number that is unique across atlases.] The items in BIORES include: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, ELEMENT, EL_SPE, and EL_SPE_SEA. SPECIES_ID is the numeric identifier of each species and is unique within each ELEMENT. CONC is the concentration of the species and can be descriptive (LOW, MEDIUM, HIGH, etc.) or an actual count of the number of individuals or nests associated with a polygon or point. SEASON_ID contains a numeric identifier for the unique monthly presence and life history characteristics of each species at a given location. There can be one seasonality record per species, or the same species can have different monthly presence or breeding activities at different sites. When this occurs, a new record with a different SEASON_ID is referenced. G_SOURCE contains the SOURCE_ID for geographic information, and S_SOURCE contains the SOURCE_ID for seasonality information. Both items link to the SOURCES data table. EL_SPE is a concatenation of ELEMENT and SPECIES_ID and links to the SPECIES and STATUS data tables. EL_SPE_SEA is a concatenation of ELEMENT, SPECIES_ID, and SEASON_ID and links to the SEASONAL and BREED data tables. The SPECIES data table contains the SPECIES_ID (described above), common name (NAME), scientific name (GEN_SPEC), biological element (ELEMENT), biological subelement (SUBELEMENT), Natural Heritage Program global conservation status rank (NHP), date the list of NHP ranks was published (DATE_PUB), and EL_SPE. The item SUBELEMENT refers to the grouping of the species: (ELEMENT, subelement): FISHL: diadromous. The STATUS data table contains records for each species that is threatened or endangered on state or federal lists. The items include: ELEMENT, SPECIES_ID, STATE (two-letter state abbreviation, populated with "VI" for U.S. Virgin Islands), S_F [state (USVI territory) or federal (U.S.) listing], T_E (threatened or endangered status), DATE_PUB (publication date of the source used to assign T or E status), and EL_SPE. The SEASONAL data table indicates the presence of a particular species in a particular location by month (JAN-DEC). The BIORES table is linked to the SEASONAL table using

the item EL_SPE_SEA (a concatenation of the first letter of the ELEMENT, SPECIES_ID, and SEASON_ID). The BREED data table contains the life stage or life history data for each unique combination of ELEMENT, SPECIES_ID, and SEASON_ID (or EL_SPE_SEA). It contains up to 12 records corresponding to each month of the year that the species is present in that location. The items BREED1-BREED5 will reflect different life activities, depending on the ELEMENT referenced. For FISH, BREED1 = spawning, BREED2 = eggs, BREED3 = larvae, BREED4 = juveniles, and BREED5 = adults. 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. 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, GEN_SPEC, S_F, T_E, NHP, DATE_PUB, CONC, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC, BREED1, BREED2, BREED3, BREED4, BREED5, RARNUM, G_SOURCE, S_SOURCE, and BREED. All of these items are the same as their counterparts in the individual files described above, except the BREED1-BREED5 items. BREED is a newly generated variable used to link to the BREED_DT file, a modified, more compact version of the aforementioned BREED file. BREED1-BREED5 give a text summary of when each life stage occurs within that polygon. The life stages referred to are the same as those listed in the previous table. The link to the BIOFILE may be made through BIO_LUT using ID to link to RARNUM, or it may be linked directly to the RARNUM in each of the biology cover's attribute files. As mentioned, BREED_DT is an auxiliary support file to the flat file structure, which allows the user to do searches based on month for seasonal breeding activities. The link from the flat file to BREED_DT is the BREED item. A second supporting data file is SOURCES. This is the same as the 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 1:24,000 USGS 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: Yoshioka, B., United States Fish and Wildlife Service
            Publication_Date: Unpublished material
            Title:
            Native Stream Fish and Shrimp Distribution, Seasonality, and Life-History
            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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Fish arc data

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: 200108
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@noaa.gov

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: 14
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Link
Point_and_Vector_Object_Count: 1561
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Node, planar graph
Point_and_Vector_Object_Count: 20

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

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: Complete Chain
Entity_Type_Definition:
Finfish depicted in this atlas include selected marine, estuarine, and diadromous
species. Species of commercial, recreational, ecological, and/or conservation interest
are emphasized. Major finfish (and invertebrate) distributions were mapped using
three major geographic divisions: nearshore and shelf waters, offshore waters, and
estuarine areas/back-reef embayments. In a few locations, inland streams or guts with
recently documented occurrences of native stream fish (and invertebrates) were
mapped. Note that native stream fish are likely to occur in other streams and guts as
well, even though they are not shown on the maps.
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 (67), element number (2), and record number. The following fish species are
found in the Virgin Islands ESI FISHL data set (SPECIES ID, NAME): 382,
Mountain mullet; 1006, Native stream fish.
Attribute_Definition_Source: NOAA

Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 672200001
Range_Domain_Maximum: 672200014
Attribute_Units_of_Measure: Ordered
Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200107
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: 67000106
Range_Domain_Maximum: 67000115
Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200107

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 Virgin Islands
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: 200108
    Metadata_Review_Date: 200108
    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@noaa.gov
    Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
    Metadata_Standard_Version: FGDC-STD-001-1998

U.S. Virgin Islands and British Virgin Islands ESI: INVERT (Invertebrate Polygons)

Metadata:

Identification_Information:

 Citation:

  Citation_Information:

   Originator:
    National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.
   Publication_Date: 200108
   Title:
    U.S. Virgin Islands and British Virgin Islands ESI: INVERT (Invertebrate Polygons)
   Edition: First
   Geospatial_Data_Presentation_Form: Atlas
   Series_Information:

    Series_Name: None
    Issue_Identification: United States Virgin Islands and British Virgin Islands
   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 National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.

Description:

> *Abstract:*
>> This data set comprises the Environmental Sensitivity Index (ESI) data for the Virgin Islands. 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 polygonal data for invertebrates.

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

Time_Period_of_Content:

> *Time_Period_Information:*

>> *Range_of_Dates/Times:*

>>> *Beginning_Date:* 199807
>>> *Ending_Date:* 200107
> *Currentness_Reference:* Project time span

Status:

> *Progress:* Complete
> *Maintenance_and_Update_Frequency:* None Scheduled

Spatial_Domain:

> *Bounding_Coordinates:*

>> *West_Bounding_Coordinate:* -65.167
>> *East_Bounding_Coordinate:* -64.065
>> *North_Bounding_Coordinate:* 18.943
>> *South_Bounding_Coordinate:* 17.467

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:* US Virgin Islands
>> *Place_Keyword:* British Virgin Islands

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: vidatafig.jpg
Browse_Graphic_File_Description:
Relationships between spatial data layers and attribute data tables for the Virgin Islands data.
Browse_Graphic_File_Type: JPEG

Data_Set_Credit:
This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.

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: benthic.e00, birds.e00, bio_lut.e00, biofile.e00, biores.e00, breed.e00, breed_dt.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, invertl.e00, mgt.e00, m_mammal.e00, reptiles.e00, seasonal.e00, shelfbnd.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00, wetlands.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 1:24,000 USGS 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 and 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 1:24,000 USGS topographic quadrangles by a biological expert using data from regional specialists in the form of maps, tables, charts, written descriptions of wildlife distributions, and personal 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 1:55,000 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 CD-ROM 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 are also modified to include the atlas number, so multiple atlases can be combined and RARNUMs remain unique. RARNUMs are redefined on an element basis, so "resource at risk" groupings will contain only a single element. HUNUMs are also modified to include the atlas number. ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the CDs for ease of use of the ESI data. The database files are 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 US Fish and Wildlife Service, 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. Seven major categories, or ELEMENTs, of biological resources were considered during data compilation: birds; fish; invertebrates; habitats; 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, BREED, SEASONAL, 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 Virgin Islands this is 67), an element specific number (birds are layer 1, fish are layer 2, etc.) and a unique record number. The RARNUM represents a unique combination of species, seasonalities, concentrations, and source information. For each of these groupings, a number is generated. That number is concatenated with the atlas number to create a "resource at risk" number that is unique across atlases.] The items in BIORES include: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, ELEMENT, EL_SPE, and EL_SPE_SEA. SPECIES_ID is the numeric identifier of each species and is unique within each ELEMENT. CONC is the concentration of the species and can be descriptive (LOW, MEDIUM, HIGH, etc.) or an actual count of the number of individuals or nests associated with a polygon or point. SEASON_ID contains a numeric identifier for the unique monthly presence and life history characteristics of each species at a given location. There can be one seasonality record per species, or the same species can have different monthly presence or breeding activities at different sites. When this occurs, a new record with a different SEASON_ID is referenced. G_SOURCE contains the SOURCE_ID for geographic information, and S_SOURCE contains the SOURCE_ID for seasonality information. Both items link to the SOURCES data table. EL_SPE is a concatenation of ELEMENT and SPECIES_ID and links to the SPECIES and STATUS data tables. EL_SPE_SEA is a concatenation of ELEMENT, SPECIES_ID, and SEASON_ID and links to the SEASONAL and BREED data tables. The SPECIES data table contains the SPECIES_ID (described above), common name (NAME), scientific name (GEN_SPEC), biological element (ELEMENT), biological subelement (SUBELEMENT), Natural Heritage Program global conservation status rank (NHP), date the list of NHP ranks was published (DATE_PUB), and EL_SPE. The item SUBELEMENT

refers to the grouping of the species: (ELEMENT, subelement): INVERT: bivalve, cephalopod, crab, gastropod, lobster, and shrimp. The STATUS data table contains records for each species that is threatened or endangered on state or federal lists. The items include: ELEMENT, SPECIES_ID, STATE (two-letter state abbreviation, populated with "VI" for U.S. Virgin Islands), S_F [state (USVI territory) or federal (U.S.) listing], T_E (threatened or endangered status), DATE_PUB (publication date of the source used to assign T or E status), and EL_SPE. The SEASONAL data table indicates the presence of a particular species in a particular location by month (JAN-DEC). The BIORES table is linked to the SEASONAL table using the item EL_SPE_SEA (a concatenation of the first letter of the ELEMENT, SPECIES_ID, and SEASON_ID). The BREED data table contains the life stage or life history data for each unique combination of ELEMENT, SPECIES_ID, and SEASON_ID (or EL_SPE_SEA). It contains up to 12 records corresponding to each month of the year that the species is present in that location. The items BREED1-BREED5 will reflect different life activities, depending on the ELEMENT referenced. For INVERT, BREED1 = spawn/mate, BREED2 = eggs, BREED3 = larvae, BREED4 = juveniles and BREED5 = adults. 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. 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, GEN_SPEC, S_F, T_E, NHP, DATE_PUB, CONC, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC, BREED1, BREED2, BREED3, BREED4, BREED5, RARNUM, G_SOURCE, S_SOURCE, and BREED. All of these items are the same as their counterparts in the individual files described above, except the BREED1-BREED5 items. BREED is a newly generated variable used to link to the BREED_DT file, a modified, more compact version of the aforementioned BREED file. BREED1-BREED5 give a text summary of when each life stage occurs within that polygon. The life stages referred to are the same as those listed in the previous table. The link to the BIOFILE may be made through BIO_LUT using ID to link to RARNUM, or it may be linked directly to the RARNUM in each of the biology cover's attribute files. As mentioned, BREED_DT is an auxiliary support file to the flat file structure, which allows the user to do searches based on month for seasonal breeding activities. The link from the flat file to BREED_DT is the BREED item. A second supporting data file is SOURCES. This is the same as the 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 1:24,000 USGS 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:
BVI Conservation and Fisheries Department; Contact: B. Lettsome, Chief Conservation and Fisheries Officer, BVI CFD
Publication_Date: Unpublished Material
Title: Wildlife and Fisheries Resources for the British Virgin Islands
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Invertebrate data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Hillis-Starr, Z., National Park Service
Publication_Date: Unpublished Material
Title:
Various Natural and Human-use Resources of Buck Island Reef National Monument
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: 1999
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Invertebrate data
Source_Information:

Source_Citation:

Citation_Information:

Originator:
Boulon, R., USVI Department of Planning and Natural Resources, Division of Fish and Wildlife
Publication_Date: Unpublished Material
Title:
Natural Resource Information for USVI, Particularly St. Thomas and St. John
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Invertebrate data
Source_Information:

Source_Citation:

Citation_Information:

Originator:
Caribbean Fishery Management Council and National Marine and
Fisheries Service; Contact: G. Garcia-Moliner, Caribbean Fishery
Management Council, San Juan, PR
Publication_Date: Unpublished material
Title:
Fishery Management Plans for Reef Fish, Lobster and Conch for the
U.S. Caribbean
Geospatial_Data_Presentation_Form: Document
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 1981
Ending_Date: 1996
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Invertebrate data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Yoshioka, B., United States Fish and Wildlife Service
Publication_Date: 1999
Title:
Native Stream Fish and Shrinp Distribution, Seasonality, and Life-
History
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None

Source_Contribution: Invertebrate data
Source_Information:

    Source_Citation:

        Citation_Information:

           Originator: Tobias, W.
           Publication_Date: 1998
           Title:
               Determination of Mangrove Habitat for Nursery Grounds of
               Recreational Fisheries
           Geospatial_Data_Presentation_Form: Document
           Publication_Information:

               Publication_Place: St. Croix, USVI
               Publisher:
                   Final Reports, United States Fish and Wildlife Service,
                   Sportfish Restoration Program
        Type_of_Source_Media: Personal communication
        Source_Time_Period_of_Content:

        Time_Period_Information:

           Single_Date/Time:

               Calendar_Date: 1998
        Source_Currentness_Reference: Date of study
        Source_Citation_Abbreviation: None
        Source_Contribution: Invertebrate data
Source_Information:

    Source_Citation:

        Citation_Information:

           Originator:
               Tobias, W., USVI Department of Planning and Natural Resources,
               Division of Fish and Wildlife
           Publication_Date: Unpublished Material
           Title: Fisheries and Human-use Resources for St. Croix
           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: 1999
        Source_Currentness_Reference: Date of communication
        Source_Citation_Abbreviation: None
        Source_Contribution: Invertebrate data
Source_Information:

    Source_Citation:

Citation_Information:

Originator: O'Reilly, R., Natural Resources Conservation Service
Publication_Date: Unpublished Material
Title: Endangered Plants and Other Resources for St. Croix
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Invertebrate data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Kojis, B., University of the Virgin Islands
Publication_Date: Unpublished Material
Title:
Miscellaneous Marine Resource Information for the U.S. Virgin
Islands
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Invertebrate data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Appledorn, R., University of Puerto Rico - Marine Science
Publication_Date: Unpublished Material
Title: Queen Conch Life-History and Seasonality 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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Invertebrate data
Source_Information:

Source_Citation:

Citation_Information:

Originator:
Rosario, A., Puerto Rico Departamento de Recursos Naturales y
Ambientales
Publication_Date: Unpublished Material
Title: Miscellaneous Fisheries Resources for the U.S. Caribbean
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Invertebrate data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Creamer, D.F.
Publication_Date: Unknown
Title: Land Crab Management Plan for Vieques Island, Puerto Rico
Geospatial_Data_Presentation_Form: Document
Publication_Information:

Publication_Place: Panama City, FL
Publisher: U.S. Fish and Wildlife Service, Panama City Field Office
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: UNKNOWN
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Invertebrate data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Dempsey, A., Bioimpact Inc.
Publication_Date: Unpublished Material
Title: Edits and Additions to Resources for St. Croix
Geospatial_Data_Presentation_Form: Expert knowledge
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Invertebrate data
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: 200108
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@noaa.gov

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: 918
SDTS_Terms_Description:

    SDTS_Point_and_Vector_Object_Type: Area point
    Point_and_Vector_Object_Count: 918
SDTS_Terms_Description:

    SDTS_Point_and_Vector_Object_Type: Complete chain
    Point_and_Vector_Object_Count: 1325
SDTS_Terms_Description:

    SDTS_Point_and_Vector_Object_Type: Link
    Point_and_Vector_Object_Count: 179852
SDTS_Terms_Description:

    SDTS_Point_and_Vector_Object_Type: Node, planar graph
    Point_and_Vector_Object_Count: 1280

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

Entity_and_Attribute_Information:

    Detailed_Description:

    Entity_Type:

    Entity_Type_Label: GT-polygon
    Entity_Type_Definition:
    Invertebrates depicted in this atlas include selected marine, estuarine, and diadromous
    species. Species of commercial, recreational, ecological, and/or conservation interest
    are emphasized. Major invertebrate (and finfish) distributions were mapped using
    three major geographic divisions: nearshore and shelf waters, offshore waters, and

estuarine areas/back-reef embayments. In a few locations, inland streams or guts with recently documented occurrences of native stream shrimp were mapped. Note that native stream shrimp are likely to occur in other streams and guts as well, even though they are not shown on the maps.

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 (67), 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 Virgin Islands ESI data set (SPECIES ID, NAME): 30, Octopus; 72, Caribbean spiny lobster; 101, Queen conch; 126, Blue crabs; 309, Freshwater crab; 311, West Indian topsnail (whelk); 315, Southern pink shrimp; 1011, Native stream shrimp; 1014, Land crabs; 1015, Mussels.

Attribute_Definition_Source: NOAA

Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 670700002
Range_Domain_Maximum: 670700900
Attribute_Units_of_Measure: Ordered

Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200107

Attribute:

Attribute_Label: RARNUM

Attribute_Definition:

An identifier that links directly to the BIORES table or the flat format BIOFILE table. RARNUM values of 0 are holes in polygons and do not contain information.

Attribute_Definition_Source: NOAA

Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 67000207
Range_Domain_Maximum: 67000226

Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200107

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 Virgin Islands
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: 200108
Metadata_Review_Date: 200108
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@noaa.gov
Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

U.S. Virgin Islands and British Virgin Islands ESI: INVERTL (Invertebrate Lines)

Metadata:

- Identification_Information
- Data_Quality_Information
- Spatial_Data_Organization_Information
- Spatial_Reference_Information
- Entity_and_Attribute_Information
- Distribution_Information
- Metadata_Reference_Information

Identification_Information:

    Citation:

        Citation_Information:

            Originator:
                National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.
            Publication_Date: 200108
            Title:
                U.S. Virgin Islands and British Virgin Islands ESI: INVERT (Invertebrate Lines)
            Edition: First
            Geospatial_Data_Presentation_Form: Atlas
            Series_Information:

                Series_Name: None
                Issue_Identification: United States Virgin Islands and British Virgin Islands
            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 National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.

Description:

    Abstract:
        This data set comprises the Environmental Sensitivity Index (ESI) data for the Virgin Islands. 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 line data for invertebrates.

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

Time_Period_of_Content:

    Time_Period_Information:

        Range_of_Dates/Times:

            Beginning_Date: 199807
            Ending_Date: 200107
    Currentness_Reference: Project time span

Status:

    Progress: Complete
    Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

    Bounding_Coordinates:

        West_Bounding_Coordinate: -65.167
        East_Bounding_Coordinate: -64.065
        North_Bounding_Coordinate: 18.943
        South_Bounding_Coordinate: 17.467

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: Crab
        Theme_Keyword: Shrimp

    Place:

        Place_Keyword_Thesaurus: None
        Place_Keyword: US Virgin Islands
        Place_Keyword: British Virgin Islands

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: vidatafig.jpg
  Browse_Graphic_File_Description:
    Relationships between spatial data layers and attribute data tables for the Virgin Islands data.
  Browse_Graphic_File_Type: JPEG
Data_Set_Credit:
  This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.
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: benthic.e00, birds.e00, bio_lut.e00, biofile.e00, biores.e00, breed.e00, breed_dt.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, invertl.e00, mgt.e00, m_mammal.e00, reptiles.e00, seasonal.e00, shelfbnd.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00, wetlands.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 1:24,000 USGS 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 and 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 1:24,000 USGS topographic quadrangles by a biological expert using data from regional specialists in the form of maps, tables, charts, written descriptions of wildlife distributions, and personal 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 finial product plotted (at approximately 1:55,000 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 CD-ROM 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 are also modified to include the atlas number, so multiple atlases can be combined and RARNUMs remain unique. RARNUMs are redefined on an element basis, so "resource at risk" groupings will contain only a single element. HUNUMs are also modified to include the atlas number. ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the CDs for ease of use of the ESI data. The database files are 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.

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Biological information presented in this atlas was collected and compiled with the assistance of biologists from the US Fish and Wildlife Service, 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. Seven major categories, or ELEMENTs, of biological resources were considered during data compilation: birds; fish; invertebrates; habitats; 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, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, that are used to store the complex biological data. The biological lines (INVERTL) 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 Virgin Islands this is 67), an element specific number (birds are layer 1, fish are layer 2, etc.) and a unique record number. The RARNUM represents a unique combination of species, seasonalities, concentrations, and source information. For each of these groupings, a number is generated. That number is concatenated with the atlas number to create a "resource at risk" number that is unique across atlases.] The items in BIORES include: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, ELEMENT, EL_SPE, and EL_SPE_SEA. SPECIES_ID is the numeric identifier of each species and is unique within each ELEMENT. CONC is the concentration of the species and can be descriptive (LOW, MEDIUM, HIGH, etc.) or an actual count of the number of individuals or nests associated with a polygon or point. SEASON_ID contains a numeric identifier for the unique monthly presence and life history characteristics of each species at a given location. There can be one seasonality record per species, or the same species can have different monthly presence or breeding activities at different sites. When this occurs, a new record with a different SEASON_ID is referenced. G_SOURCE contains the SOURCE_ID for geographic information, and S_SOURCE contains the SOURCE_ID for seasonality information. Both items link to the SOURCES data table. EL_SPE is a concatenation of ELEMENT and SPECIES_ID and links to the SPECIES and STATUS data tables. EL_SPE_SEA is a concatenation of ELEMENT, SPECIES_ID, and SEASON_ID and links to the SEASONAL and BREED data tables. The SPECIES data table contains the SPECIES_ID (described above), common name (NAME), scientific name (GEN_SPEC), biological element (ELEMENT), biological subelement (SUBELEMENT), Natural Heritage Program global conservation status rank (NHP), date the list of NHP ranks was published (DATE_PUB), and EL_SPE. The item SUBELEMENT refers to the grouping of the species: (ELEMENT, subelement): INVERTL: crab, and shrimp. The STATUS data table contains records for each species that is threatened or endangered on state or federal lists. The items include: ELEMENT, SPECIES_ID, STATE (two-letter state abbreviation, populated with "VI" for U.S. Virgin Islands), S_F [state (USVI territory) or federal (U.S.) listing],

T_E (threatened or endangered status), DATE_PUB (publication date of the source used to assign T or E status), and EL_SPE. The SEASONAL data table indicates the presence of a particular species in a particular location by month (JAN-DEC). The BIORES table is linked to the SEASONAL table using the item EL_SPE_SEA (a concatenation of the first letter of the ELEMENT, SPECIES_ID, and SEASON_ID). The BREED data table contains the life stage or life history data for each unique combination of ELEMENT, SPECIES_ID, and SEASON_ID (or EL_SPE_SEA). It contains up to 12 records corresponding to each month of the year that the species is present in that location. The items BREED1-BREED5 will reflect different life activities, depending on the ELEMENT referenced. For INVERT, BREED1 = spawn/mate, BREED2 = eggs, BREED3 = larvae, BREED4 = juveniles and BREED5 = adults. 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. 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, GEN_SPEC, S_F, T_E, NHP, DATE_PUB, CONC, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC, BREED1, BREED2, BREED3, BREED4, BREED5, RARNUM, G_SOURCE, S_SOURCE, and BREED. All of these items are the same as their counterparts in the individual files described above, except the BREED1-BREED5 items. BREED is a newly generated variable used to link to the BREED_DT file, a modified, more compact version of the aforementioned BREED file. BREED1-BREED5 give a text summary of when each life stage occurs within that polygon. The life stages referred to are the same as those listed in the previous table. The link to the BIOFILE may be made through BIO_LUT using ID to link to RARNUM, or it may be linked directly to the RARNUM in each of the biology cover's attribute files. As mentioned, BREED_DT is an auxiliary support file to the flat file structure, which allows the user to do searches based on month for seasonal breeding activities. The link from the flat file to BREED_DT is the BREED item. A second supporting data file is SOURCES. This is the same as the 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 1:24,000 USGS 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: Yoshioka, B., United States Fish and Wildlife Service
                Publication_Date: 1999
                Title:
                    Native Stream Fish and Shrimp Distribution, Seasonality, and Life-

History
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Invertebrate arc data
Source_Information:

Source_Citation:

Citation_Information:

Originator: O'Reilly, R., Natural Resources Conservation Service
Publication_Date: Unpublished Material
Title: Endangered Plants and Other Resources for St. Croix
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Invertebrate arc data
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: 200108
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@noaa.gov

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: 22
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Link
Point_and_Vector_Object_Count: 2337
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Node, planar graph
Point_and_Vector_Object_Count: 30

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

Entity_and_Attribute_Information:

Detailed_Description:

> *Entity_Type:*

>> *Entity_Type_Label:* Complete Chain
>> *Entity_Type_Definition:*
>>> Invertebrates depicted in this atlas include selected marine, estuarine, and diadromous species. Species of commercial, recreational, ecological, and/or conservation interest are emphasized. Major invertebrate (and finfish) distributions were mapped using three major geographic divisions: nearshore and shelf waters, offshore waters, and estuarine areas/back-reef embayments. In a few locations, inland streams or guts with recently documented occurrences of native stream shrimp were mapped. Note that native stream shrimp are likely to occur in other streams and guts as well, even though they are not shown on the maps.
>> *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 (67), element number (7), and record number. The following invertebrate species are found in the Virgin Islands ESI INVERTL data set (SPECIES ID, NAME): 309, Freshwater crab; 1011, Native stream shrimp.
>> *Attribute_Definition_Source:* NOAA
>> *Attribute_Domain_Values:*

>>> *Range_Domain:*

>>>> *Range_Domain_Minimum:* 672700001
>>>> *Range_Domain_Maximum:* 672700022
>>>> *Attribute_Units_of_Measure:* Ordered
>> *Beginning_Date_of_Attribute_Values:* 199807
>> *Ending_Date_of_Attribute_Values:* 200107

> *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:* 67000208
>>>> *Range_Domain_Maximum:* 67000213
>> *Beginning_Date_of_Attribute_Values:* 199807
>> *Ending_Date_of_Attribute_Values:* 200107

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 Virgin Islands
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: 200108
    Metadata_Review_Date: 200108
    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@noaa.gov
    Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
    Metadata_Standard_Version: FGDC-STD-001-1998

U.S. Virgin Islands and British Virgin Islands ESI: M_MAMMAL (Marine Mammal Polygons)

Metadata:

- Identification_Information
- Data_Quality_Information
- Spatial_Data_Organization_Information
- Spatial_Reference_Information
- Entity_and_Attribute_Information
- Distribution_Information
- Metadata_Reference_Information

Identification_Information:

    Citation:

        Citation_Information:

            Originator:
                National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.
            Publication_Date: 200108
            Title: U.S. Virgin Islands and British Virgin Islands ESI: M_MAMMAL (Marine Mammal Polygons)
            Edition: First
            Geospatial_Data_Presentation_Form: Atlas
            Series_Information:

                Series_Name: None
                Issue_Identification: United States Virgin Islands and British Virgin Islands
            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 National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.

Description:

    Abstract:

        This data set comprises the Environmental Sensitivity Index (ESI) data for the Virgin Islands. 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 polygonal data for marine mammals.

    Purpose:

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

Time_Period_of_Content:

    Time_Period_Information:

        Range_of_Dates/Times:

            Beginning_Date: 199807
            Ending_Date: 200107
    Currentness_Reference: Project time span

Status:

    Progress: Complete
    Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

    Bounding_Coordinates:

        West_Bounding_Coordinate: -65.167
        East_Bounding_Coordinate: -64.065
        North_Bounding_Coordinate: 18.943
        South_Bounding_Coordinate: 17.467

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
        Theme_Keyword: Whale

    Place:

        Place_Keyword_Thesaurus: None
        Place_Keyword: US Virgin Islands
        Place_Keyword: British Virgin Islands

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: vidatafig.jpg
Browse_Graphic_File_Description:
> Relationships between spatial data layers and attribute data tables for the Virgin Islands data.

Browse_Graphic_File_Type: JPEG
Data_Set_Credit:
> This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.

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: benthic.e00, birds.e00, bio_lut.e00, biofile.e00, biores.e00, breed.e00, breed_dt.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, invertl.e00, mgt.e00, m_mammal.e00, reptiles.e00, seasonal.e00, shelfbnd.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00, wetlands.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.

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Completeness_Report:

Biological information presented in this atlas was collected and compiled with the assistance of biologists from the US Fish and Wildlife Service, 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. Seven major categories, or ELEMENTs, of biological resources were considered during data compilation: birds; fish; invertebrates; habitats; 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, BREED, SEASONAL, 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 Virgin Islands this is 67), an element specific number (birds are layer 1, fish are layer 2, etc.) and a unique record number. The RARNUM represents a unique combination of species, seasonalities, concentrations, and source information. For each of these groupings, a number is generated. That number is concatenated with the atlas number to create a "resource at risk" number that is unique across atlases.] The items in BIORES include: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, ELEMENT, EL_SPE, and EL_SPE_SEA. SPECIES_ID is the numeric identifier of each species and is unique within each ELEMENT. CONC is the concentration of the species and can be descriptive (LOW, MEDIUM, HIGH, etc.) or an actual count of the number of individuals or nests associated with a polygon or point. SEASON_ID contains a numeric identifier for the unique monthly presence and life history characteristics of each species at a given location. There can be one seasonality record per species, or the same species can have different monthly presence or breeding activities at different sites. When this occurs, a new record with a different SEASON_ID is referenced. G_SOURCE contains the SOURCE_ID for geographic information, and S_SOURCE contains the SOURCE_ID for seasonality information. Both items link to the SOURCES data table. EL_SPE is a concatenation of ELEMENT and SPECIES_ID and links to the SPECIES and STATUS data tables. EL_SPE_SEA is a concatenation of ELEMENT, SPECIES_ID, and SEASON_ID and links to the SEASONAL and BREED data tables. The SPECIES data table contains the SPECIES_ID (described above), common name (NAME), scientific name (GEN_SPEC), biological element (ELEMENT), biological subelement (SUBELEMENT), Natural Heritage Program global conservation status rank (NHP), date the list of NHP ranks was published (DATE_PUB), and EL_SPE. The item SUBELEMENT refers to the grouping of the species: (ELEMENT, subelement): M_MAMMAL: dolphin, and whale. The STATUS data table contains records for each species that is threatened or endangered on state or federal lists. The items include: ELEMENT, SPECIES_ID, STATE (two-letter state abbreviation, populated with "VI" for U.S. Virgin Islands), S_F [state (USVI territory) or federal (U.S.) listing], T_E (threatened or endangered status), DATE_PUB (publication date of the source used to assign T

or E status), and EL_SPE. The SEASONAL data table indicates the presence of a particular species in a particular location by month (JAN-DEC). The BIORES table is linked to the SEASONAL table using the item EL_SPE_SEA (a concatenation of the first letter of the ELEMENT, SPECIES_ID, and SEASON_ID). The BREED data table contains the life stage or life history data for each unique combination of ELEMENT, SPECIES_ID, and SEASON_ID (or EL_SPE_SEA). It contains up to 12 records corresponding to each month of the year that the species is present in that location. The items BREED1-BREED5 will reflect different life activities, depending on the ELEMENT referenced. For M_MAMMAL, BREED1 = mating and BREED2 = calving. There are no BREED3-BREED5 activities for M_MAMMAL, so those columns are populated with a dash (-). 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. 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, GEN_SPEC, S_F, T_E, NHP, DATE_PUB, CONC, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC, BREED1, BREED2, BREED3, BREED4, BREED5, RARNUM, G_SOURCE, S_SOURCE, and BREED. All of these items are the same as their counterparts in the individual files described above, except the BREED1-BREED5 items. BREED is a newly generated variable used to link to the BREED_DT file, a modified, more compact version of the aforementioned BREED file. BREED1-BREED5 give a text summary of when each life stage occurs within that polygon. The life stages referred to are the same as those listed in the previous table. The link to the BIOFILE may be made through BIO_LUT using ID to link to RARNUM, or it may be linked directly to the RARNUM in each of the biology cover's attribute files. As mentioned, BREED_DT is an auxiliary support file to the flat file structure, which allows the user to do searches based on month for seasonal breeding activities. The link from the flat file to BREED_DT is the BREED item. A second supporting data file is SOURCES. This is the same as the 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 1:24,000 USGS 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: Mignucci-Giannoni, A.A.
            Publication_Date: 1998
            Title:
                Zoogeography of Cetaceans off Puerto Rico and the Virgin Islands
            Geospatial_Data_Presentation_Form: Document

Publication_Information:

    Publication_Place: Mayaguez, PR
    Publisher: University of Puerto Rico, College of Arts and Sciences
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

    Time_Period_Information:

    Single_Date/Time:

    Calendar_Date: 1989
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Marine mammal data
Source_Information:

Source_Citation:

    Citation_Information:

    Originator: Mignucci-Giannoni, A., Univ. Metro.
    Publication_Date: Unpublished Material
    Title: Marine Mammal Distribution, Life-History, and Seasonality Edits
    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: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Marine mammal data
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: 200108
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@noaa.gov

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: 804
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Area point
Point_and_Vector_Object_Count: 804
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Complete chain
Point_and_Vector_Object_Count: 1250
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Link
Point_and_Vector_Object_Count: 212410
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Node, planar graph
Point_and_Vector_Object_Count: 1242

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

Entity_and_Attribute_Information:

    Detailed_Description:

        Entity_Type:

            Entity_Type_Label: GT-polygon
            Entity_Type_Definition:
                Marine mammals depicted in the Virgin Islands atlas include whales and dolphins. Concentration areas and sensitive areas for humpback whales and sperm whales are specifically indicated on the maps. These areas include nearshore humpback migration routes, and humpback and sperm whale breeding and calving areas. It should be recognized that humpback and sperm whales, and other whales and dolphins, can occur throughout nearly all marine waters of the Virgin Islands. For this reason, "whales" and "dolphins" were added to the maps for nearly all marine waters of the Virgin Islands, to cover the potential occurrence of these resources (especially for species not directly addressed on the maps).
            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 (67), element number (4), and record number. ID values of 9999 are holes in polygons and do not contain information. The following M_MAMMAL species are found in the Virgin Islands ESI data set (SPECIES ID, NAME): 13, Humpback whale; 48, Sperm whale; 1000, Whales; 1001, Dolphins.
            Attribute_Definition_Source: NOAA
            Attribute_Domain_Values:

                Range_Domain:

                    Range_Domain_Minimum: 670400002
                    Range_Domain_Maximum: 670400774
                    Attribute_Units_of_Measure: Ordered
            Beginning_Date_of_Attribute_Values: 199807
            Ending_Date_of_Attribute_Values: 200107
        Attribute:

            Attribute_Label: RARNUM
            Attribute_Definition:
                An identifier that links directly to the BIORES table or the flat format BIOFILE table. RARNUM values of 0 are holes in polygons and do not contain information.
            Attribute_Definition_Source: NOAA
            Attribute_Domain_Values:

                Range_Domain:

                    Range_Domain_Minimum: 67000227

Range_Domain_Maximum: 67000231
Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200107

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 Virgin Islands
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: 200108
Metadata_Review_Date: 200108
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@noaa.gov
Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

U.S. Virgin Islands and British Virgin Islands ESI: REPTILES (Reptiles and Amphibians)

Metadata:

- [Identification_Information](#)
- [Data_Quality_Information](#)
- [Spatial_Data_Organization_Information](#)
- [Spatial_Reference_Information](#)
- [Entity_and_Attribute_Information](#)
- [Distribution_Information](#)
- [Metadata_Reference_Information](#)

Identification_Information:

    Citation:

        Citation_Information:

            Originator:
National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.
Publication_Date: 200108
Title: U.S. Virgin Islands and British Virgin Islands ESI: REPTILES (Reptiles and Amphibians)
Edition: First
Geospatial_Data_Presentation_Form: Atlas
Series_Information:

            Series_Name: None
Issue_Identification: United States Virgin Islands and British Virgin Islands
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 National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.

Description:

>*Abstract:*
>>This data set comprises the Environmental Sensitivity Index (ESI) data for the Virgin Islands. 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. The Clean Water Act with amendments by the Oil Pollution Act of 1990 requires response plans for immediate and effective protection of sensitive resources.

Time_Period_of_Content:

>*Time_Period_Information:*

>>*Range_of_Dates/Times:*

>>>*Beginning_Date:* 199807
>>>*Ending_Date:* 200107
>*Currentness_Reference:* Project time span

Status:

>*Progress:* Complete
>*Maintenance_and_Update_Frequency:* None Scheduled

Spatial_Domain:

>*Bounding_Coordinates:*

>>*West_Bounding_Coordinate:* -65.167
>>*East_Bounding_Coordinate:* -64.065
>>*North_Bounding_Coordinate:* 18.943
>>*South_Bounding_Coordinate:* 17.467

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:* Lizard
>>*Theme_Keyword:* Snake
>>*Theme_Keyword:* Turtle

>*Place:*

>>*Place_Keyword_Thesaurus:* None
>>*Place_Keyword:* US Virgin Islands
>>*Place_Keyword:* British Virgin Islands

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: vidatafig.jpg
Browse_Graphic_File_Description:
Relationships between spatial data layers and attribute data tables for the Virgin Islands data.
Browse_Graphic_File_Type: JPEG
Data_Set_Credit:
This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.
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: benthic.e00, birds.e00, bio_lut.e00, biofile.e00, biores.e00, breed.e00, breed_dt.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, invertl.e00, mgt.e00, m_mammal.e00, reptiles.e00, seasonal.e00, shelfbnd.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00, wetlands.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 1:24,000 USGS 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 and 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 1:24,000 USGS topographic quadrangles by a biological expert using data from regional specialists in the form of maps, tables, charts, written descriptions of wildlife distributions, and personal 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 finial product plotted (at approximately 1:55,000 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 CD-ROM 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 are also modified to include the atlas number, so multiple atlases can be combined and RARNUMs remain unique. RARNUMs are redefined on an element basis, so "resource at risk" groupings will contain only a single element. HUNUMs are also modified to include the atlas number. ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the CDs for ease of use of the ESI data. The database files are 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 US Fish and Wildlife Service, 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. Seven major categories, or ELEMENTs, of biological resources were considered during data compilation: birds; fish; invertebrates; habitats; 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, BREED, SEASONAL, 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 Virgin Islands this is 67), an element specific number (birds are layer 1, fish are layer 2, etc.) and a unique record number. The RARNUM represents a unique combination of species, seasonalities, concentrations, and source information. For each of these groupings, a number is generated. That number is concatenated with the atlas number to create a "resource at risk" number that is unique across atlases.] The items in BIORES include: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, ELEMENT, EL_SPE, and EL_SPE_SEA. SPECIES_ID is the numeric identifier of each species and is unique within each ELEMENT. CONC is the concentration of the species and can be descriptive (LOW, MEDIUM, HIGH, etc.) or an actual count of the number of individuals or nests associated with a polygon or point. SEASON_ID contains a numeric identifier for the unique monthly presence and life history characteristics of each species at a given location. There can be one seasonality record per species, or the same species can have different monthly presence or breeding activities at different sites. When this occurs, a new record with a different SEASON_ID is referenced. G_SOURCE contains the SOURCE_ID for geographic information, and S_SOURCE contains the SOURCE_ID for seasonality information. Both items link to the SOURCES data table. EL_SPE is a concatenation of ELEMENT and SPECIES_ID and links to the SPECIES and STATUS data tables. EL_SPE_SEA is a concatenation of ELEMENT, SPECIES_ID, and SEASON_ID and links to the SEASONAL and BREED data tables. The SPECIES data table contains the SPECIES_ID (described above), common name (NAME), scientific name (GEN_SPEC), biological element (ELEMENT), biological subelement (SUBELEMENT), Natural Heritage Program global conservation status rank (NHP), date the list of NHP ranks was published (DATE_PUB), and EL_SPE. The item SUBELEMENT refers to the grouping of the species: (ELEMENT, subelement): REPTILES: lizard, snake, and turtle. The STATUS data table contains records for each species that is threatened or endangered on state or federal lists. The items include: ELEMENT, SPECIES_ID, STATE (two-letter state abbreviation,

populated with "VI" for U.S. Virgin Islands), S_F [state (USVI territory) or federal (U.S.) listing], T_E (threatened or endangered status), DATE_PUB (publication date of the source used to assign T or E status), and EL_SPE. The SEASONAL data table indicates the presence of a particular species in a particular location by month (JAN-DEC). The BIORES table is linked to the SEASONAL table using the item EL_SPE_SEA (a concatenation of the first letter of the ELEMENT, SPECIES_ID, and SEASON_ID). The BREED data table contains the life stage or life history data for each unique combination of ELEMENT, SPECIES_ID, and SEASON_ID (or EL_SPE_SEA). It contains up to 12 records corresponding to each month of the year that the species is present in that location. The items BREED1-BREED5 will reflect different life activities, depending on the ELEMENT referenced. For REPTILES, BREED1 = nesting, BREED2 = hatching, BREED3 = internesting, BREED4 = juveniles, and BREED5 = adults. 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. 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, GEN_SPEC, S_F, T_E, NHP, DATE_PUB, CONC, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC, BREED1, BREED2, BREED3, BREED4, BREED5, RARNUM, G_SOURCE, S_SOURCE, and BREED. All of these items are the same as their counterparts in the individual files described above, except the BREED1-BREED5 items. BREED is a newly generated variable used to link to the BREED_DT file, a modified, more compact version of the aforementioned BREED file. BREED1-BREED5 give a text summary of when each life stage occurs within that polygon. The life stages referred to are the same as those listed in the previous table. The link to the BIOFILE may be made through BIO_LUT using ID to link to RARNUM, or it may be linked directly to the RARNUM in each of the biology cover's attribute files. As mentioned, BREED_DT is an auxiliary support file to the flat file structure, which allows the user to do searches based on month for seasonal breeding activities. The link from the flat file to BREED_DT is the BREED item. A second supporting data file is SOURCES. This is the same as the 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 1:24,000 USGS 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:*
> > > > BVI Conservation and Fisheries Department; Contact: B. Lettsome, Chief Conservation and Fisheries Officer, BVI CFD

Publication_Date: Unpublished Material
Title: Wildlife and Fisheries Resources for the British Virgin Islands
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Reptile data
Source_Information:

Source_Citation:

Citation_Information:

Originator:
Knowles, W., USVI Department of Planning and Natural Resources,
Division of Fish and Wildlife
Publication_Date: Unpublished Material
Title: Coastal and Wetland Wildlife Resources for St. Croix
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Reptile data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Hillis-Starr, Z., National Park Service
Publication_Date: Unpublished Material
Title:
Various Natural and Human-use Resources of Buck Island Reef
National Monument
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: 1999

Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Reptile data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Evans, M., United States Fish and Wildlife Service
Publication_Date: Unpublished Material
Title:
Natural and Human-use Resources of Sandy Point NWR and Other
USVI Locations
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Reptile data
Source_Information:

Source_Citation:

Citation_Information:

Originator:
Davis, C., University of the Virgin Islands Cooperative Extension
Service
Publication_Date: Unpublished Material
Title: Edits and Additions to Natural Resource Locations for St. Croix
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Reptile data
Source_Information:

Source_Citation:

Citation_Information:

Originator:
Boulon, R., USVI Department of Planning and Natural Resources,

Division of Fish and Wildlife
Publication_Date: Unpublished Material
Title:
Natural Resource Information for USVI, Particularly St. Thomas and
St. John
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Reptile data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Schwartz, A. and R.W. Henderson
Publication_Date: 1991
Title: Amphibians and Reptiles of the West Indies
Geospatial_Data_Presentation_Form: Document
Publication_Information:

Publication_Place: Gainesville, FL
Publisher: University of Florida Press
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1991
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Reptile data
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: 200108
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@noaa.gov

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: 674
  SDTS_Terms_Description:

   SDTS_Point_and_Vector_Object_Type: Area point
   Point_and_Vector_Object_Count: 674
  SDTS_Terms_Description:

   SDTS_Point_and_Vector_Object_Type: Complete chain
   Point_and_Vector_Object_Count: 914
  SDTS_Terms_Description:

   SDTS_Point_and_Vector_Object_Type: Link
   Point_and_Vector_Object_Count: 128532
  SDTS_Terms_Description:

   SDTS_Point_and_Vector_Object_Type: Node, planar graph
   Point_and_Vector_Object_Count: 777

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

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: GT-polygon
Entity_Type_Definition:
Mapping of sea turtle nesting beaches was emphasized in this atlas. Several known sea turtle in-water concentrations were also mapped, based on expert knowledge. Nearly every sandy beach in the Virgin Islands (including mixed sand and gravel beaches) has documented or potential sea turtle nesting. Accordingly, nesting sea turtles were indicated on most sand beach (ESI = 3A or 4) and mixed sand and gravel beach (ESI = 5) shoreline segments in this atlas. A few shoreline segments mapped as gravel beaches (ESI = 6) were also identified as sea turtle nesting sites. In general, hawksbill nesting can be abundant on beaches throughout the Virgin Islands. Green sea turtles also nest in many areas, although in much lower numbers. Sites with known or potential leatherback sea turtle nesting are less frequent, although the number of leatherbacks nesting in such places can be relatively high. Of particular importance, the beaches at Sandy Point National Wildlife Refuge, on the west end of St. Croix, comprise the most important leatherback nesting site in the U.S. The beaches and surrounding marine waters at Sandy Point are designated as critical habitat for this species under the U.S. Endangered Species Act.
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 (67), 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 Virgin Islands ESI data set (SPECIES ID, NAME): 2, Green sea turtle; 5, Leatherback sea turtle; 9, Hawksbill sea turtle; 34, Rare lizard; 79, Virgin Islands tree boa; 85, St. Croix ground lizard; 86, Anegada ground iguana.
Attribute_Definition_Source: NOAA
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 670600002
Range_Domain_Maximum: 670600677
Attribute_Units_of_Measure: Ordered
Beginning_Date_of_Attribute_Values: 199807

Ending_Date_of_Attribute_Values: 200107
Attribute:

> *Attribute_Label:* RARNUM
> *Attribute_Definition:*
>> An identifier that links directly to the BIORES table or the flat format BIOFILE table. RARNUM values of 0 are holes in polygons and do not contain information.
> *Attribute_Definition_Source:* NOAA
> *Attribute_Domain_Values:*
>
>> *Range_Domain:*
>>
>>> *Range_Domain_Minimum:* 67000232
>>> *Range_Domain_Maximum:* 67000257
> *Beginning_Date_of_Attribute_Values:* 199807
> *Ending_Date_of_Attribute_Values:* 200107

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 Virgin Islands
> *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: 200108
Metadata_Review_Date: 200108
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@noaa.gov
Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

U.S. Virgin Islands and British Virgin Islands ESI: T_MAMMAL (Terrestrial Mammals)

Metadata:

- Identification_Information
- Data_Quality_Information
- Spatial_Data_Organization_Information
- Spatial_Reference_Information
- Entity_and_Attribute_Information
- Distribution_Information
- Metadata_Reference_Information

Identification_Information:

    Citation:

        Citation_Information:

            Originator:
                National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.

            Publication_Date: 200108
            Title:
                U.S. Virgin Islands and British Virgin Islands ESI: T_MAMMAL (Terrestrial Mammals)

            Edition: First
            Geospatial_Data_Presentation_Form: Atlas
            Series_Information:

                Series_Name: None
                Issue_Identification: United States Virgin Islands and British Virgin Islands
            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 National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department

of the Interior.

Description:

Abstract:

This data set comprises the Environmental Sensitivity Index (ESI) data for the Virgin Islands. 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. The Clean Water Act with amendments by the Oil Pollution Act of 1990 requires response plans for immediate and effective protection of sensitive resources.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 199807
Ending_Date: 200107
Currentness_Reference: Project time span

Status:

Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -65.167
East_Bounding_Coordinate: -64.065
North_Bounding_Coordinate: 18.943
South_Bounding_Coordinate: 17.467

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

Place:

Place_Keyword_Thesaurus: None
Place_Keyword: US Virgin Islands
Place_Keyword: British Virgin Islands

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: vidatafig.jpg
Browse_Graphic_File_Description:
Relationships between spatial data layers and attribute data tables for the Virgin Islands data.
Browse_Graphic_File_Type: JPEG
Data_Set_Credit:
This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.
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: benthic.e00, birds.e00, bio_lut.e00, biofile.e00, biores.e00, breed.e00, breed_dt.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, invertl.e00, mgt.e00, m_mammal.e00, reptiles.e00, seasonal.e00, shelfbnd.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00, wetlands.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 1:24,000 USGS 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 and 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 1:24,000 USGS topographic quadrangles by a biological expert using data from regional specialists in the form of maps, tables, charts, written descriptions of wildlife distributions, and personal 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 1:55,000 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 CD-ROM 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 are also modified to include the atlas number, so multiple atlases can be combined and RARNUMs remain unique. RARNUMs are redefined on an element basis, so "resource at risk" groupings will contain only a single element. HUNUMs are also modified to include the atlas number. ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the CDs for ease of use of the ESI data. The database files are 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 US Fish and Wildlife Service, 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. Seven major categories, or ELEMENTs, of biological resources were considered during data compilation: birds; fish; invertebrates; habitats; 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, BREED, SEASONAL, 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 Virgin Islands this is 67), an element specific number (birds are layer 1, fish are layer 2, etc.) and a unique record number. The RARNUM represents a unique combination of species, seasonalities, concentrations, and source information. For each of these groupings, a number is generated. That number is concatenated with the atlas number to create a "resource at risk" number that is unique across atlases.] The items in BIORES include: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, ELEMENT, EL_SPE, and EL_SPE_SEA. SPECIES_ID is the numeric identifier of each species and is unique within each ELEMENT. CONC is the concentration of the species and can be descriptive (LOW, MEDIUM, HIGH, etc.) or an actual count of the number of individuals or nests associated with a polygon or point. SEASON_ID contains a numeric identifier for the unique monthly presence and life history characteristics of each species at a given location. There can be one seasonality record per species, or the same species can have different monthly presence or breeding activities at different sites. When this occurs, a new record with a different SEASON_ID is referenced. G_SOURCE contains the SOURCE_ID for geographic information, and S_SOURCE contains the SOURCE_ID for seasonality information. Both items link to the SOURCES data table. EL_SPE is a concatenation of ELEMENT and SPECIES_ID and links to the SPECIES and STATUS data tables. EL_SPE_SEA is a concatenation of ELEMENT, SPECIES_ID, and SEASON_ID and links to the SEASONAL and BREED data tables. The SPECIES data table contains the SPECIES_ID (described above), common name (NAME), scientific name (GEN_SPEC), biological element (ELEMENT), biological subelement (SUBELEMENT), Natural Heritage Program global conservation status rank (NHP), date the list of NHP ranks was published (DATE_PUB), and EL_SPE. The item SUBELEMENT refers to the grouping of the species: (ELEMENT, subelement): T_MAMMAL: bat. The STATUS data table contains records for each species that is threatened or endangered on state or federal lists. The items include: ELEMENT, SPECIES_ID, STATE (two-letter state abbreviation, populated with "VI" for U.S. Virgin Islands), S_F [state (USVI territory) or federal (U.S.) listing], T_E (threatened or endangered status), DATE_PUB (publication date of the source used to assign T or E

status), and EL_SPE. The SEASONAL data table indicates the presence of a particular species in a particular location by month (JAN-DEC). The BIORES table is linked to the SEASONAL table using the item EL_SPE_SEA (a concatenation of the first letter of the ELEMENT, SPECIES_ID, and SEASON_ID). The BREED data table contains the life stage or life history data for each unique combination of ELEMENT, SPECIES_ID, and SEASON_ID (or EL_SPE_SEA). It contains up to 12 records corresponding to each month of the year that the species is present in that location. The items BREED1-BREED5 will reflect different life activities, depending on the ELEMENT referenced. There are no BREED activities for T_MAMMAL. 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. 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, GEN_SPEC, S_F, T_E, NHP, DATE_PUB, CONC, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC, BREED1, BREED2, BREED3, BREED4, BREED5, RARNUM, G_SOURCE, S_SOURCE, and BREED. All of these items are the same as their counterparts in the individual files described above, except the BREED1-BREED5 items. BREED is a newly generated variable used to link to the BREED_DT file, a modified, more compact version of the aforementioned BREED file. BREED1-BREED5 give a text summary of when each life stage occurs within that polygon. The life stages referred to are the same as those listed in the previous table. The link to the BIOFILE may be made through BIO_LUT using ID to link to RARNUM, or it may be linked directly to the RARNUM in each of the biology cover's attribute files. As mentioned, BREED_DT is an auxiliary support file to the flat file structure, which allows the user to do searches based on month for seasonal breeding activities. The link from the flat file to BREED_DT is the BREED item. A second supporting data file is SOURCES. This is the same as the 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 1:24,000 USGS 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: Boulon, R.H.
                Publication_Date: 1999
                Title: Shoreline Guide to the U.S. Virgin Islands
                Geospatial_Data_Presentation_Form: Document
                Publication_Information:

Publication_Place: St. Thomas, USVI
Publisher:
　　　　USVI Department of Planning and Natural Resources, Division
　　　　of Fish and Wildlife
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1999
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Terrestrial Mammal data
Source_Information:

Source_Citation:

Citation_Information:

Originator:
　　　　Knowles, W., USVI Department of Planning and Natural Resources,
　　　　Division of Fish and Wildlife
Publication_Date: Unpublished Material
Title: Coastal and Wetland Wildlife Resources for St. Croix
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Terrestrial Mammal data
Source_Information:

Source_Citation:

Citation_Information:

Originator:
　　　　Pierce, J., USVI Department of Planning and Natural Resources,
　　　　Division of Fish and Wildlife
Publication_Date: Unpublished Material
Title:
　　　　Seabird Colonies, Seasonality, and Related Information for the Virgin
　　　　Islands
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Terrestrial Mammal data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Dammann, A.E. and D.W. Nellis
Publication_Date: 1992
Title: A Natural History Atlas to the Cays of the U.S. Virgin Islands
Geospatial_Data_Presentation_Form: Document
Publication_Information:

Publication_Place: Sarasota, FL
Publisher: Pineapple Press
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1992
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Terrestrial Mammal data
Source_Information:

Source_Citation:

Citation_Information:

Originator:
Davis, C., University of the Virgin Islands Cooperative Extension
Service
Publication_Date: Unpublished Material
Title: Edits and Additions to Natural Resource Locations for St. Croix
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Terrestrial Mammal data
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: 200108
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@noaa.gov

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: 85
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Area point
Point_and_Vector_Object_Count: 85
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Complete chain
Point_and_Vector_Object_Count: 114
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Link
Point_and_Vector_Object_Count: 16066
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Node, planar graph
Point_and_Vector_Object_Count: 107

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

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: GT-polygon
Entity_Type_Definition:
Terrestrial mammals depicted in this atlas are limited to bats. Bats were generally
indicated near salt ponds and certain mangrove-lined bays where fish-eating species
may feed, such as the USVI endangered fisherman bat. A few important roosting
areas associated with small islands or coastal forests are also indicated. It should be
recognized that important bat habitats and occurrence sites not shown on the maps are
present in other locations in the Virgin Islands.
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 (67), 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 Virgin Islands ESI data set (SPECIES ID, NAME): 9, Red fruit bat; 10,
Fisherman bat; 135, Cave bat; 1001, Bats.
Attribute_Definition_Source: NOAA
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 670900002
Range_Domain_Maximum: 670900088

Attribute_Units_of_Measure: Ordered
Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200107
Attribute:

Attribute_Label: RARNUM
Attribute_Definition:
An identifier that links directly to the BIORES table or the flat format BIOFILE table.
RARNUM values of 0 are holes in polygons and do not contain information.
Attribute_Definition_Source: NOAA
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 67000258
Range_Domain_Maximum: 67000264
Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200107

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 Virgin Islands
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: 200108
    Metadata_Review_Date: 200108
    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@noaa.gov
    Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
    Metadata_Standard_Version: FGDC-STD-001-1998

U.S. Virgin Islands and British Virgin Islands ESI: HABITATS

Metadata:

- [Identification_Information](#)
- [Data_Quality_Information](#)
- [Spatial_Data_Organization_Information](#)
- [Spatial_Reference_Information](#)
- [Entity_and_Attribute_Information](#)
- [Distribution_Information](#)
- [Metadata_Reference_Information](#)

Identification_Information:

    Citation:

        Citation_Information:

            Originator:
National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.

            Publication_Date: 200108
            Title: U.S. Virgin Islands and British Virgin Islands ESI: HABITATS
            Edition: First
            Geospatial_Data_Presentation_Form: Atlas
            Series_Information:

                Series_Name: None
                Issue_Identification: United States Virgin Islands and British Virgin Islands
            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 National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.

    Description:

Abstract:
This data set comprises the Environmental Sensitivity Index (ESI) data for the Virgin Islands. 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 habitats.

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

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 199807
Ending_Date: 200107
Currentness_Reference: Project time span

Status:

Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -65.167
East_Bounding_Coordinate: -64.065
North_Bounding_Coordinate: 18.943
South_Bounding_Coordinate: 17.467

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: Habitat
Theme_Keyword: Algae
Theme_Keyword: Coral
Theme_Keyword: Hardbottom
Theme_Keyword: Submersed aquatic vegetation (SAV)
Theme_Keyword: Upland
Theme_Keyword: Wetland

Place:

Place_Keyword_Thesaurus: None
Place_Keyword: US Virgin Islands
Place_Keyword: British Virgin Islands

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: vidatafig.jpg
Browse_Graphic_File_Description:
Relationships between spatial data layers and attribute data tables for the Virgin Islands data.
Browse_Graphic_File_Type: JPEG

Data_Set_Credit:
This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.

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: benthic.e00, birds.e00, bio_lut.e00, biofile.e00, biores.e00, breed.e00, breed_dt.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, invertl.e00, mgt.e00, m_mammal.e00, reptiles.e00, seasonal.e00, shelfbnd.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00, wetlands.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 1:24,000 USGS 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 and 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 1:24,000 USGS topographic quadrangles by a biological expert using data from regional specialists in the form of maps, tables, charts, written descriptions of wildlife distributions, and personal 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 1:55,000 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 CD-ROM 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 are also modified to include the atlas number, so multiple atlases can be combined and RARNUMs remain unique. RARNUMs are redefined on an element basis, so "resource at risk" groupings will contain only a single element. HUNUMs are also modified to include the atlas number. ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the CDs for ease of use of the ESI data. The database files are 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 US Fish and Wildlife Service, 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. Seven major categories, or ELEMENTs, of biological resources were considered during data compilation: birds; fish; invertebrates; habitats; 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, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, that are used to store the complex biological data. The biological polygons (HABITATS) 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 Virgin Islands this is 67), an element specific number (birds are layer 1, fish are layer 2, etc.) and a unique record number. The RARNUM represents a unique combination of species, seasonalities, concentrations, and source information. For each of these groupings, a number is generated. That number is concatenated with the atlas number to create a "resource at risk" number that is unique across atlases.] The items in BIORES include: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, ELEMENT, EL_SPE, and EL_SPE_SEA. SPECIES_ID is the numeric identifier of each species and is unique within each ELEMENT. CONC is the concentration of the species and can be descriptive (LOW, MEDIUM, HIGH, etc.) or an actual count of the number of individuals or nests associated with a polygon or point. SEASON_ID contains a numeric identifier for the unique monthly presence and life history characteristics of each species at a given location. There can be one seasonality record per species, or the same species can have different monthly presence or breeding activities at different sites. When this occurs, a new record with a different SEASON_ID is referenced. G_SOURCE contains the SOURCE_ID for geographic information, and S_SOURCE contains the SOURCE_ID for seasonality information. Both items link to the SOURCES data table. EL_SPE is a concatenation of ELEMENT and SPECIES_ID and links to the SPECIES and STATUS data tables. EL_SPE_SEA is a concatenation of ELEMENT, SPECIES_ID, and SEASON_ID and links to the SEASONAL and BREED data tables. The SPECIES data table contains the SPECIES_ID (described above), common name (NAME), scientific name (GEN_SPEC), biological element (ELEMENT), biological subelement (SUBELEMENT), Natural Heritage Program global conservation status rank (NHP), date the list of NHP ranks was published (DATE_PUB), and EL_SPE. The item SUBELEMENT refers to the grouping of the species: (ELEMENT, subelement): HABITATS: algae, coral, hardbottom, submersed aquatic vegetation (SAV), upland, and wetland. The STATUS data table

contains records for each species that is threatened or endangered on state or federal lists. The items include: ELEMENT, SPECIES_ID, STATE (two-letter state abbreviation, populated with "VI" for U.S. Virgin Islands), S_F [state (USVI territory) or federal (U.S.) listing], T_E (threatened or endangered status), DATE_PUB (publication date of the source used to assign T or E status), and EL_SPE. The SEASONAL data table indicates the presence of a particular species in a particular location by month (JAN-DEC). The BIORES table is linked to the SEASONAL table using the item EL_SPE_SEA (a concatenation of the first letter of the ELEMENT, SPECIES_ID, and SEASON_ID). The BREED data table contains the life stage or life history data for each unique combination of ELEMENT, SPECIES_ID, and SEASON_ID (or EL_SPE_SEA). It contains up to 12 records corresponding to each month of the year that the species is present in that location. The items BREED1-BREED5 will reflect different life activities, depending on the ELEMENT referenced. There are no BREED activities for HABITATS. 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. 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, GEN_SPEC, S_F, T_E, NHP, DATE_PUB, CONC, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC, BREED1, BREED2, BREED3, BREED4, BREED5, RARNUM, G_SOURCE, S_SOURCE, and BREED. All of these items are the same as their counterparts in the individual files described above, except the BREED1-BREED5 items. BREED is a newly generated variable used to link to the BREED_DT file, a modified, more compact version of the aforementioned BREED file. BREED1-BREED5 give a text summary of when each life stage occurs within that polygon. The life stages referred to are the same as those listed in the previous table. The link to the BIOFILE may be made through BIO_LUT using ID to link to RARNUM, or it may be linked directly to the RARNUM in each of the biology cover's attribute files. As mentioned, BREED_DT is an auxiliary support file to the flat file structure, which allows the user to do searches based on month for seasonal breeding activities. The link from the flat file to BREED_DT is the BREED item. A second supporting data file is SOURCES. This is the same as the 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 1:24,000 USGS 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:* Boulon, R.H.
>>>> *Publication_Date:* 1999

Title: Shoreline Guide to the U.S. Virgin Islands
Geospatial_Data_Presentation_Form: Document
Publication_Information:

Publication_Place: St. Thomas, USVI
Publisher:
USVI Department of Planning and Natural Resources, Division of Fish and Wildlife
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1999
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Habitat data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Hillis-Starr, Z., National Park Service
Publication_Date: Unpublished Material
Title:
Various Natural and Human-use Resources of Buck Island Reef National Monument
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: 1999
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Habitat data
Source_Information:

Source_Citation:

Citation_Information:

Originator:
Pierce, J., USVI Department of Planning and Natural Resources, Division of Fish and Wildlife
Publication_Date: Unpublished Material
Title:
Seabird Colonies, Seasonality, and Related Information for the Virgin Islands
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Habitat data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Virgin Island National Park
Publication_Date: Unpublished Material
Title:
Rare and Unique Plants and Animals of Virgin Islands National Park
Geospatial_Data_Presentation_Form: Document and Map
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: Unknown
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Habitat data
Source_Information:

Source_Citation:

Citation_Information:

Originator:
Davis, C., University of the Virgin Islands Cooperative Extension
Service
Publication_Date: Unpublished Material
Title: Edits and Additions to Natural Resource Locations for St. Croix
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Habitat data
Source_Information:

Source_Citation:

    Citation_Information:

        Originator: Thomson, J., Friends of Sandy Point
        Publication_Date: Unpublished Material
        Title: Review Edits for St. Croix
        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: 1999
    Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Habitat data
Source_Information:

Source_Citation:

    Citation_Information:

        Originator: Yoshioka, B., United States Fish and Wildlife Service
        Publication_Date: Unpublished material
        Title:
            Native Stream Fish and Shrimp Distribution, Seasonality, and Life-History
        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: 1999
    Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Habitat data
Source_Information:

Source_Citation:

    Citation_Information:

        Originator:
            Tobias, W., USVI Department of Planning and Natural Resources, Division of Fish and Wildlife
        Publication_Date: Unpublished Material
        Title: Fisheries and Human-use Resources for St. Croix
        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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Habitat data
Source_Information:

Source_Citation:

Citation_Information:

Originator: O'Reilly, R., Natural Resources Conservation Service
Publication_Date: Unpublished Material
Title: Endangered Plants and Other Resources for St. Croix
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Habitat data
Source_Information:

Source_Citation:

Citation_Information:

Originator: U.S. Geological Survey
Publication_Date: 1958-1984
Title: USGS Topographic Quadrangles
Geospatial_Data_Presentation_Form: Maps
Publication_Information:

Publication_Place: Reston, VA
Publisher: U.S. Geological Survey
Source_Scale_Denominator: 24000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 1959
Ending_Date: 1984
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Habitat data
Source_Information:

Source_Citation:

    Citation_Information:

        Originator:
            Thomas, T., University of the Virgin Islands Cooperative Extension
            Service
        Publication_Date: Unpublished Material
        Title: Rare and Endangered Plants for St. Thomas and St. John
        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: 1999
    Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Habitat data
Source_Information:

Source_Citation:

    Citation_Information:

        Originator: Lopez, F., United States Fish and Wildlife Service
        Publication_Date: Unpublished Material
        Title: Various Natural Resource and Human-use Features for USVI
        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: 1999
    Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Habitat data
Source_Information:

Source_Citation:

    Citation_Information:

        Originator: Goenaga, C. and R.H. Boulon
        Publication_Date: 1992
        Title:
            The State of Puerto Rican and U.S. Virgin Islands Corals and Aid to
            Managers
        Geospatial_Data_Presentation_Form: Document
        Publication_Information:

Publication_Place: Virgin Islands
Publisher: Caribbean Fishery Management Council 1994
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1992
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Habitat data
Source_Information:

Source_Citation:

Citation_Information:

Originator: NOAA
Publication_Date: 1981
Title: NOAA Nautical Charts
Geospatial_Data_Presentation_Form: Maps
Publication_Information:

Publication_Place: Washington, D.C
Publisher: NOAA, National Ocean Service Coast Survey
Source_Scale_Denominator: 100000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1981
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Habitat data
Source_Information:

Source_Citation:

Citation_Information:

Originator: BC&E/CH2M-HILL
Publication_Date: 1979
Title: A Sediment Reduction Program for the U.S. Virgin Islands
Geospatial_Data_Presentation_Form: Maps
Publication_Information:

Publication_Place: US Virgin Islands
Publisher: USVI Department of Conservation and Cultural Affairs
Source_Scale_Denominator: 12000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1979
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Habitat data
Source_Information:

Source_Citation:

Citation_Information:

Originator:
VI Conservation Data Center (VICDC) Contact: D. Berry, University of the Virgin Islands ECC, VICDC, St. Thomas
Publication_Date: Unpublished Material
Title:
Draft Rapid Ecological Assessment Data for St. Croix (Marine Communities)
Geospatial_Data_Presentation_Form: Vector Digital Data
Source_Scale_Denominator: 9600
Type_of_Source_Media: Disc
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1994
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Habitat data
Source_Information:

Source_Citation:

Citation_Information:

Originator:
VI Conservation Data Center (VICDC) Contact: D. Berry, University of the Virgin Islands ECC, VICDC, St. Thomas
Publication_Date: Unpublished Material
Title: Marine Communities for Virgin Islands National Park, St. John
Geospatial_Data_Presentation_Form: Vector Digital Data
Source_Scale_Denominator: 9600
Type_of_Source_Media: Disc
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1994
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None

Source_Contribution: Habitat data
Source_Information:

 Source_Citation:

  Citation_Information:

   Originator: Blair-Myers, C.N., et al.
   Publication_Date: 1993
   Title: A Coastal Resources Atlas for the British Virgin Islands
   Geospatial_Data_Presentation_Form: Vector Digital Data
   Publication_Information:

    Publication_Place: United Kingdom
    Publisher:
     Natural Resources Institute, Overseas Development
     Administration
 Source_Scale_Denominator: 10000
 Type_of_Source_Media: Online
 Source_Time_Period_of_Content:

  Time_Period_Information:

   Range_of_Dates/Times:

    Beginning_Date: 1991
    Ending_Date: 1993
  Source_Currentness_Reference: Date of study
 Source_Citation_Abbreviation: None
 Source_Contribution: Habitat data
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: 200108
 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@noaa.gov

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: 74
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Area point
Point_and_Vector_Object_Count: 74
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Complete chain
Point_and_Vector_Object_Count: 84
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Link
Point_and_Vector_Object_Count: 15354
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Node, planar graph
Point_and_Vector_Object_Count: 83

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

Entity_and_Attribute_Information:

   Detailed_Description:

     Entity_Type:

       Entity_Type_Label: GT-polygon
       Entity_Type_Definition:
         Threatened and endangered (T&E) plants for both coastal and inland areas are shown in this atlas. T&E plants were mapped based on information and maps provided primarily by the University of the Virgin Islands Cooperative Extension Service and the USDA Natural Resources Conservation Service. Information and edits from other individuals and groups were used as well. Note that marine and estuarine seagrass beds were not mapped with this group of resources. Seagrasses were mapped as benthic marine habitats (discussed in the next section).
       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 (67), element number (3), and record number. ID values of 9999 are holes in polygons and do not contain information. The following HABITATS species are found in the Virgin Islands ESI data set (SPECIES ID, NAME): 85, Seagrass; 253, Hardbottom reef; 430, Zanthoxylum thomasianum; 435, Buxus vahlii; 436, Calyptranthes thomasiana; 462, Malpighia woodburyana; 463, Brassavola cucullata; 464, Tillandsia lineatispica; 465, Psychilis macconelliae; 468, Manilkara bidentata; 469, Schoepfia schreberi; 472, Machaonia woodburyana; 473, Malpighia sp.; 474, Eugenia sp.; 475, Byrsonima sp.; 476, Psidium sp.; 478, Peperomia myrtifolia; 479, Cypselea humifusa; 480, Erythrina eggersii; 481, Galactia eggersii; 482, Malpighia linearis; 483, Ilex urbaniana; 484, Solanum mucronatum; 486, Malpighia infestissima; 492, Guajacum officinale; 493, Catesbaea melanocarpa; 494, Maytenus cymosa; 495, Agave eggersiana; 496, Nashia inaguensis; 501, Mammilaria nivosa; 1028, Algae; 1030, Coral reef; 1031, Hardground; 1033, Shelf-edge reef.
       Attribute_Definition_Source: NOAA
       Attribute_Domain_Values:

         Range_Domain:

           Range_Domain_Minimum: 670300002
           Range_Domain_Maximum: 670300068
           Attribute_Units_of_Measure: Ordered
       Beginning_Date_of_Attribute_Values: 199807
       Ending_Date_of_Attribute_Values: 200107
     Attribute:

       Attribute_Label: RARNUM
       Attribute_Definition:
         An identifier that links directly to the BIORES table or the flat format BIOFILE table. RARNUM values of 0 are holes in polygons and do not contain information.
       Attribute_Definition_Source: NOAA
       Attribute_Domain_Values:

         Range_Domain:

> *Range_Domain_Minimum:* 67000139
> *Range_Domain_Maximum:* 67000184
> *Beginning_Date_of_Attribute_Values:* 199807
> *Ending_Date_of_Attribute_Values:* 200107

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 Virgin Islands
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: 200108
    Metadata_Review_Date: 200108
    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@noaa.gov
Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

U.S. Virgin Islands and British Virgin Islands ESI: BENTHIC (Benthic Marine Habitats)

Metadata:

- Identification_Information
- Data_Quality_Information
- Spatial_Data_Organization_Information
- Spatial_Reference_Information
- Entity_and_Attribute_Information
- Distribution_Information
- Metadata_Reference_Information

Identification_Information:

    Citation:

        Citation_Information:

            Originator:
                National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.
            Publication_Date: 200108
            Title: U.S. Virgin Islands and British Virgin Islands ESI: BENTHIC (Benthic Marine Habitats)
            Edition: First
            Geospatial_Data_Presentation_Form: Atlas
            Series_Information:

                Series_Name: None
                Issue_Identification: United States Virgin Islands and British Virgin Islands
            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 National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.

Description:

    Abstract:
        This data set comprises the Environmental Sensitivity Index (ESI) data for the Virgin Islands. 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 benthic marine habitats.

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

Time_Period_of_Content:

    Time_Period_Information:

        Range_of_Dates/Times:

            Beginning_Date: 199807
            Ending_Date: 200107
    Currentness_Reference: Project time span

Status:

    Progress: Complete
    Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

    Bounding_Coordinates:

        West_Bounding_Coordinate: -65.167
        East_Bounding_Coordinate: -64.065
        North_Bounding_Coordinate: 18.943
        South_Bounding_Coordinate: 17.467

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: Benthic
        Theme_Keyword: Algae
        Theme_Keyword: Coral
        Theme_Keyword: Hardbottom
        Theme_Keyword: Submersed aquatic vegetation (SAV)

    Place:

        Place_Keyword_Thesaurus: None
        Place_Keyword: US Virgin Islands
        Place_Keyword: British Virgin Islands

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: vidatafig.jpg
Browse_Graphic_File_Description:
Relationships between spatial data layers and attribute data tables for the Virgin Islands data.
Browse_Graphic_File_Type: JPEG
Data_Set_Credit:
This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.
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: benthic.e00, birds.e00, bio_lut.e00, biofile.e00, biores.e00, breed.e00, breed_dt.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, invertl.e00, mgt.e00, m_mammal.e00, reptiles.e00, seasonal.e00, shelfbnd.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00, wetlands.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 1:24,000 USGS 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 and 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 1:24,000 USGS topographic quadrangles by a biological expert using data from regional specialists in the form of maps, tables, charts, written descriptions of wildlife distributions, and personal 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 1:55,000 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 CD-ROM 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 are also modified to include the atlas number, so multiple atlases can be combined and RARNUMs remain unique. RARNUMs are redefined on an element basis, so "resource at risk" groupings will contain only a single element. HUNUMs are also modified to include the atlas number. ESI data are processed into multiple formats to make them useful to a wider community of GIS/mapping users. Distribution formats include ARC export, MOSS and Shape files, and MARPLOT map folders. An ArcView ESI project and ESI_Viewer product are also included on the CDs for ease of use of the ESI data. The database files are 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 US Fish and Wildlife Service, 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. Seven major categories, or ELEMENTs, of biological resources were considered during data compilation: birds; fish; invertebrates; habitats; 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, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, that are used to store the complex biological data. The biological polygons (BENTHIC) 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 Virgin Islands this is 67), an element specific number (birds are layer 1, fish are layer 2, etc.) and a unique record number. The RARNUM represents a unique combination of species, seasonalities, concentrations, and source information. For each of these groupings, a number is generated. That number is concatenated with the atlas number to create a "resource at risk" number that is unique across atlases.] The items in BIORES include: RARNUM, SPECIES_ID, CONC, SEASON_ID, G_SOURCE, S_SOURCE, ELEMENT, EL_SPE, and EL_SPE_SEA. SPECIES_ID is the numeric identifier of each species and is unique within each ELEMENT. CONC is the concentration of the species and can be descriptive (LOW, MEDIUM, HIGH, etc.) or an actual count of the number of individuals or nests associated with a polygon or point. SEASON_ID contains a numeric identifier for the unique monthly presence and life history characteristics of each species at a given location. There can be one seasonality record per species, or the same species can have different monthly presence or breeding activities at different sites. When this occurs, a new record with a different SEASON_ID is referenced. G_SOURCE contains the SOURCE_ID for geographic information, and S_SOURCE contains the SOURCE_ID for seasonality information. Both items link to the SOURCES data table. EL_SPE is a concatenation of ELEMENT and SPECIES_ID and links to the SPECIES and STATUS data tables. EL_SPE_SEA is a concatenation of ELEMENT, SPECIES_ID, and SEASON_ID and links to the SEASONAL and BREED data tables. The SPECIES data table contains the SPECIES_ID (described above), common name (NAME), scientific name (GEN_SPEC), biological element (ELEMENT), biological subelement (SUBELEMENT), Natural Heritage Program global conservation status rank (NHP), date the list of NHP ranks was published (DATE_PUB), and EL_SPE. The item SUBELEMENT refers to the grouping of the species: (ELEMENT, subelement): BENTHIC: algae, coral, hardbottom, sav (submersed aquatic vegetation). The STATUS data table contains records for each species that is threatened or endangered on state or federal lists. The items include: ELEMENT, SPECIES_ID,

STATE (two-letter state abbreviation, populated with "VI" for U.S. Virgin Islands), S_F [state (USVI territory) or federal (U.S.) listing], T_E (threatened or endangered status), DATE_PUB (publication date of the source used to assign T or E status), and EL_SPE. The SEASONAL data table indicates the presence of a particular species in a particular location by month (JAN-DEC). The BIORES table is linked to the SEASONAL table using the item EL_SPE_SEA (a concatenation of the first letter of the ELEMENT, SPECIES_ID, and SEASON_ID). The BREED data table contains the life stage or life history data for each unique combination of ELEMENT, SPECIES_ID, and SEASON_ID (or EL_SPE_SEA). It contains up to 12 records corresponding to each month of the year that the species is present in that location. The items BREED1-BREED5 will reflect different life activities, depending on the ELEMENT referenced. There are no BREED activities for BENTHIC. 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. 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, GEN_SPEC, S_F, T_E, NHP, DATE_PUB, CONC, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC, BREED1, BREED2, BREED3, BREED4, BREED5, RARNUM, G_SOURCE, S_SOURCE, and BREED. All of these items are the same as their counterparts in the individual files described above, except the BREED1-BREED5 items. BREED is a newly generated variable used to link to the BREED_DT file, a modified, more compact version of the aforementioned BREED file. BREED1-BREED5 give a text summary of when each life stage occurs within that polygon. The life stages referred to are the same as those listed in the previous table. The link to the BIOFILE may be made through BIO_LUT using ID to link to RARNUM, or it may be linked directly to the RARNUM in each of the biology cover's attribute files. As mentioned, BREED_DT is an auxiliary support file to the flat file structure, which allows the user to do searches based on month for seasonal breeding activities. The link from the flat file to BREED_DT is the BREED item. A second supporting data file is SOURCES. This is the same as the 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 1:24,000 USGS 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: U.S. Geological Survey
Publication_Date: Various
Title: USGS Topographic Quadrangles
Geospatial_Data_Presentation_Form: Maps

Publication_Information:

Publication_Place: Reston, VA
Publisher: U.S. Geological Survey
Source_Scale_Denominator: 24000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 1959
Ending_Date: 1984
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Benthic data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Boulon, R.H.
Publication_Date: 1999
Title: Shoreline Guide to the U.S. Virgin Islands
Geospatial_Data_Presentation_Form: Document
Publication_Information:

Publication_Place: St. Thomas, USVI
Publisher:
USVI Department of Planning and Natural Resources, Division
of Fish and Wildlife
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1999
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Benthic data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Lopez, F., United States Fish and Wildlife Service
Publication_Date: Unpublished Material
Title: Various Natural Resource and Human-use Features for USVI
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Benthic data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Goenaga, C. and R.H. Boulon
Publication_Date: Unpublished material
Title:
The State of Puerto Rican and U.S. Virgin Islands Corals and Aid to
Managers
Geospatial_Data_Presentation_Form: Document
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1992
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Benthic data
Source_Information:

Source_Citation:

Citation_Information:

Originator: NOAA
Publication_Date: 1981
Title: NOAA Nautical Charts
Geospatial_Data_Presentation_Form: Maps
Publication_Information:

Publication_Place: Washington, D.C
Publisher: NOAA, National Ocean Service Coast Survey
Source_Scale_Denominator: 100000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1981
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Benthic data

Source_Information:

    Source_Citation:

        Citation_Information:

            Originator:
                Tobias, W., USVI Department of Planning and Natural Resources, Division of Fish and Wildlife
            Publication_Date: Unpublished Material
            Title: Fisheries and Human-use Resources for St. Croix
            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: 1999
            Source_Currentness_Reference: Date of communication
        Source_Citation_Abbreviation: None
        Source_Contribution: Benthic data
Source_Information:

    Source_Citation:

        Citation_Information:

            Originator: Hillis-Starr, Z., National Park Service
            Publication_Date: Unpublished Material
            Title:
                Various Natural and Human-use Resources of Buck Island Reef National Monument
            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: 1999
            Source_Currentness_Reference: Date of study
        Source_Citation_Abbreviation: None
        Source_Contribution: Benthic data
Source_Information:

    Source_Citation:

        Citation_Information:

            Originator: Thomson, J., Friends of Sandy Point
            Publication_Date: Unpublished Material
            Title: Review Edits for St. Croix
            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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Benthic data
Source_Information:

Source_Citation:

Citation_Information:

Originator: BC&E/CH2M-HILL
Publication_Date: Unpublished material
Title: A Sediment Reduction Program for the U.S. Virgin Islands
Geospatial_Data_Presentation_Form: Maps
Publication_Information:

Publication_Place: US Virgin Islands
Publisher: USVI Department of Conservation and Cultural Affairs
Source_Scale_Denominator: 12000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1979
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: Benthic data
Source_Information:

Source_Citation:

Citation_Information:

Originator:
VI Conservation Data Center (VICDC) Contact: D. Berry, University of the Virgin Islands ECC, VICDC, St. Thomas
Publication_Date: Unpublished Material
Title:
Draft Rapid Ecological Assessment Data for St. Croix (Marine Communities)
Geospatial_Data_Presentation_Form: Vector Digital Data
Source_Scale_Denominator: 9600
Type_of_Source_Media: Disc
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1994
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Benthic data
Source_Information:

Source_Citation:

Citation_Information:

Originator:
VI Conservation Data Center (VICDC) Contact: D. Berry, University of the Virgin Islands ECC, VICDC, St. Thomas
Publication_Date: Unpublished Material
Title: Marine Communities for Virgin Islands National Park, St. John
Geospatial_Data_Presentation_Form: Vector Digital Data
Source_Scale_Denominator: 9600
Type_of_Source_Media: Disc
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1994
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Benthic data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Blair-Myers, C.N., et al.
Publication_Date: 1993
Title: A Coastal Resources Atlas for the British Virgin Islands
Geospatial_Data_Presentation_Form: Vector Digital Data
Publication_Information:

Publication_Place: United Kingdom
Publisher:
Natural Resources Institute, Overseas Development Administration
Source_Scale_Denominator: 10000
Type_of_Source_Media: Online
Source_Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 1991
Ending_Date: 1993
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None

Source_Contribution: Benthic data
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: 200108
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@noaa.gov

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: 7637
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Area point
Point_and_Vector_Object_Count: 7637
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Complete chain
Point_and_Vector_Object_Count: 10866
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Link
Point_and_Vector_Object_Count: 1073234
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Node, planar graph
Point_and_Vector_Object_Count: 9687

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

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: GT-polygon
Entity_Type_Definition:
Four types of benthic marine habitats are depicted in the Virgin Islands atlas: 1) coral reefs, 2) hardbottoms, 3) seagrass beds, and 4) algae. These resources were mapped using a variety of data sources and methods. Geographic sources mainly included: digital Rapid Ecological Assessment (REA) and similar data for St. John and St. Croix (draft) from the University of the Virgin Islands, Eastern Caribbean Center, Virgin Islands Conservation Data Center (VICDC); hardcopy Sediment Reduction Program "blue-line" habitat maps for St. Thomas provided by the USVI Department of Planning and Natural Resources (DPNR) Coastal Zone Management (CZM) office (BC&E/CH2M Hill, 1979); and the digital Coastal Resource Atlas of the British Virgin Islands produced by the Natural Resources Institute (NRI), Overseas Development Administration, provided by the BVI Conservation and Fisheries Department (CFD). Because coral reef and hardbottom habitats were not differentiated in the data provided by the VICDC for St. John and St. Croix, hardcopy maps provided by the USVI DPNR CZM office were used to identify the types of benthic features mapped. More detailed and specific information can be obtained by contacting the VICDC. In addition to these main sources, benthic habitat features were also depicted based on expert information or other hardcopy data sources. Coral reefs depicted in this atlas include the following features: coral patch reef, coral fringing reef, shelf-edge reef, etc. Shelf-edge reef was mapped as a separate category, but was

combined with coral reef for depiction on the maps. Hardbottom habitats shown in this atlas include: carbonate pavement, hardground, soft coral substrate, rock reef, etc. Seagrass beds can include different species of seagrass, as well as mixed-species beds. Density or cover of seagrasses is not differentiated in this atlas. The algae category includes areas where macroalgae beds or calcareous algae predominate. In addition to the benthic habitats described above, St. Croix (and perhaps other areas) has several "algal ridges", which were too small to depict in this atlas. Algal ridges are important linear features oriented parallel to the shoreline and reef tract that occur just inshore of reef flats and Elkhorn coral reef zones. On the east end of St. Croix, the following algal ridges are present (listed west to east along the northern shore, and then east to west along the southern shore): Boiler Bay Ridge, Lamb Insipient Ridge, East Point Ridge, Isaac's Ridge, Jack Incipient Ridge, Beach Ridge, Robin Ridge, Robin Bay Incipient Ridges, Fancy Ridge, and Fancy Incipient Ridge. Other ridges may be present in other areas as well.

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 (67), element number (8), and record number. ID values of 9999 are holes in polygons and do not contain information. The following BENTHIC species are found in the Virgin Islands ESI data set (SPECIES ID, NAME): 85, seagrass; 253, hardbottom reef; 1028, algae; 1030, coral reef; 1031, hardground; 1033, shelf-edge reef.
Attribute_Definition_Source: NOAA
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 670800002
Range_Domain_Maximum: 670807699
Attribute_Units_of_Measure: Ordered
Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200107

Attribute:

Attribute_Label: RARNUM
Attribute_Definition:
An identifier that links directly to the BIORES table or the flat format BIOFILE table. RARNUM values of 0 are holes in polygons and do not contain information.
Attribute_Definition_Source: NOAA
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 67000143
Range_Domain_Maximum: 67000206
Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200107

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 Virgin Islands
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: 200108
    Metadata_Review_Date: 200108
    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@noaa.gov

Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

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U.S. Virgin Islands and British Virgin Islands ESI: MGT (Management Areas)

Metadata:

- Identification_Information
- Data_Quality_Information
- Spatial_Data_Organization_Information
- Spatial_Reference_Information
- Entity_and_Attribute_Information
- Distribution_Information
- Metadata_Reference_Information

Identification_Information:

    Citation:

        Citation_Information:

            Originator:
                National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.
            Publication_Date: 200108
            Title: U.S. Virgin Islands and British Virgin Islands ESI: MGT (Management Areas)
            Edition: First
            Geospatial_Data_Presentation_Form: Atlas
            Series_Information:

                Series_Name: None
                Issue_Identification: United States Virgin Islands and British Virgin Islands
            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 National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.
    Description:

Abstract:

This data set comprises the Environmental Sensitivity Index (ESI) data for the Virgin Islands. 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. The Clean Water Act with amendments by the Oil Pollution Act of 1990 requires response plans for immediate and effective protection of sensitive resources.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 199807
Ending_Date: 200107
Currentness_Reference: Project time span

Status:

Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -65.167
East_Bounding_Coordinate: -64.065
North_Bounding_Coordinate: 18.943
South_Bounding_Coordinate: 17.467

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 Use

Place:

Place_Keyword_Thesaurus: None
Place_Keyword: US Virgin Islands
Place_Keyword: British Virgin Islands

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: vidatafig.jpg

Browse_Graphic_File_Description:
> Relationships between spatial data layers and attribute data tables for the Virgin Islands data.

Browse_Graphic_File_Type: JPEG

Data_Set_Credit:
> This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.

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: benthic.e00, birds.e00, bio_lut.e00, biofile.e00, biores.e00, breed.e00, breed_dt.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, invertl.e00, mgt.e00, m_mammal.e00, reptiles.e00, seasonal.e00, shelfbnd.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00, wetlands.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 1:24,000 scale maps. Under this project, new digital data sources are imported, projected, checked for quality control, and integrated into the spatial data structure (for selected resources). The data are checked using both digital and on-screen procedures. 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 CD-ROM 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:
> Human-Use Resources: Several human-use, or socioeconomic, features are included in ESI atlases. Entity points and complete chains (arcs) are digitized into the data layer SOCECON, and managed area polygonal data (GT-polygons) are stored in the MGT data layer. Both data sets are linked to the data table SOC_DAT using the SOC_LUT lookup table and the items HUNUM and ID. HUNUM is a unique reference number concatenated with the atlas number (for the Virgin Islands this is 67). ID is a unique combination of the atlas number, 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), geographic source (G_SOURCE), and attribute source (A_SOURCE). Detailed contact information is only included for select management features, where available. Source information is included for all features.

Positional_Accuracy:

    Horizontal_Positional_Accuracy:

        Horizontal_Positional_Accuracy_Report:

            The majority of management area data came from existing digital sources. See the Lineage section (below) for specific information on each source. For the few management areas not covered by existing sources, hard copy boundary information was transferred to USGS 1:24,000 topographic quadrangles and digitized.

Lineage:

    Source_Information:

        Source_Citation:

            Citation_Information:

                Originator:
BVI Conservation and Fisheries Department; Contact: B. Lettsome, Chief Conservation and Fisheries Officer, BVI CFD

                Publication_Date: Unpublished Material

                Title: Wildlife and Fisheries Resources for the British Virgin Islands

                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: 1999

            Source_Currentness_Reference: Date of communication

        Source_Citation_Abbreviation: None

        Source_Contribution: Management area, and national park information

    Source_Information:

        Source_Citation:

            Citation_Information:

                Originator: Knowles, W., USVI Department of Planning and Natural Resources, Division of Fish and Wildlife

                Publication_Date: Unpublished Material

                Title: Coastal and Wetland Wildlife Resources for St. Croix

                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: 1999

            Source_Currentness_Reference: Date of communication

        Source_Citation_Abbreviation: None

Source_Contribution: Wildlife refuge information

Source_Information:

Source_Citation:

Citation_Information:

Originator: Hillis-Starr, Z., National Park Service
Publication_Date: Unpublished Material
Title: Various Natural and Human-use Resources of Buck Island Reef National Monument
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: 1999
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: National park data

Source_Information:

Source_Citation:

Citation_Information:

Originator: Evans, M., United States Fish and Wildlife Service
Publication_Date: Unpublished Material
Title: Natural and Human-use Resources of Sandy Point NWR and Other USVI Locations
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Wildlife refuge information

Source_Information:

Source_Citation:

Citation_Information:

Originator: U.S. Geological Survey
Publication_Date: Various
Title: USGS Topographic Quadrangles
Geospatial_Data_Presentation_Form: Maps
Publication_Information:

Publication_Place: Reston, VA
Publisher: U.S. Geological Survey
Source_Scale_Denominator: 24000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 1959
Ending_Date: 1984
Source_Currentness_Reference: Date of publication
Source_Citation_Abbreviation: None
Source_Contribution: National park data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Government of the USVI
Publication_Date: 1973
Title: Management, control and use of Government-owned Offshore Islands and Cays
Geospatial_Data_Presentation_Form: Document
Publication_Information:

Publication_Place: Washington, DC
Publisher: USVI ACT, FEBRUARY 8, 1973, NO. 3376, SESS. L 1973, P. 5, SECTION 1
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1973
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Wildlife refuge data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Division of Fish and Wildlife, USVI Department of Planning and Natural Resources
Publication_Date: Unpublished Material
Title: Marine Reserves and Wildlife Sanctuaries Brochure
Geospatial_Data_Presentation_Form: Document and Map
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Date study was reviewed
Source_Citation_Abbreviation: None
Source_Contribution: Wildlife refuge information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Cissel, W., National Park Service
Publication_Date: Unpublished Material
Title: Archaeological and Historic Sites for St. Croix
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: National park information
Source_Information:

Source_Citation:

Citation_Information:

Originator:
USVI Department of Planning and Natural Resources, Coastal Zone
Management Program
Publication_Date: 1995
Title:
Designation of Salt River Bay Marine Reserve and Wildlife Sanctuary
Geospatial_Data_Presentation_Form: Document and Map
Publication_Information:

Publication_Place: St. Thomas, USVI
Publisher: USVI Department of Planning and Natural Resources
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1995
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Wildlife refuge boundaries
Source_Information:

Source_Citation:

Citation_Information:

Originator: BVI National Parks Trust
Publication_Date: Unpublished Material
Title:
A Parks and Protected Areas System Plan for the British Virgin Islands
Geospatial_Data_Presentation_Form: Document and Maps
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Wildlife refuge boundaries
Source_Information:

Source_Citation:

Citation_Information:

Originator: United States Fish and Wildlife Service, Real Estate Division
Publication_Date: Unpublished Material
Title: Maps of National Wildlife Refuge Boundaries
Geospatial_Data_Presentation_Form: Maps
Publication_Information:

Publication_Place: Atlanta, GA
Publisher: United States Fish and Wildlife Service, Real Estate
Division
Source_Scale_Denominator: Various
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: Various
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Wildlife refuge boundaries
Source_Information:

Source_Citation:

Citation_Information:

Originator: United States Fish and Wildlife Service
Publication_Date: 1995
Title:

Critical Habitat Designations for Threatened and Endangered Fish and Wildlife
Geospatial_Data_Presentation_Form: Document
Publication_Information:

Publication_Place: Washington, DC
Publisher: 50 CFR, SUBPARTS 17.94-17.96, AND FEDERAL REGISTER UPDATES
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 1995
Ending_Date: 1998
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Critical habitat information
Source_Information:

Source_Citation:

Citation_Information:

Originator: National Marine Fishery Service
Publication_Date: 1995
Title:
Critical Habitat Designations for Threatened and Endangered Marine Species
Geospatial_Data_Presentation_Form: Document
Publication_Information:

Publication_Place: Washington, DC
Publisher: 50 CFR, PART 226, AND FEDERAL REGISTER UPDATES
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 1995
Ending_Date: 1998
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Critical habitat 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: 200108
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@noaa.gov

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: 85
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Area point
Point_and_Vector_Object_Count: 85
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Complete chain
Point_and_Vector_Object_Count: 148
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Link
Point_and_Vector_Object_Count: 36759
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Node, planar graph
Point_and_Vector_Object_Count: 139

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

Entity_and_Attribute_Information:

    Detailed_Description:

        Entity_Type:

            Entity_Type_Label: GT-Polygon
            Entity_Type_Definition:
                The management features depicted on the maps are those that could be impacted by an oil spill or could provide access for response operations. Designated Critical Habitat: Areas managed or regulated by the U.S. Fish & Wildlife Service (USFWS) or National Marine Fishery Service (NMFS) as critical habitat for federally-listed threatened and endangered species, under authority of the U.S. Endangered Species Act as amended. The species involved, responsible agency, and contact information are provided on the data tables for each map. U.S. National Park: Areas managed by the National Park Service in the U.S., including national parks, national historic sites, national monuments, etc. Site names and contact information are provided on the data tables for each map. BVI National Park: Areas in the BVI managed by the National Parks Trust as national parks and national marine parks. Site names and contact information are provided on the data tables for each map. Special Management Area: Sites designated as special management areas for fisheries or other aquatic resources. In this atlas, this category was used for Fisheries Priority Areas managed by the BVI Conservation and Fisheries Department (CFD). Wildlife Refuge/Reserve/Sanctuary: Areas managed by the USFWS as National Wildlife Refuges, USVI Department of Planning and Natural Resources (DPNR) as Marine Reserves and/or Wildlife Sanctuaries, and BVI CFD as Bird Sanctuaries. The Ramsar Site on Anegada Island was also included in this category. Site names and contact information are provided on the data tables for each map.
            Entity_Type_Definition_Source: Research Planning, Inc.
        Attribute:

            Attribute_Label: Type
            Attribute_Definition:
                Identifies a polygon with a management 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: CH
        Enumerated_Domain_Value_Definition: Designated Critical Habitat
        Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

    Enumerated_Domain:

        Enumerated_Domain_Value: NP
        Enumerated_Domain_Value_Definition: National Park
        Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

    Enumerated_Domain:

        Enumerated_Domain_Value: MA
        Enumerated_Domain_Value_Definition: Special Management Area
        Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

    Enumerated_Domain:

        Enumerated_Domain_Value: WR
        Enumerated_Domain_Value_Definition: Wildlife Refuge
        Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200101
Attribute:

    Attribute_Label: ID
    Attribute_Definition:
        A unique identifier that links to the SOC_LUT table. ID is a concatenation of atlas
        number (67), 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: 671100002
        Range_Domain_Maximum: 671100086
Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200107
Attribute:

    Attribute_Label: HUNUM
    Attribute_Definition: An identifier that links directly to the SOC_DAT table. HUNUM values
of 0 are holes in polygons and do not contain information.
    Attribute_Definition_Source: NOAA
    Attribute_Domain_Values:

    Range_Domain:

        Range_Domain_Minimum: 67000025

Range_Domain_Maximum: 67000146
Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200107

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 Virgin Islands
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: 200108
    Metadata_Review_Date: 200108
    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@noaa.gov
Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

U.S. Virgin Islands and British Virgin Islands ESI: SOCECON (Socioeconomic Lines and Points)

Metadata:

- Identification_Information
- Data_Quality_Information
- Spatial_Data_Organization_Information
- Spatial_Reference_Information
- Entity_and_Attribute_Information
- Distribution_Information
- Metadata_Reference_Information

Identification_Information:

    Citation:

        Citation_Information:

            Originator:
                National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.
            Publication_Date: 200108
            Title: U.S. Virgin Islands and British Virgin Islands ESI: SOCECON (Socioeconomic Lines and Points)
            Edition: First
            Geospatial_Data_Presentation_Form: Atlas
            Series_Information:

                Series_Name: None
                Issue_Identification: United States Virgin Islands and British Virgin Islands
            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 National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department

of the Interior.

Description:

    Abstract:

        This data set comprises the Environmental Sensitivity Index (ESI) data for the Virgin Islands. 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 point and line data for human-use resources.

    Purpose:

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

Time_Period_of_Content:

    Time_Period_Information:

        Range_of_Dates/Times:

            Beginning_Date: 199807
            Ending_Date: 200107
    Currentness_Reference: Project time span

Status:

    Progress: Complete
    Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

    Bounding_Coordinates:

        West_Bounding_Coordinate: -65.167
        East_Bounding_Coordinate: -64.065
        North_Bounding_Coordinate: 18.943
        South_Bounding_Coordinate: 17.467

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
        Theme_Keyword: Human use

    Place:

        Place_Keyword_Thesaurus: None
        Place_Keyword: US Virgin Islands
        Place_Keyword: British Virgin Islands

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: vidatafig.jpg
Browse_Graphic_File_Description:
> Relationships between spatial data layers and attribute data tables for the Virgin Islands data.

Browse_Graphic_File_Type: JPEG
Data_Set_Credit:
> This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.

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: benthic.e00, birds.e00, bio_lut.e00, biofile.e00, biores.e00, breed.e00, breed_dt.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, invertl.e00, mgt.e00, m_mammal.e00, reptiles.e00, seasonal.e00, shelfbnd.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00, wetlands.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 1:24,000 scale maps. Under this project, new digital data sources are imported, projected, checked for quality control, and integrated into the spatial data structure (for selected resources). The data are checked using both digital and on-screen procedures. 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 CD-ROM 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:*
>> Human-Use Resources: Several human-use, or socioeconomic, features are included in ESI/RSI atlases. Entity points and complete chains (arcs) are digitized into the data layer SOCECON and managed area polygonal data (GT-polygons) are stored in the MGT data layer. Both data sets are linked to the data table SOC_DAT using the SOC_LUT lookup table and the items HUNUM and ID. HUNUM is a unique reference number concatenated with the atlas number (for the Virgin Islands this is 67). The ID is a unique combination of the atlas number, 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), geographic source (G_SOURCE), and attribute source (A_SOURCE). Detailed contact information is only included for select management features, where available. Source information is included for all features.

Positional_Accuracy:

    Horizontal_Positional_Accuracy:

        Horizontal_Positional_Accuracy_Report:

            The ESI data use USGS 1:24,000 topographic quadrangles as the basemap. It is estimated that the ESI shoreline classification has a minimum mapping unit of 50 feet.

Lineage:

    Source_Information:

        Source_Citation:

            Citation_Information:

                Originator: BVI Conservation and Fisheries Department; Contact: B. Lettsome, Chief Conservation and Fisheries Officer, BVI CFD
                Publication_Date: Unpublished Material
                Title: Wildlife and Fisheries Resources for the British Virgin Islands
                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: 1999
            Source_Currentness_Reference: Date of communication
        Source_Citation_Abbreviation: None
        Source_Contribution: Beach, boat ramp, commercial fishing, ferry, marina, and water intake information

    Source_Information:

        Source_Citation:

            Citation_Information:

                Originator: Hillis-Starr, Z., National Park Service
                Publication_Date: Unpublished Material
                Title: Various Natural and Human-use Resources of Buck Island Reef National Monument
                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: 1999
            Source_Currentness_Reference: Date of study
        Source_Citation_Abbreviation: None

Source_Contribution: Commercial fishing, diving, and recreational fishing data
Source_Information:

    Source_Citation:

        Citation_Information:

            Originator: Dammann, A.E. and D.W. Nellis
            Publication_Date: 1992
            Title: A Natural History Atlas to the Cays of the U.S. Virgin Islands
            Geospatial_Data_Presentation_Form: Document
            Publication_Information:

                Publication_Place: Sarasota, FL
                Publisher: Pineapple Press
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

    Time_Period_Information:

        Single_Date/Time:

            Calendar_Date: 1992
        Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Diving information
Source_Information:

    Source_Citation:

        Citation_Information:

            Originator: Davis, C., University of the Virgin Islands Cooperative Extension Service
            Publication_Date: Unpublished Material
            Title: Edits and Additions to Natural Resource Locations for St. Croix
            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: 1999
        Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Beach and subsistance data
Source_Information:

    Source_Citation:

        Citation_Information:

            Originator: Boulon, R., USVI Department of Planning and Natural Resources, Division of Fish and Wildlife
            Publication_Date: Unpublished Material

Title: Natural Resource Information for USVI, Particularly St. Thomas and St. John
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Beach, boat ramp, diving, marina, and water intake data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Tobias, W., USVI Department of Planning and Natural Resources, Division of Fish and Wildlife
Publication_Date: Unpublished Material
Title: Fisheries and Human-use Resources for St. Croix
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Commercial fishing, diving, lock and dam, recreational fishing, and water intake information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Gomez, R., USVI Department of Planning and Natural Resources, Division of Fish and Wildlife
Publication_Date: Unpublished Material
Title: Fisheries Resources for St. Thomas and St. John
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: 1999
Source_Currentness_Reference: Date of communication

Source_Citation_Abbreviation: None
Source_Contribution: Commercial fishing, recrational fishing, and water intake data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Research Planning, Inc.
Publication_Date: Unpublished Material
Title: Boat Ramps, Marinas, and other Features from Overflights and Air Photos
Geospatial_Data_Presentation_Form: Maps
Source_Scale_Denominator: 24000-25000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1998
Source_Currentness_Reference: Date of survey
Source_Citation_Abbreviation: None
Source_Contribution: Boat ramp, and marina information
Source_Information:

Source_Citation:

Citation_Information:

Originator: U.S. Geological Survey
Publication_Date: 1959-1984
Title: USGS Topographic Quadrangles
Geospatial_Data_Presentation_Form: Maps
Publication_Information:

Publication_Place: Reston, VA
Publisher: U.S. Geological Survey
Source_Scale_Denominator: 24000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 1959
Ending_Date: 1984
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Airport data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Lopez, F., United States Fish and Wildlife Service
Publication_Date: Unpublished Material
Title: Various Natural Resource and Human-use Features for USVI
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Airport, aquaculture, beach, boat ramp, coast guard, diving, ferry, marina, and water intake information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Lazelle, J.
Publication_Date: Unpublished Material
Title: Prehistoric and Historic Sites for St. Thomas and St. John
Geospatial_Data_Presentation_Form: Map
Source_Scale_Denominator: 24000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: Unknown
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Historical site data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Cummings, S. and S. Cummings
Publication_Date: 1992
Title: Diving and Snorkeling Guide to the U.S. Virgin Islands
Geospatial_Data_Presentation_Form: Document and Maps
Publication_Information:

Publication_Place: Houston, TX
Publisher: Gulf Publishing Company
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1992
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Diving information
Source_Information:

Source_Citation:

Citation_Information:

Originator: Trails Illustrated
Publication_Date: 1995
Title: Virgin Islands National Park, St. John, USVI
Geospatial_Data_Presentation_Form: Map
Publication_Information:

Publication_Place: Evergreeen, CO
Publisher: Ponderosa Publishing Company
Source_Scale_Denominator: 22000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 1994
Ending_Date: 1995
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Diving information
Source_Information:

Source_Citation:

Citation_Information:

Originator: U.S. Coast Guard, MSO San Juan
Publication_Date: Unpublished Material
Title: Sensitive Areas and Protection Strategies for the U.S. Caribbean
Geospatial_Data_Presentation_Form: Maps and Tables
Source_Scale_Denominator: VARIES
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 1993
Ending_Date: 1994
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: Boat ramp, marina, and water intake data

Source_Information:

    Source_Citation:

        Citation_Information:

            Originator: Cissel, W., National Park Service
            Publication_Date: Unpublished Material
            Title: Archaeological and Historic Sites for St. Croix
            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: 1999
        Source_Currentness_Reference: Date of communication
    Source_Citation_Abbreviation: None
    Source_Contribution: Historical site information
Source_Information:

    Source_Citation:

        Citation_Information:

            Originator: USVI Department of Planning and Natural Resources, Department St. Croix. Contact: A.L. Moorhead, DEP Director; A. Hutchins, Coordinator, Christiansted, St. Croix
            Publication_Date: Unpublished Material
            Title: Various Human-use Features for St. Croix
            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: 1999
        Source_Currentness_Reference: Date of communication
    Source_Citation_Abbreviation: None
    Source_Contribution: Beach, boat ramp, commercial fishing, marina, and water intake data
Source_Information:

    Source_Citation:

        Citation_Information:

            Originator: USVI Department of Planning and Natural Resources, Coastal Zone Management Program
            Publication_Date: 1995
            Title: Designation of Salt River Bay Marine Reserve and Wildlife Sanctuary
            Geospatial_Data_Presentation_Form: Document and Map
            Publication_Information:

Publication_Place: St. Thomas, USVI
Publisher: USVI Department of Planning and Natural Resources
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1995
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: National park data
Source_Information:

Source_Citation:

Citation_Information:

Originator: BVI National Parks Trust
Publication_Date: Unpublished Material
Title: A Parks and Protected Areas System Plan for the British Virgin Islands
Geospatial_Data_Presentation_Form: Document and Maps
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: Unknown
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: National park data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Island Publishing Services LTD.
Publication_Date: 1999
Title: The Welcome Tourist Guide, British Virgin Islands, VOLUME 28, NO. 2
Geospatial_Data_Presentation_Form: Document and Maps
Publication_Information:

Publication_Place: Road Town, Tortola, BVI
Publisher: Island Publishing Services LTD., BVI Tourist Board and the Hotel and Commerce Association
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1999
Source_Currentness_Reference: Date of study
Source_Citation_Abbreviation: None
Source_Contribution: airport, beach
Source_Information:

Source_Citation:

Citation_Information:

Originator: UK Directorate of Overseas Surveys
Publication_Date: Unpublished Material
Title: British Virgin Islands Topographic Maps
Geospatial_Data_Presentation_Form: Maps
Source_Scale_Denominator: 25000
Type_of_Source_Media: Paper
Source_Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2000
Source_Currentness_Reference: Date when material was reviewed
Source_Citation_Abbreviation: None
Source_Contribution: Airport data
Source_Information:

Source_Citation:

Citation_Information:

Originator: Black, E., St. Croix Alumina, LLC
Publication_Date: Unpublished Material
Title: Water Intakes for St. Croix Alumina Plant
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: 1999
Source_Currentness_Reference: Date of communication
Source_Citation_Abbreviation: None
Source_Contribution: Diving and water intake 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: 200108
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@noaa.gov

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: 5
        SDTS_Terms_Description:

           SDTS_Point_and_Vector_Object_Type: Link
           Point_and_Vector_Object_Count: 50
        SDTS_Terms_Description:

           SDTS_Point_and_Vector_Object_Type: Entity point
           Point_and_Vector_Object_Count: 560
        SDTS_Terms_Description:

           SDTS_Point_and_Vector_Object_Type: Node, planar graph
           Point_and_Vector_Object_Count: 342

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

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: Complete Chain
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.
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: IB
Enumerated_Domain_Value_Definition: International Border
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: R
Enumerated_Domain_Value_Definition: Roads/ Bridges
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200101
Detailed_Description:

Entity_Type:

Entity_Type_Label: Entity point
Entity_Type_Definition:
Airport: Location of airports, airfields, landing strips, helipads, etc., whether they are manned or unmanned. Aquaculture: Location of aquaculture sites and facilities. When known, the site name, owner/manager, and contact information are provided on the data tables for each map. Archaeological/Historical Site: Location of archaeological

and historic sites for coastal areas. These resources include known archaeological sites and historic sites for the USVI, and historic sites for the BVI. The exact location and extent of most of these sites are not represented on the maps due to their sensitivity to disturbance and vandalism. Instead, sites are depicted on the maps with an icon placed in the general vicinity of the site (or group of sites). In contrast, several specific sites managed by the National Park Service and the USFWS National Wildlife Refuge (NWR) program have been shown at the request of resource managers. For more specific site information and guidance during planning and response operations in the USVI, please contact the State Historic Preservation Officer at 340/774-3320 or 340/775-5706. For National Park Service (NPS) and National Wildlife Refuge (NWR) properties, the appropriate resource manager(s) should also be contacted. Artisanal/Commercial Fishing: General areas where artisanal and commercial fishing take place, as noted by resource experts. Note that fishing activities, including harvest of queen conch, lobsters, octopus, reef fish, pelagic fish, etc. may take place throughout the study area, including areas not identified in this atlas. Boat Ramp: Location of boat ramps. Coast Guard: Location of Coast Guard facilities. Dam: Locations of dams, mainly on the few streams where native fish or shrimp were noted. Designated Critical Habitat: Areas managed or regulated by the U.S. Fish & Wildlife Service (USFWS) or National Marine Fisheries Service (NMFS) as critical habitat for federally-listed threatened and endangered species, under authority of the U.S. Endangered Species Act as amended. The species involved, responsible agency, and contact information are provided on the data tables for each map. Dive Site: Location of popular recreational SCUBA diving and snorkeling sites. Ferry: Location of major ferry landings. Marina: Location of marinas. Boat ramps, hoists, and other facilities and support services may be present at certain marinas as well. Recreational Beach: Location of recreational beaches used for activities such as swimming, sun-bathing, etc. U.S. National Park: Areas managed by the National Park Service in the U.S., including national parks, national historic sites, national monuments, etc. Site names and contact information are provided on the data tables for each map. BVI National Park: Areas in the BVI managed by the National Parks Trust as national parks and national marine parks. Site names and contact information are provided on the data tables for each map. Recreational Fishing: General areas where recreational fishing takes place, as noted by resource experts and other sources. Note that a variety of fishing activities may take place throughout the study area, including areas not identified in this atlas. Water Intake: Location of surface water intakes. When known, the site name, owner/manager, and telephone number are provided on the data tables for each map.

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: A
        Enumerated_Domain_Value_Definition: Airport
        Enumerated_Domain_Value_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: HS
Enumerated_Domain_Value_Definition: Archaeological/Historical site
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: CF
Enumerated_Domain_Value_Definition: Artisanal/Commercial Fishing
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: LD
Enumerated_Domain_Value_Definition: Dam
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: DV
Enumerated_Domain_Value_Definition: Dive Site
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: F
Enumerated_Domain_Value_Definition: Ferry
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.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: NP
Enumerated_Domain_Value_Definition: National Park
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: B
Enumerated_Domain_Value_Definition: Recreational Beach
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: RF
Enumerated_Domain_Value_Definition: Recreational Fishing
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: WI
Enumerated_Domain_Value_Definition: Water Intake
Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200101
Attribute:

Attribute_Label: ID
Attribute_Definition:
A unique identifier that links to the SOC_LUT table. ID is a concatenation of atlas
number (67), element number (10), and record number.
Attribute_Definition_Source: NOAA
Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 671000001
Range_Domain_Maximum: 671000560
Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200107
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: 67000001

Range_Domain_Maximum: 67000137
Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200107

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 Virgin Islands
    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: 200108
    Metadata_Review_Date: 200108
    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@noaa.gov
Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

U.S. Virgin Islands and British Virgin Islands ESI: WETLANDS

Metadata:

- [Identification_Information](#)
- [Data_Quality_Information](#)
- [Spatial_Data_Organization_Information](#)
- [Spatial_Reference_Information](#)
- [Entity_and_Attribute_Information](#)
- [Distribution_Information](#)
- [Metadata_Reference_Information](#)

Identification_Information:

    Citation:

        Citation_Information:

            Originator:
                National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.

            Publication_Date: 200108
            Title: U.S. Virgin Islands and British Virgin Islands ESI: WETLANDS
            Edition: First
            Geospatial_Data_Presentation_Form: Atlas
            Series_Information:

                Series_Name: None
                Issue_Identification: United States Virgin Islands and British Virgin Islands
            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 National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.

    Description:

Abstract:

This data set comprises the Environmental Sensitivity Index (ESI) data for the Virgin Islands. 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 wetlands data.

Purpose:

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

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 199807
Ending_Date: 200107
Currentness_Reference: Project time span

Status:

Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -65.167
East_Bounding_Coordinate: -64.065
North_Bounding_Coordinate: 18.943
South_Bounding_Coordinate: 17.467

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: Wetland

Place:

Place_Keyword_Thesaurus: None
Place_Keyword: US Virgin Islands
Place_Keyword: British Virgin Islands

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: vidatafig.jpg
Browse_Graphic_File_Description:

Relationships between spatial data layers and attribute data tables for the Virgin Islands data.

Browse_Graphic_File_Type: JPEG
Data_Set_Credit:
This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.
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: benthic.e00, birds.e00, bio_lut.e00, biofile.e00, biores.e00, breed.e00, breed_dt.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, invertl.e00, mgt.e00, m_mammal.e00, reptiles.e00, seasonal.e00, shelfbnd.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00, wetlands.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 1:24,000 USGS topographic quadrangles by a geomorphologist. The wetlands data were generated from existing digital National Wetlands Inventory (NWI) data. These data were reclassified based on the NWI codes to match the ESI coding definitions and were used "as is" after reclassification. No field checks were performed on the original NWI data where the reclassified data were salt- and brackish-water marshes, freshwater marshes, freshwater swamps, and freshwater scrub/shrub. However, extensive overflight and field verification was performed on NWI data where the reclassified data were mangroves. After reclassification, the data are checked using both on-screen and hardcopy reviews. The edited maps are updated and checked once again for completeness and topological and logical consistency. Any errors in the shoreline classification are updated prior to digitization of the biological and human-use layers. All layers use the shoreline as the geographic reference so that there are no slivers in the geographic coordinates. The hardcopy biological information is compiled onto 1:24,000 USGS topographic quadrangles by a biological expert using data from regional specialists in the form of maps, tables, charts, written descriptions of wildlife distributions, and personal 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 1:55,000 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 CD-ROM 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 shoreline habitats of the U.S. Virgin Islands were previously mapped during overflights and ground surveys conducted for the Virgin Islands Resource Management Cooperative and the National Oceanic and Atmospheric Administration (NOAA), published in 1986. For the current project, the original ESI maps were re-examined and fully updated using the sources and methods described below. As a first step, vertical aerial photographs were examined at the offices of the USVI Department of Planning and Natural Resources (DPNR) in St. Thomas and the offices of the BVI Conservation and Fisheries Department (CFD) on Tortola. The initial aerial photograph classification was followed by overflight surveys of the entire study area, flying at elevations of 400-600 feet and slow air speed. Overflights were conducted using U.S. Coast Guard (USCG) helicopters, pilots, and support crew. During this work, an experienced coastal geologist delineated the intertidal shoreline habitats directly onto 1:24,000-scale USGS or 1:25,000-scale UKDOS topographic maps. Where appropriate, multiple habitats were described for each shoreline segment. Data from the National Wetlands Inventory (NWI) for the USVI, published in draft form in 1989 (based on 1:40,000 1983 CIR and 1985 B-W photography), were also used as a supplementary data source, particularly for mangrove areas and tidal flats. In many cases, the depiction of mangroves was modified substantially from the original NWI data, based on the more recent aerial photography and overflights, as well as information provided by expert reviewers. Mangrove polygons for the BVIs were based primarily on digital data from the 1993 Coastal Resource Atlas of the British Virgin Islands produced by the Natural Resources Institute (NRI), Overseas Development Administration (source scale 1:10,000). Mangrove polygons from the NRI data set were generally not altered, although in some cases mangrove areas identified during the overflights and by expert reviewers may have been added or changed slightly.

Positional_Accuracy:

    Horizontal_Positional_Accuracy:

        Horizontal_Positional_Accuracy_Report:

            The ESI data use USGS 1:24,000 topographic quadrangles as the basemap. It is estimated that the ESI shoreline classification has a minimum mapping unit of 50 feet.

Lineage:

    Source_Information:

        Source_Citation:

            Citation_Information:

                Originator: Research Planning. Inc.
                Publication_Date: Unknown
                Title: Reclassified NWI wetlands for the Virgin Islands
                Geospatial_Data_Presentation_Form: Vector digital data
    Type_of_Source_Media: Online
    Source_Time_Period_of_Content:

        Time_Period_Information:

Single_Date/Time:

Calendar_Date: 1998
Source_Currentness_Reference: Date data were downloaded
Source_Citation_Abbreviation: None
Source_Contribution: Wetland 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: 200108
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@noaa.gov

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: 91
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Area point
Point_and_Vector_Object_Count: 91

SDTS_Terms_Description:

    SDTS_Point_and_Vector_Object_Type: Complete chain
    Point_and_Vector_Object_Count: 144
SDTS_Terms_Description:

    SDTS_Point_and_Vector_Object_Type: Link
    Point_and_Vector_Object_Count: 5485
SDTS_Terms_Description:

    SDTS_Point_and_Vector_Object_Type: Node, planar graph
    Point_and_Vector_Object_Count: 136

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

Entity_and_Attribute_Information:

    Detailed_Description:

        Entity_Type:

        Entity_Type_Label: Complete Chain
        Entity_Type_Definition:
            The data layer WETLANDS contains arc (Complete Chain) features for the Wetlands
            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 July 1998 for US Virgin Islands and June 1999 for
            British Virgin Islands.
        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 arcs. The
            ESI rankings progress from low to high susceptibility to oil spills. The list below

includes the shoreline habitats delineated for the Virgin Islands wetland ESI classification, presented in order of increasing sensitivity to spilled oil: 10D) Mangroves; U) Unranked.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: 10D
Enumerated_Domain_Value_Definition: Mangroves
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: 199807
Ending_Date_of_Attribute_Values: 200101
Attribute:

Attribute_Label: LINE
Attribute_Definition: Type of geographic feature
Attribute_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: 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: 199807
Ending_Date_of_Attribute_Values: 200101
Attribute:

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

Enumerated_Domain:

      Enumerated_Domain_Value: 1
      Enumerated_Domain_Value_Definition: Original digital information
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Attribute_Domain_Values:

     Enumerated_Domain:

      Enumerated_Domain_Value: 2
      Enumerated_Domain_Value_Definition: Low-altitude overflight
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Attribute_Domain_Values:

     Enumerated_Domain:

      Enumerated_Domain_Value: 6
      Enumerated_Domain_Value_Definition: National Wetland Inventory
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
    Attribute_Domain_Values:

     Enumerated_Domain:

      Enumerated_Domain_Value: 14
      Enumerated_Domain_Value_Definition: Bioimpact (contact: A. Dempsey)
      additions to St. Croix wetlands
      Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
  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: 199807
    Ending_Date_of_Attribute_Values: 200101
Detailed_Description:

  Entity_Type:

    Entity_Type_Label: GT-Polygon
    Entity_Type_Definition:
      The data layer Wetlands contains polygonal (GT-Polygon) features for the Wetlands
      shoreline classification. These wetlands were reclassified from NWI Data and have
      not been field checked.
    Entity_Type_Definition_Source: Research Planning, Inc.
  Attribute:

Attribute_Label: WET_TYPE
Attribute_Definition:
    The character item WET_TYPE contains values according to the wetlands ranking of
    the polygons. The wetlands rankings progress from low to high susceptibility to oil
    spills. The list below includes the wetland habitats delineated for the Virgin Islands,
    presented in order of increasing sensitivity to spilled oil: Salt and Brackish-Water
    Marshes; Freshwater Marshes; Freshwater Swamps; Freshwater Scrub/Shrub.
Attribute_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

    Enumerated_Domain:

        Enumerated_Domain_Value: Salt- and Brackish-Water Marshes
        Enumerated_Domain_Value_Definition: Wetlands classification
        Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

    Enumerated_Domain:

        Enumerated_Domain_Value: Freshwater Marshes
        Enumerated_Domain_Value_Definition: Wetlands classification
        Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

    Enumerated_Domain:

        Enumerated_Domain_Value: Freshwater Swamps
        Enumerated_Domain_Value_Definition: Wetlands classification
        Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Attribute_Domain_Values:

    Enumerated_Domain:

        Enumerated_Domain_Value: Freshwater Scrub/Shurb
        Enumerated_Domain_Value_Definition: Wetlands classification
        Enumerated_Domain_Value_Definition_Source: Research Planning, Inc.
Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200101
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.
Beginning_Date_of_Attribute_Values: 199807
Ending_Date_of_Attribute_Values: 200101

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 Virgin Islands
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: 200108
    Metadata_Review_Date: 200108
    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@noaa.gov
Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998

U.S. Virgin Islands and British Virgin Islands ESI: SHELFBND (Shelf Boundary)

Metadata:

Identification_Information:

>*Citation:*

>>*Citation_Information:*

>>>*Originator:*
>>>National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.
>>>*Publication_Date:* 200108
>>>*Title:*
>>>U.S. Virgin Islands and British Virgin Islands ESI: SHELFBND (Shelf Boundary)
>>>*Edition:* First
>>>*Geospatial_Data_Presentation_Form:* Atlas
>>>*Series_Information:*

>>>>*Series_Name:* None
>>>>*Issue_Identification:* United States Virgin Islands and British Virgin Islands
>>>*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 National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.
>*Description:*

Abstract:

This data set comprises the Environmental Sensitivity Index (ESI) data for the Virgin Islands. 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 representing the shelf boundary (the seaward extent of the shelf edge reef).

Purpose:

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

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 199807
Ending_Date: 200107
Currentness_Reference: Project time span

Status:

Progress: Complete
Maintenance_and_Update_Frequency: None Scheduled

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -65.167
East_Bounding_Coordinate: -64.065
North_Bounding_Coordinate: 18.943
South_Bounding_Coordinate: 17.467

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: Shelf boundary

Place:

Place_Keyword_Thesaurus: None
Place_Keyword: US Virgin Islands
Place_Keyword: British Virgin Islands

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: vidatafig.jpg
Browse_Graphic_File_Description:

Relationships between spatial data layers and attribute data tables for the Virgin Islands data.
Browse_Graphic_File_Type: JPEG
Data_Set_Credit:
This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington; United States Environmental Protection Agency; United States Coast Guard; U.S. Virgin Islands Department of Planning and Natural Resources; British Virgin Islands Conservation and Fisheries Department; and United States Department of the Interior.
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: benthic.e00, birds.e00, bio_lut.e00, biofile.e00, biores.e00, breed.e00, breed_dt.e00, esi.e00, fish.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, invert.e00, invertl.e00, mgt.e00, m_mammal.e00, reptiles.e00, seasonal.e00, shelfbnd.e00, soc_dat.e00, soc_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t_mammal.e00, wetlands.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 1:24,000 USGS topographic quadrangles by a geomorphologist. The shelf boundary data represent the seaward extent of the shelf edge reef. They were digitized from 1:100,000 NOAA Navigational Charts, and were digitized and checked using both on-screen and hardcopy reviews. The edited maps are updated and checked once again for completeness and topological and logical consistency. Any errors in the shoreline classification are updated prior to digitization of the biological and human-use layers. All layers use the shoreline as the geographic reference so that there are no slivers in the geographic coordinates. The hardcopy biological information is compiled onto 1:24,000 USGS topographic quadrangles by a biological expert using data from regional specialists in the form of maps, tables, charts, written descriptions of wildlife distributions, and personal 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 1:55,000 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 CD-ROM 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 shoreline habitats of the U.S. Virgin Islands were previously mapped during overflights and ground surveys conducted for the Virgin Islands Resource Management Cooperative and the National Oceanic and Atmospheric Administration (NOAA), published in 1986. For the current project, the original ESI maps were re-examined and fully updated using the sources and methods described below. As a first step, vertical aerial photographs were examined at the offices of the USVI Department of Planning and Natural Resources (DPNR) in St. Thomas and the offices of the BVI Conservation and Fisheries Department (CFD) on Tortola. The initial aerial photograph classification was followed by overflight surveys of the entire study area, flying at elevations of 400-600 feet and slow air speed. Overflights were conducted using U.S. Coast Guard (USCG) helicopters, pilots, and support crew. During this work, an experienced coastal geologist delineated the intertidal shoreline habitats directly onto 1:24,000-scale USGS or 1:25,000-scale UKDOS topographic maps. Where appropriate, multiple habitats were described for each shoreline segment. Data from the National Wetlands Inventory (NWI) for the USVI, published in draft form in 1989 (based on 1:40,000 1983 CIR and 1985 B-W photography), was also used as a supplementary data source, particularly for mangrove areas and tidal flats. In many cases, the depiction of mangroves was modified substantially from the original NWI data, based on the more recent aerial photography and overflights, as well as information provided by expert reviewers. Mangrove polygons for the BVIs were based primarily on digital data from the 1993 Coastal Resource Atlas of the British Virgin Islands produced by the Natural Resources Institute (NRI), Overseas Development Administration (source scale 1:10,000). Mangrove polygons from the NRI data set were generally not altered, although in some cases mangrove areas identified during the overflights and by expert reviewers may have been added or changed slightly.

Positional_Accuracy:

    Horizontal_Positional_Accuracy:

        Horizontal_Positional_Accuracy_Report:

            The ESI data use USGS 1:24,000 topographic quadrangles as the basemap. It is estimated that the ESI shoreline classification has a minimum mapping unit of 50 feet.

Lineage:

    Source_Information:

        Source_Citation:

            Citation_Information:

                Originator:
                    Research Planning, Inc.; digitized from NOAA, NOS Navigational charts
                Publication_Date: Unpublished Material
                Title: Digital Shelf boundary
                Geospatial_Data_Presentation_Form: Maps
        Source_Scale_Denominator: 100000
        Type_of_Source_Media: Paper
        Source_Time_Period_of_Content:

        Time_Period_Information:

Single_Date/Time:

Calendar_Date: 199903
Source_Currentness_Reference: Date of digitization
Source_Citation_Abbreviation: None
Source_Contribution: Shelf 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: 200108
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@noaa.gov

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: 2
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Area point
Point_and_Vector_Object_Count: 2
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Complete chain
Point_and_Vector_Object_Count: 218
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Link
Point_and_Vector_Object_Count: 83453
SDTS_Terms_Description:

SDTS_Point_and_Vector_Object_Type: Node, planar graph
Point_and_Vector_Object_Count: 218

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

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 Virgin Islands
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: 200108
Metadata_Review_Date: 200108
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@noaa.gov
Metadata_Standard_Name: Content Standards for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998