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# North Slope, Alaska ESI: 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 and the Alaska Department of Environmental Conservation

*Publication Date:* 200006

*Title:* North Slope, Alaska ESI: Hydrology

*Edition:* First

*Geospatial Data Presentation Form:* Atlas

##### *Series Information:*

*Series Name:* None

*Issue Identification:* North Slope, Alaska

##### *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 and the Alaska Department of Environmental Conservation

### *Description:*

#### *Abstract:*

This data set comprises the Environmental Sensitivity Index (ESI) data for the North Slope of Alaska from Point Barrow to the Canadian Border. 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.

#### *Purpose:*

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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:* 1997

*Ending\_Date:* 1999

*Currentness\_Reference:* Project time span

*Status:*

*Progress:* Complete

*Maintenance\_and\_Update\_Frequency:* None Scheduled

*Spatial\_Domain:*

*Bounding\_Coordinates:*

*West\_Bounding\_Coordinate:* -156.581

*East\_Bounding\_Coordinate:* -140.309

*North\_Bounding\_Coordinate:* 71.479

*South\_Bounding\_Coordinate:* 67.917

*Keywords:*

*Theme:*

*Theme\_Keyword\_Thesaurus:* None

*Theme\_Keyword:* Sensitivity Maps

*Theme\_Keyword:* ESI

*Theme\_Keyword:* Coastal resources

*Theme\_Keyword:* Oil spill planning

*Theme\_Keyword:* Coastal zone management

*Theme\_Keyword:* Hydrology

*Place:*

*Place\_Keyword\_Thesaurus:* None

*Place\_Keyword:* North Slope, Alaska

*Place\_Keyword:* Point Barrow

*Place\_Keyword:* Beaufort sea

*Place\_Keyword:* NPR-A

*Place\_Keyword:* Arctic NWR

*Place\_Keyword:* Prudhoe Bay

*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.

*Data\_Set\_Credit:*

This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington and the Alaska Department of Environmental Conservation

*Native\_Data\_Set\_Environment:*

The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 7.2.1) and ORACLE(r) RDBMS (version 6.0.36.1.1). The hardware configuration is Hewlett Packard workstations (models 715/50 and 712/80i with 4 X-terminals) with

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UNIX operating system (HP-UX Release A.09.01). The following files are included in the data set: bio\_lut.e00, biofile.e00, biores.e00, birds.e00, breed.e00, breed\_dt.e00, esi.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, m\_mammal.e00, m\_mampt.e00, mgt.e00, nests.e00, seasonal.e00, soc\_dat.e00, soc\_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t\_mammal.e00.

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*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:*

Digital hydrography data were obtained from various sources. These data were not checked for accuracy; however, minimal edge matching was done on the imported data and they were cleaned to be topologically correct. Under this project, new digital data sources were imported, projected, checked for quality control, and integrated into the spatial data structure (for selected resources). The data were checked using both digital and on-screen procedures. To finalize the data checking process, each coverage was checked using a standardized form by two GIS personnel (a technician and the GIS manager), and each attribute database was checked using several programs that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and ORACLE(r) to ARC/INFO(r) consistencies. A final review was made by the GIS manager, where the data were written to tape and the metadata were written.

*Completeness\_Report:*

Digital hydrography was obtained from various sources (see Source\_Information). This shoreline was based on 1:63,360 USGS topographical quadrangles. The hydrography layer was used as is, with little or no effort to correct any problems in the spatial data.

*Positional\_Accuracy:*

*Horizontal\_Positional\_Accuracy:*

*Horizontal\_Positional\_Accuracy\_Report:*

The hydrology data uses USGS 1:63,360 topographic quadrangles as the base map. It is estimated that the hydrology has an accuracy of 100 feet.

*Lineage:*

*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* K.Ambrosius

*Publication\_Date:* 1998

*Title:* BP's Hydrology polygons

*Geospatial\_Data\_Presentation\_Form:* Vector digital data

*Publication\_Information:*

*Publication\_Place:* Anchorage, AK

*Publisher:* BP Exploration (Alaska), Inc

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*Source\_Scale\_Denominator:* 63360  
*Type\_of\_Source\_Media:* CD-ROM  
*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Multiple\_Dates/Times:*

*Single\_Date/Time:*

*Calendar\_Date:* 1954

*Single\_Date/Time:*

*Calendar\_Date:* 1955

*Single\_Date/Time:*

*Calendar\_Date:* 1993

*Single\_Date/Time:*

*Calendar\_Date:* 1994

*Single\_Date/Time:*

*Calendar\_Date:* 1995

*Source\_Currentness\_Reference:* Content time period

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Hydrology arcs and polygons

*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* D. Bieganski

*Publication\_Date:* 1997

*Title:* BLM NPR-A IAP/EIS

*Geospatial\_Data\_Presentation\_Form:* Vector digital data

*Publication\_Information:*

*Publication\_Place:* Anchorage, AK

*Publisher:* U.S. DOI BLM Northern District Office

*Source\_Scale\_Denominator:* 63360

*Type\_of\_Source\_Media:* CD-ROM

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Range\_of\_Dates/Times:*

*Beginning\_Date:* 1954

*Ending\_Date:* 1993

*Source\_Currentness\_Reference:* Content time period

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Hydrology arcs and polygons

*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* RPI  
*Publication\_Date:* 1990  
*Title:* RPI Index Coverage  
*Geospatial\_Data\_Presentation\_Form:* Vector digital data  
*Publication\_Information:*

*Publication\_Place:* Columbia, SC  
*Publisher:* Research Planning, Inc

*Source\_Scale\_Denominator:* 63360  
*Type\_of\_Source\_Media:* CD-ROM  
*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:**Single\_Date/Time:*

*Calendar\_Date:* 1998  
*Source\_Currentness\_Reference:* Content time period  
*Source\_Citation\_Abbreviation:* None  
*Source\_Contribution:* Hydrology Arcs  
*Source\_Information:*

*Source\_Citation:**Citation\_Information:*

*Originator:* USGS DLG's  
*Publication\_Date:* 1993-1999  
*Title:* USGS DLG's  
*Geospatial\_Data\_Presentation\_Form:* Vector digital data  
*Publication\_Information:*

*Publication\_Place:* Anchorage, AK  
*Publisher:* USGS

*Source\_Scale\_Denominator:* 63360  
*Type\_of\_Source\_Media:* Online  
*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:**Single\_Date/Time:*

*Calendar\_Date:* Varies  
*Source\_Currentness\_Reference:* Content time period  
*Source\_Citation\_Abbreviation:* None  
*Source\_Contribution:* Hydrology arcs and polygons  
*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

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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:* 1997-199909

*Process\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Jill Petersen

*Contact\_Organization:* NOAA, Office of Response and Restoration

*Contact\_Position:* GIS Manager

*Contact\_Address:*

*Address\_Type:* Physical address

*Address:* 7600 Sand Point Way N.E.

*City:* Seattle

*State\_or\_Province:* Washington

*Postal\_Code:* 98115-6349

*Contact\_Voice\_Telephone:* (206) 526-6944

*Contact\_Facsimile\_Telephone:* (206) 526-6329

*Contact\_Electronic\_Mail\_Address:* jill\_petersen@hazmat.noaa.gov.us

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*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:* 25529

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Area point

*Point\_and\_Vector\_Object\_Count:* 25529

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Complete chain

*Point\_and\_Vector\_Object\_Count:* 83020

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Link

*Point\_and\_Vector\_Object\_Count:* 1657821

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Label point

*Point\_and\_Vector\_Object\_Count:* 127

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Node, planar graph

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*Point\_and\_Vector\_Object\_Count:* 77034

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*Spatial\_Reference\_Information:*

*Horizontal\_Coordinate\_System\_Definition:*

*Geographic:*

*Latitude\_Resolution:* 0.00005

*Longitude\_Resolution:* 0.00005

*Geographic\_Coordinate\_Units:* Decimal Degrees

*Geodetic\_Model:*

*Horizontal\_Datum\_Name:* North American Datum of 1927

*Ellipsoid\_Name:* Clarke 1866

*Semi-major\_Axis:* 6378206.4

*Denominator\_of\_Flattening\_Ratio:* 294.98

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*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 socio-economic features, and hydro or water features.

*Entity\_Type\_Definition\_Source:* Research Planning, Inc.

*Attribute:*

*Attribute\_Label:* Line

*Attribute\_Definition:* Type of geographical feature

*Attribute\_Definition\_Source:* Research Planning, Inc.

*Attribute\_Domain\_Values:*

*Enumerated\_Domain:*

*Enumerated\_Domain\_Value:* H

*Enumerated\_Domain\_Value\_Definition:* Hydrography or stream features

*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.

*Attribute\_Domain\_Values:*

*Enumerated\_Domain:*

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*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:* 199811  
*Ending\_Date\_of\_Attribute\_Values:* 199906

*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:* British Petroleum's HYD\_POLY coverage  
*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.  
*Attribute\_Domain\_Values:*

*Enumerated\_Domain:*

*Enumerated\_Domain\_Value:* 2  
*Enumerated\_Domain\_Value\_Definition:* British Petroleum's HYD\_ARC coverage  
*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.  
*Attribute\_Domain\_Values:*

*Enumerated\_Domain:*

*Enumerated\_Domain\_Value:* 3  
*Enumerated\_Domain\_Value\_Definition:* BLM's NSB/LAKE coverage  
*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.  
*Attribute\_Domain\_Values:*

*Enumerated\_Domain:*

*Enumerated\_Domain\_Value:* 4  
*Enumerated\_Domain\_Value\_Definition:* BLM's AK\_OUTPOLY6 coverage  
*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.  
*Attribute\_Domain\_Values:*

*Enumerated\_Domain:*

*Enumerated\_Domain\_Value:* 5  
*Enumerated\_Domain\_Value\_Definition:* BLM's NSB/NRIV coverage  
*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.  
*Attribute\_Domain\_Values:*

*Enumerated\_Domain:*



*Enumerated\_Domain\_Value:* 7

*Enumerated\_Domain\_Value\_Definition:* USGS/BRD's DLGHYD coverage

*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.

*Attribute\_Domain\_Values:*

*Enumerated\_Domain:*

*Enumerated\_Domain\_Value:* 12

*Enumerated\_Domain\_Value\_Definition:* RPI's INDEX coverage

*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.

*Attribute\_Domain\_Values:*

*Enumerated\_Domain:*

*Enumerated\_Domain\_Value:* 13

*Enumerated\_Domain\_Value\_Definition:* USGS DLG Hydro

*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.

*Beginning\_Date\_of\_Attribute\_Values:* 199811

*Ending\_Date\_of\_Attribute\_Values:* 199906

*Detailed\_Description:*

*Entity\_Type:*

*Entity\_Type\_Label:* GT Polygon

*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 socio-economic 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:* 199811

*Ending\_Date\_of\_Attribute\_Values:* 199906

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*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 North Slope, Alaska*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*).

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*Metadata\_Reference\_Information:**Metadata\_Date:* 200006*Metadata\_Review\_Date:* 200006*Metadata\_Contact:**Contact\_Information:**Contact\_Person\_Primary:**Contact\_Person:* Jill Petersen*Contact\_Organization:* NOAA, Office of Response and Restoration*Contact\_Position:* GIS Manager*Contact\_Address:**Address\_Type:* Physical Address*Address:* 7600 Sand Point Way N.E.*City:* Seattle*State\_or\_Province:* Washington*Postal\_Code:* 98115-6349

*Contact\_Voice\_Telephone:* (206) 526-6944

*Contact\_Facsimile\_Telephone:* (206) 526-6329

*Contact\_Electronic\_Mail\_Address:* [jill\\_petersen@hazmat.noaa.gov.us](mailto:jill_petersen@hazmat.noaa.gov.us)

*Metadata\_Standard\_Name:* Content Standards for Digital Geospatial Metadata

*Metadata\_Standard\_Version:* FGDC-STD-001-1998

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# North slope, Alaska ESI: Environmentally Sensitive Areas

## Metadata:

- [Identification Information](#)
- [Data Quality Information](#)
- [Spatial Data Organization Information](#)
- [Spatial Reference Information](#)
- [Entity and Attribute Information](#)
- [Distribution Information](#)
- [Metadata Reference Information](#)

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### *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 and the Alaska Department of Environmental Conservation

#### *Publication\_Date:* 199909

*Title:* North slope, Alaska ESI: Environmentally Sensitive Areas

*Edition:* First

*Geospatial\_Data\_Presentation\_Form:* Atlas

#### *Series\_Information:*

*Series\_Name:* None

*Issue\_Identification:* North Slope, Alaska

#### *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 and the Alaska Department of Environmental Conservation

#### *Description:*

#### *Abstract:*

This data set comprises the Environmental Sensitivity Index (ESI) data for the North Slope of Alaska from Point Barrow to the Canadian Border. 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

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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:* 1997

*Ending\_Date:* 1999

*Currentness\_Reference:* Project time span

*Status:*

*Progress:* Complete

*Maintenance\_and\_Update\_Frequency:* None Scheduled

*Spatial\_Domain:*

*Bounding\_Coordinates:*

*West\_Bounding\_Coordinate:* -156.581

*East\_Bounding\_Coordinate:* -140.309

*North\_Bounding\_Coordinate:* 71.479

*South\_Bounding\_Coordinate:* 67.917

*Keywords:*

*Theme:*

*Theme\_Keyword\_Thesaurus:* None

*Theme\_Keyword:* Sensitivity Maps

*Theme\_Keyword:* ESI

*Theme\_Keyword:* Coastal resources

*Theme\_Keyword:* Oil spill planning

*Theme\_Keyword:* Coastal zone management

*Place:*

*Place\_Keyword\_Thesaurus:* None

*Place\_Keyword:* North Slope, Alaska

*Place\_Keyword:* Point Barrow

*Place\_Keyword:* Beaufort sea

*Place\_Keyword:* NPR-A

*Place\_Keyword:* Arctic NWR

*Place\_Keyword:* Prudhoe Bay

*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.

*Data\_Set\_Credit:*

This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington and the Alaska Department of Environmental Conservation

*Native\_Data\_Set\_Environment:*

The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 7.2.1) and ORACLE(r) RDBMS (version 6.0.36.1.1). The hardware

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configuration is Hewlett Packard workstations (models 715/50 and 712/80i with 4 X-terminals) with UNIX operating system (HP-UX Release A.09.01). The following files are included in the data set: bio\_lut.e00, biofile.e00, biores.e00, birds.e00, breed.e00, breed\_dt.e00, esi.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, m\_mammal.e00, m\_mampt.e00, mgt.e00, nests.e00, seasonal.e00, soc\_dat.e00, soc\_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t\_mammal.e00.

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### *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:*

Digital ESI shorelines were obtained from BP Exploration (Alaska) and included in the product. However, no effort was made to match up the digital ESI shoreline with the hydrography basemaps. 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. The first layer of information digitized is the ESI shoreline classification. The ESI habitat ranking is compiled onto 1:63,360 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, 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. The hardcopy biological information is compiled onto 1:250,000 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 1:250,000 scale). A team of specialists reviews the entire series of maps, checks all data, and makes final edits. The data are then merged to form the study-wide layers. The data merging includes a final quality control check where labels, chains, and polygons are checked for attribute accuracy. To finalize the data checking process, each coverage is checked using a standardized form by two GIS personnel (a technician and the GIS manager), and each attribute database is checked using several programs that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and ORACLE(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where the data are written to tape and the metadata are written. 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 also distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats. The section *Spatial\_Data\_Organization\_Information* refers to the source files in ARC export format only.

*Completeness\_Report:*

Prediction of the behavior and persistence of oil on intertidal habitats is based on an understanding of the dynamics of the coastal environments, not just the substrate type and grain size. The sensitivity of a particular intertidal habitat is an integration of the following factors: 1) Shoreline type (substrate, grain size, tidal elevation, origin), 2) Exposure to wave and tidal energy, 3) Biological productivity and sensitivity, 4) Ease of cleanup. All of these factors are used to determine the relative sensitivity of intertidal habitats. Key to the sensitivity ranking is an understanding of the relationships between: physical processes; substrate; shoreline type; product type; fate and effect; and sediment transport patterns. The intensity of energy expended upon a shoreline by wave action, tidal currents, and river currents directly affects the persistence of stranded oil. The need for shoreline cleanup activities is determined, in part, by the slowness of natural processes in removal of oil stranded on the shoreline. These concepts have been used in the development of the ESI, which ranks shoreline environments as to their relative sensitivity to oil spills, potential biological injury, and ease of cleanup. Generally speaking, areas exposed to high levels of physical energy, such as wave action and tidal currents, and low biological activity rank low on the scale, whereas sheltered areas with associated high biological activity have the highest ranking.

*Positional\_Accuracy:*

*Horizontal\_Positional\_Accuracy:*

*Horizontal\_Positional\_Accuracy\_Report:*

The ESI data uses USGS 1:63,360 topographic quadrangles as the base map. It is estimated that the ESI shoreline classification has a minimum mapping unit of 100 feet.

*Lineage:*

*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* K. Ambrosius  
*Publication\_Date:* 1998  
*Title:* BP's ESI Coverage  
*Geospatial\_Data\_Presentation\_Form:* Vector digital data  
*Publication\_Information:*

*Publication\_Place:* Anchorage, AK  
*Publisher:* BP Exploration (Alaska), Inc

*Source\_Scale\_Denominator:* 63360  
*Type\_of\_Source\_Media:* CD-ROM  
*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* 1997  
*Source\_Currentness\_Reference:* Content time period

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*Source\_Citation\_Abbreviation:* None  
*Source\_Contribution:* Hydrology arcs and polygons  
*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* D. Bieganski  
*Publication\_Date:* 1997  
*Title:* BLM NPR-A IAP/EIS  
*Geospatial\_Data\_Presentation\_Form:* Vector digital data  
*Publication\_Information:*

*Publication\_Place:* Anchorage, AK

*Publisher:* U.S. DOI BLM Northern District Office

*Source\_Scale\_Denominator:* 63360

*Type\_of\_Source\_Media:* CD-ROM

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Range\_of\_Dates/Times:*

*Beginning\_Date:* 1954

*Ending\_Date:* 1993

*Source\_Currentness\_Reference:* Content time period

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Hydrology arcs and polygons

*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* USFWS  
*Publication\_Date:* 1999  
*Title:* Coastal Marshes of Arctic NWR  
*Geospatial\_Data\_Presentation\_Form:* Vector digital data  
*Publication\_Information:*

*Publication\_Place:* Fairbanks, AK

*Publisher:* USFWS

*Source\_Scale\_Denominator:* 63360

*Type\_of\_Source\_Media:* Electronic mail

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* 1999

*Source\_Currentness\_Reference:* Content time period

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Marsh polygons

*Source\_Information:*



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*Source\_Citation:**Citation\_Information:*

*Originator:* USGS DLG's  
*Publication\_Date:* 1999  
*Title:* USGS DLG's  
*Geospatial\_Data\_Presentation\_Form:* Vector digital data  
*Publication\_Information:*

*Publication\_Place:* Anchorage, AK  
*Publisher:* USGS

*Source\_Scale\_Denominator:* 63360  
*Type\_of\_Source\_Media:* Online  
*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:**Single\_Date/Time:*

*Calendar\_Date:* Varies

*Source\_Currentness\_Reference:* Content time period

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Hydrology arcs and polygons

*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:* 1997-199909

*Process\_Contact:**Contact\_Information:**Contact\_Person\_Primary:*

*Contact\_Person:* Jill Petersen

*Contact\_Organization:* NOAA, Office of Response and Restoration

*Contact\_Position:* GIS Manager

*Contact\_Address:*

*Address\_Type:* Physical address

*Address:* 7600 Sand Point Way N.E.

*City:* Seattle

*State\_or\_Province:* Washington

*Postal\_Code:* 98115-6349

*Contact\_Voice\_Telephone:* (206) 526-6944

*Contact\_Facsimile\_Telephone:* (206) 526-6329

*Contact\_Electronic\_Mail\_Address:* jill\_petersen@hazmat.noaa.gov.us

---

*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:* 952

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Area point

*Point\_and\_Vector\_Object\_Count:* 952

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Complete chain

*Point\_and\_Vector\_Object\_Count:* 2497

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Link

*Point\_and\_Vector\_Object\_Count:* 204975

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Node, planar graph

*Point\_and\_Vector\_Object\_Count:* 2539

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*Spatial\_Reference\_Information:*

*Horizontal\_Coordinate\_System\_Definition:*

*Geographic:*

*Latitude\_Resolution:* 0.00005

*Longitude\_Resolution:* 0.00005

*Geographic\_Coordinate\_Units:* Decimal Degrees

*Geodetic\_Model:*

*Horizontal\_Datum\_Name:* North American Datum of 1927

*Ellipsoid\_Name:* Clarke 1866

*Semi-major\_Axis:* 6378206.4

*Denominator\_of\_Flattening\_Ratio:* 294.98

---

*Entity\_and\_Attribute\_Information:**Detailed\_Description:**Entity\_Type:**Entity\_Type\_Label:* Complete chain*Entity\_Type\_Definition:*

The data layer ESI contains arc (Complete Chain) features for the ESI shoreline classification and is based on Environmental Sensitivity Index Guidelines, Version 2.0 (Halls, J., J. Michel, S. Zengel, J. Dahlin, and J. Petersen, 1997, Hazardous Materials Response and Assessment Division, NOAA). The ESI classification was performed in 1997, by Owens Coastal Consulting.

*Entity\_Type\_Definition\_Source:* Research Planning, Inc.*Attribute:**Attribute\_Label:* ESI*Attribute\_Definition:*

Prediction of the behavior and persistence of oil on intertidal habitats is based on an understanding of the dynamics of the coastal environments, not just the substrate type and grain size. The sensitivity of a particular intertidal habitat is an integration of the following factors: 1) Shoreline type (substrate, grain size, tidal elevation, origin) 2) Exposure to wave and tidal energy 3) Biological productivity and sensitivity 4) Ease of cleanup. All of these factors are used to determine the relative sensitivity of intertidal habitats. Key to the sensitivity ranking is an understanding of the relationships between: physical processes; substrate; shoreline type; product type; fate and effect; and sediment transport patterns. The intensity of energy expended upon a shoreline by wave action, tidal currents, and river currents directly affects the persistence of stranded oil. The need for shoreline cleanup activities is determined, in part, by the slowness of natural processes in removal of oil stranded on the shoreline. These concepts have been used in the development of the ESI, which ranks shoreline environments as to their relative sensitivity to oil spills, potential biological injury, and ease of cleanup. Generally speaking, areas exposed to high levels of physical energy, such as wave action and tidal currents, and low biological activity rank low on the scale, whereas sheltered areas with associated high biological activity have the highest ranking. A comprehensive shoreline habitat ranking system has been developed for the entire United States. The shoreline habitats delineated in North Slope, Alaska are listed below in order of increasing sensitivity to spilled oil: 3A) Fine- to Medium-grained Sand Beaches, 3C) Tundra Cliffs, 5) Mixed Sand and Gravel Beaches, 6A) Gravel Beaches, 7) Exposed Tidal Flats, 8B) Sheltered, Solid Man-made Structures, 8E) Peat Shorelines, 9A) Sheltered Tidal Flats, 10A) Salt- and Brackish- water Marshes, 10E) Inundated Low-lying Tundra, U) Unranked. The item ESI contains values according to the ESI ranking of the shorelines and polygons. The ESI rankings progress from low to high susceptibility to oil spills. In many cases, the shorelines are also ranked with multiple codes such as 10E/7. The first number is the most landward shoreline type, salt marsh, with exposed tidal flats being the shoreline type closest to the water.

*Attribute\_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.

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*Attribute\_Domain\_Values:*

*Enumerated\_Domain:*

*Enumerated\_Domain\_Value:* 3C

*Enumerated\_Domain\_Value\_Definition:* Tundra Cliffs

*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:* 6A

*Enumerated\_Domain\_Value\_Definition:* Gravel Beaches

*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:* 8B

*Enumerated\_Domain\_Value\_Definition:* Sheltered, Solid Man-made Structures

*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.

*Attribute\_Domain\_Values:*

*Enumerated\_Domain:*

*Enumerated\_Domain\_Value:* 8E

*Enumerated\_Domain\_Value\_Definition:* Peat Shorelines

*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:* 10A

*Enumerated\_Domain\_Value\_Definition:* Salt- and Brackish- water Marshes

*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.

*Attribute\_Domain\_Values:*

*Enumerated\_Domain:**Enumerated\_Domain\_Value:* 10A/3A*Enumerated\_Domain\_Value\_Definition:*Salt- and Brackish- Water Marshes/Fine- to Medium-grained Sand  
Beaches*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.*Attribute\_Domain\_Values:**Enumerated\_Domain:**Enumerated\_Domain\_Value:* 10A/3C*Enumerated\_Domain\_Value\_Definition:* Salt- and Brackish- Water  
Marshes/Tundra Cliffs*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.*Attribute\_Domain\_Values:**Enumerated\_Domain:**Enumerated\_Domain\_Value:* 10A/5*Enumerated\_Domain\_Value\_Definition:* Salt- and Brackish- Water  
Marshes/Mixed Sand and Gravel Beaches*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.*Attribute\_Domain\_Values:**Enumerated\_Domain:**Enumerated\_Domain\_Value:* 10A/6A*Enumerated\_Domain\_Value\_Definition:* Salt- and Brackish- Water  
Marshes/Gravel Beaches*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.*Attribute\_Domain\_Values:**Enumerated\_Domain:**Enumerated\_Domain\_Value:* 10A/7*Enumerated\_Domain\_Value\_Definition:* Salt- and Brackish- Water  
Marshes/Exposed Tidal Flats*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.*Attribute\_Domain\_Values:**Enumerated\_Domain:**Enumerated\_Domain\_Value:* 10A/8E*Enumerated\_Domain\_Value\_Definition:* Salt- and Brackish- Water  
Marshes/Peat Shoreline*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.*Attribute\_Domain\_Values:**Enumerated\_Domain:**Enumerated\_Domain\_Value:* 10A/9A*Enumerated\_Domain\_Value\_Definition:* Salt- and Brackish- Water  
Marshes/Sheltered Tidal Flats*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.*Attribute\_Domain\_Values:*

*Enumerated\_Domain:**Enumerated\_Domain\_Value:* 10A/10E*Enumerated\_Domain\_Value\_Definition:* Salt- and Brackish- Water Marshes/Inundated Low-lying Tundra*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.*Attribute\_Domain\_Values:**Enumerated\_Domain:**Enumerated\_Domain\_Value:* 10E*Enumerated\_Domain\_Value\_Definition:* Inundated Low-lying Tundra*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:* 199811*Ending\_Date\_of\_Attribute\_Values:* 199906*Attribute:**Attribute\_Label:* Line*Attribute\_Definition:* Type of geographical feature*Attribute\_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:* 199811*Ending\_Date\_of\_Attribute\_Values:* 199906*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:* British Petroleum's HYD\_POLY coverage*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.

*Attribute\_Domain\_Values:*

*Enumerated\_Domain:*

*Enumerated\_Domain\_Value:* 2

*Enumerated\_Domain\_Value\_Definition:* British Petroleum's HYD\_ARC coverage

*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.

*Attribute\_Domain\_Values:*

*Enumerated\_Domain:*

*Enumerated\_Domain\_Value:* 3

*Enumerated\_Domain\_Value\_Definition:* BLM's NSB/LAKE coverage

*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.

*Attribute\_Domain\_Values:*

*Enumerated\_Domain:*

*Enumerated\_Domain\_Value:* 4

*Enumerated\_Domain\_Value\_Definition:* BLM's AK\_OUTPOLY6 coverage

*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.

*Attribute\_Domain\_Values:*

*Enumerated\_Domain:*

*Enumerated\_Domain\_Value:* 13

*Enumerated\_Domain\_Value\_Definition:* USGS DLG Hydro

*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.

*Attribute\_Domain\_Values:*

*Enumerated\_Domain:*

*Enumerated\_Domain\_Value:* 14

*Enumerated\_Domain\_Value\_Definition:* USFWS Marsh Arcs

*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.

*Beginning\_Date\_of\_Attribute\_Values:* 199811

*Ending\_Date\_of\_Attribute\_Values:* 199906

*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.

*Beginning\_Date\_of\_Attribute\_Values:* 199811

*Ending\_Date\_of\_Attribute\_Values:* 199906

*Detailed\_Description:*

*Entity\_Type:*

*Entity\_Type\_Label:* GT Polygon

*Entity\_Type\_Definition:*

The data layer ESI contains polygonal (GT-Polygon) features for the ESI shoreline classification and is based on Environmental Sensitivity Index Guidelines, Version 2.0 (Halls, J., J. Michel, S. Zengel, J. Dahlin, and J. Petersen, 1997, Hazardous Materials Response and Assessment Division, NOAA). The ESI classification was performed in February 1997.

*Entity\_Type\_Definition\_Source:* Research Planning, Inc.

*Attribute:*

*Attribute\_Label:* ESI

*Attribute\_Definition:*

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

*Attribute\_Definition\_Source:* Research Planning, Inc.

*Attribute\_Domain\_Values:**Enumerated\_Domain:*

*Enumerated\_Domain\_Value:* 10A

*Enumerated\_Domain\_Value\_Definition:* Salt- Brackish- Water Marshes

*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:* 199811

*Ending\_Date\_of\_Attribute\_Values:* 199906

*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:* 199811

*Ending\_Date\_of\_Attribute\_Values:* 199906



---

*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 North Slope, Alaska*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:* 200006*Metadata\_Review\_Date:* 200006*Metadata\_Contact:**Contact\_Information:**Contact\_Person\_Primary:**Contact\_Person:* Jill Petersen*Contact\_Organization:* NOAA, Office of Response and Restoration*Contact\_Position:* GIS Manager*Contact\_Address:**Address\_Type:* Physical Address*Address:* 7600 Sand Point Way N.E.*City:* Seattle*State\_or\_Province:* Washington*Postal\_Code:* 98115-6349

*Contact\_Voice\_Telephone:* (206) 526-6944

*Contact\_Facsimile\_Telephone:* (206) 526-6329

*Contact\_Electronic\_Mail\_Address:* [jill\\_petersen@hazmat.noaa.gov.us](mailto:jill_petersen@hazmat.noaa.gov.us)

*Metadata\_Standard\_Name:* Content Standards for Digital Geospatial Metadata

*Metadata\_Standard\_Version:* FGDC-STD-001-1998

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# North Slope, Alaska 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 and the Alaska Department of Environmental Conservation

*Publication Date:* 200006

*Title:* North Slope, Alaska ESI: Index

*Edition:* First

*Geospatial Data Presentation Form:* Atlas

#### *Series Information:*

*Series Name:* None

*Issue Identification:* North Slope, Alaska

#### *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 and the Alaska Department of Environmental Conservation

### *Description:*

#### *Abstract:*

This data set comprises the Environmental Sensitivity Index (ESI) data for the North Slope of Alaska from Point Barrow to the Canadian Border. 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.

#### *Purpose:*

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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:* 1997

*Ending\_Date:* 1999

*Currentness\_Reference:* Project time span

*Status:*

*Progress:* Complete

*Maintenance\_and\_Update\_Frequency:* None Scheduled

*Spatial\_Domain:*

*Bounding\_Coordinates:*

*West\_Bounding\_Coordinate:* -156.581

*East\_Bounding\_Coordinate:* -140.309

*North\_Bounding\_Coordinate:* 71.479

*South\_Bounding\_Coordinate:* 67.917

*Keywords:*

*Theme:*

*Theme\_Keyword\_Thesaurus:* None

*Theme\_Keyword:* Sensitivity Maps

*Theme\_Keyword:* ESI

*Theme\_Keyword:* Coastal resources

*Theme\_Keyword:* Oil spill planning

*Theme\_Keyword:* Coastal zone management

*Theme\_Keyword:* Index

*Place:*

*Place\_Keyword\_Thesaurus:* None

*Place\_Keyword:* North Slope, Alaska

*Place\_Keyword:* Point Barrow

*Place\_Keyword:* Beaufort sea

*Place\_Keyword:* NPR-A

*Place\_Keyword:* Arctic NWR

*Place\_Keyword:* Prudhoe Bay

*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.

*Data\_Set\_Credit:*

This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington and the Alaska Department of Environmental Conservation.

*Native\_Data\_Set\_Environment:*

The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 7.2.1) and ORACLE(r) RDBMS (version 6.0.36.1.1). The hardware configuration is Hewlett Packard workstations (models 715/50 and 712/80i with 4 X-terminals) with

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UNIX operating system (HP-UX Release A.09.01). The following files are included in the data set: bio\_lut.e00, biofile.e00, biores.e00, birds.e00, breed.e00, breed\_dt.e00, esi.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, m\_mammal.e00, m\_mampt.e00, mgt.e00, nests.e00, seasonal.e00, soc\_dat.e00, soc\_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t\_mammal.e00.

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*Data\_Quality\_Information:*

*Attribute\_Accuracy:*

*Attribute\_Accuracy\_Report:*

The attribute accuracy is estimated to be "good" given the years of ESI experience, the data input methodology, the quality control review sessions, and the digital logical consistency checks.

*Logical\_Consistency\_Report:*

The INDEX map coverage was generated at Research Planning, Inc. (RPI) based on the corner coordinates of the desired map areas. Under this project, new digital data sources were imported, projected, checked for quality control, and integrated into the spatial data structure (for selected resources). The data were checked using both digital and on-screen procedures. To finalize the data checking process, each coverage is checked using a standardized form by two GIS personnel (a technician and the GIS manager), and each attribute database is checked using several programs that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and ORACLE(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where data are written to tape and metadata are written.

*Completeness\_Report:*

The INDEX map coverage was generated based on the ability to cover the entire study area in four 1:250,00 scale maps, with map size being limited to under 36x36 inches. As a result of the angle of orientation of each of the maps, there is overlap between each of the indexes. In the INDEX coverage, the overlapping polygons' attributes identify them as belonging to each of the individual maps.

*Lineage:*

*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* RPI

*Publication\_Date:* 1999

*Title:* RPI Index Coverage

*Geospatial\_Data\_Presentation\_Form:* Vector digital data

*Publication\_Information:*

*Publication\_Place:* Columbia, SC

*Publisher:* Research Planning, Inc.

*Source\_Scale\_Denominator:* 63360

*Type\_of\_Source\_Media:* CD-ROM

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

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*Single\_Date/Time:*

*Calendar\_Date:* 1998

*Source\_Currentness\_Reference:* Content time period

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Map index

*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:* 1997-199909

*Process\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Jill Petersen

*Contact\_Organization:* NOAA, Office of Response and Restoration

*Contact\_Position:* GIS Manager

*Contact\_Address:*

*Address\_Type:* Physical address

*Address:* 7600 Sand Point Way N.E.

*City:* Seattle

*State\_or\_Province:* Washington

*Postal\_Code:* 98115-6349

*Contact\_Voice\_Telephone:* (206) 526-6944

*Contact\_Facsimile\_Telephone:* (206) 526-6329

*Contact\_Electronic\_Mail\_Address:* jill\_petersen@hazmat.noaa.gov.us

---

*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:* 7

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Area point

*Point\_and\_Vector\_Object\_Count:* 7

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Complete chain

*Point\_and\_Vector\_Object\_Count:* 12

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Link

*Point\_and\_Vector\_Object\_Count:* 461

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Node, planar graph

*Point\_and\_Vector\_Object\_Count:* 6

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*Spatial\_Reference\_Information:**Horizontal\_Coordinate\_System\_Definition:**Geographic:*

*Latitude\_Resolution:* 0.00005

*Longitude\_Resolution:* 0.00005

*Geographic\_Coordinate\_Units:* Decimal Degrees

*Geodetic\_Model:*

*Horizontal\_Datum\_Name:* North American Datum of 1927

*Ellipsoid\_Name:* Clarke 1866

*Semi-major\_Axis:* 6378206.4

*Denominator\_of\_Flattening\_Ratio:* 294.98

---

*Entity\_and\_Attribute\_Information:**Detailed\_Description:**Entity\_Type:*

*Entity\_Type\_Label:* GT Polygon

*Entity\_Type\_Definition:*

The data layer INDEX contains the map or polygon boundaries for each map in the atlas.

*Entity\_Type\_Definition\_Source:* Research Planning, Inc.

*Attribute:*

*Attribute\_Label:* Tile-name

*Attribute\_Definition:*

The TILE-NAME contains the map number according to the specified layout of the atlas. During the map production process, the value of TILE-NAME is plotted on the map product to order the maps in a coherent manner. The values for each polygon are unique and range from 1 through 4.

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*Attribute\_Definition\_Source*: Research Planning, Inc.  
*Attribute\_Domain\_Values*:

*Range\_Domain*:

*Range\_Domain\_Minimum*: 1  
*Range\_Domain\_Maximum*: 4  
*Beginning\_Date\_of\_Attribute\_Values*: 199811  
*Ending\_Date\_of\_Attribute\_Values*: 199906

*Attribute*:

*Attribute\_Label*: Topo-name

*Attribute\_Definition*:

Topographic map names were not used in this product because the maps did not correspond to topographic maps.

*Attribute\_Definition\_Source*: Research Planning, Inc.

*Attribute\_Domain\_Values*:

*Enumerated\_Domain*:

*Enumerated\_Domain\_Value*: Not Applicable  
*Enumerated\_Domain\_Value\_Definition*: Not Applicable  
*Enumerated\_Domain\_Value\_Definition\_Source*: Research Planning, Inc.  
*Beginning\_Date\_of\_Attribute\_Values*: 199811  
*Ending\_Date\_of\_Attribute\_Values*: 199906

*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*: 250,000  
*Enumerated\_Domain\_Value\_Definition*: Map scale = 1:250,000  
*Enumerated\_Domain\_Value\_Definition\_Source*: Research Planning, Inc.  
*Beginning\_Date\_of\_Attribute\_Values*: 199811  
*Ending\_Date\_of\_Attribute\_Values*: 199906

*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*: -90.00  
*Range\_Domain\_Maximum*: 90.00  
*Beginning\_Date\_of\_Attribute\_Values*: 199811  
*Ending\_Date\_of\_Attribute\_Values*: 199906

*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:* 36,34.5

*Enumerated\_Domain\_Value\_Definition:* Pagesize = 36" by 34.5"

*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.

*Attribute\_Domain\_Values:*

*Enumerated\_Domain:*

*Enumerated\_Domain\_Value:* 34.5,36

*Enumerated\_Domain\_Value\_Definition:* Pagesize = 34.5" by 36"

*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.

*Beginning\_Date\_of\_Attribute\_Values:* 199811

*Ending\_Date\_of\_Attribute\_Values:* 199906

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*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 North Slope, Alaska

*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:* 200006  
*Metadata\_Review\_Date:* 200006  
*Metadata\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Jill Petersen  
*Contact\_Organization:* NOAA, Office of Response and Restoration  
*Contact\_Position:* GIS Manager  
*Contact\_Address:*

*Address\_Type:* Physical Address  
*Address:* 7600 Sand Point Way N.E.  
*City:* Seattle  
*State\_or\_Province:* Washington  
*Postal\_Code:* 98115-6349

*Contact\_Voice\_Telephone:* (206) 526-6944  
*Contact\_Facsimile\_Telephone:* (206) 526-6329  
*Contact\_Electronic\_Mail\_Address:* jill\_petersen@hazmat.noaa.gov.us

*Metadata\_Standard\_Name:* Content Standards for Digital Geospatial Metadata  
*Metadata\_Standard\_Version:* FGDC-STD-001-1998

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# North Slope, Alaska ESI: Birds

## 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 and the Alaska Department of Environmental Conservation

*Publication Date:* 200006

*Title:* North Slope, Alaska ESI: Birds

*Edition:* First

*Geospatial Data Presentation Form:* Atlas

#### *Series Information:*

*Series Name:* None

*Issue Identification:* North Slope, Alaska

#### *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 and the Alaska Department of Environmental Conservation

### *Description:*

#### *Abstract:*

This data set comprises the Environmental Sensitivity Index (ESI) data for the North Slope of Alaska from Point Barrow to the Canadian Border. 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.

#### *Purpose:*

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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:* 1997

*Ending\_Date:* 1999

*Currentness\_Reference:* Project time span

*Status:*

*Progress:* Complete

*Maintenance\_and\_Update\_Frequency:* None Scheduled

*Spatial\_Domain:*

*Bounding\_Coordinates:*

*West\_Bounding\_Coordinate:* -156.581

*East\_Bounding\_Coordinate:* -140.309

*North\_Bounding\_Coordinate:* 71.479

*South\_Bounding\_Coordinate:* 67.917

*Keywords:*

*Theme:*

*Theme\_Keyword\_Thesaurus:* None

*Theme\_Keyword:* Sensitivity Maps

*Theme\_Keyword:* ESI

*Theme\_Keyword:* Coastal resources

*Theme\_Keyword:* Oil spill planning

*Theme\_Keyword:* Coastal zone management

*Theme\_Keyword:* Bird

*Place:*

*Place\_Keyword\_Thesaurus:* None

*Place\_Keyword:* North Slope, Alaska

*Place\_Keyword:* Point Barrow

*Place\_Keyword:* Beaufort sea

*Place\_Keyword:* NPR-A

*Place\_Keyword:* Arctic NWR

*Place\_Keyword:* Prudhoe Bay

*Access\_Constraints:* None

*Use\_Constraints:*

DO NOT USE ESI MAPS FOR NAVIGATIONAL PURPOSES. Besides the above warning, there are no use constraints on these data. Acknowledgment of the publishers and contributing sources listed in Data\_Set\_Credit (below) would be appreciated in products derived from these data.

*Data\_Set\_Credit:*

This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington and the Alaska Department of Environmental Conservation

*Native\_Data\_Set\_Environment:*

The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 7.2.1) and ORACLE(r) RDBMS (version 6.0.36.1.1). The hardware configuration is Hewlett Packard workstations (models 715/50 and 712/80i with 4 X-terminals) with

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UNIX operating system (HP-UX Release A.09.01). The following files are included in the data set: bio\_lut.e00, biofile.e00, biores.e00, birds.e00, breed.e00, breed\_dt.e00, esi.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, m\_mammal.e00, m\_mampt.e00, mgt.e00, nests.e00, seasonal.e00, soc\_dat.e00, soc\_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t\_mammal.e00.

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*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. The first layer of information digitized is the ESI shoreline classification. The ESI habitat ranking is compiled onto 1:63,360 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, 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. The hardcopy biological information is compiled onto 1:250,000 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 1:250,000 scale). A team of specialists reviews the entire series of maps, checks all data, and makes final edits. The data are then merged to form the study-wide layers. The data merging includes a final quality control check where labels, chains, and polygons are checked for attribute accuracy. To finalize the data checking process, each coverage is checked using a standardized form by two GIS personnel (a technician and the GIS manager), and each attribute database is checked using several programs that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and ORACLE(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where the data are written to tape and the metadata are written. 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 also distributed both in the NOAA

standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats. 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 U.S. 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. Five major categories, or ELEMENTs, of biological resources were considered during data compilation: birds; fish; habitats; marine mammals; and terrestrial mammals. The ELEMENTs generally correspond to the coverage or geographic data layer names. There are also six attribute, or data tables, BIORES, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, that are used to store the complex biological data. The biological polygon coverage (BIRDS) is linked to the Biological Resources table (BIORES) using the unique ID and the lookup table BIO\_LUT, or it can be linked directly using RARNUM. [The ID is a unique combination of the atlas number (for North Slope this is 70), 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 other data tables (primarily the SPECIES table). 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), the date the list of Natural Heritage Program (NHP) ranks was published (DATE\_PUB), biological element (ELEMENT), biological subelement (SUBELEMENT), and the NHP global conservation status rank. The item SUBELEMENT refers to the grouping of the species: (ELEMENT, subelement): BIRD: bird; alcid; diving; gull\_turn; shorebird; 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 abbreviations), S\_F (state or federal status), T\_E (threatened or endangered status), DATE\_PUB, and EL\_SPE. The SEASONAL data table stores the monthly presence of each species where each species is defined as three-character monthly abbreviations. The BIORES table is linked to the SEASONAL table using either the combination of SPECIES\_ID, ELEMENT, and SEASON\_ID items, or the item EL\_SPE\_SEA, which contains the concatenation of these items. The BREED data table contains the life stage or life history data for each unique combination of ELEMENT, SPECIES\_ID, and SEASON\_ID (or EL\_SPE\_SEA), and up to 12 records (corresponding to each month of the year) can have different attributes and therefore separate records. The categories for each element of the items BREED1 through BREED5 are: BIRD: nesting, laying, hatching, fledging (BREED1 through BREED4 respectively). 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 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 SOURCE. 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 1:250,000 USGS quadrangles are used as a base map 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:* W. Horowitz, MMS

*Publication\_Date:* 1998

*Title:* Bowhead Whale Locations

*Geospatial\_Data\_Presentation\_Form:* Vector digital data

*Publication\_Information:*

*Publication\_Place:* Anchorage, AK

*Publisher:* MMS

*Type\_of\_Source\_Media:* Electronic bulletin board

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Range\_of\_Dates/Times:*

*Beginning\_Date:* 1985

*Ending\_Date:* 1998

*Source\_Currentness\_Reference:* Ground surveys

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Waterbird polygons

*Source\_Information:*

*Source\_Citation:**Citation\_Information:**Originator:* T. Tiplady, USFWS*Publication\_Date:* Unpublished material*Title:* Steller's eider Concentration Areas*Geospatial\_Data\_Presentation\_Form:* Expert knowledge*Source\_Scale\_Denominator:* 250000*Type\_of\_Source\_Media:* Personal communication*Source\_Time\_Period\_of\_Content:**Time\_Period\_Information:**Single\_Date/Time:**Calendar\_Date:* 1998*Source\_Currentness\_Reference:* Working knowledge*Source\_Citation\_Abbreviation:* None*Source\_Contribution:* Polygons for Steller eider*Source\_Information:**Source\_Citation:**Citation\_Information:**Originator:* J. Johnson, USFWS*Publication\_Date:* 1998*Title:* Tundra Swan Distribution*Geospatial\_Data\_Presentation\_Form:* Vector digital data*Publication\_Information:**Publication\_Place:* Anchorage, AK*Publisher:* U.S. Department of Interior, U.S. Fish and Wildlife Service*Type\_of\_Source\_Media:* Electronic mail*Source\_Time\_Period\_of\_Content:**Time\_Period\_Information:**Single\_Date/Time:**Calendar\_Date:* Unknown*Source\_Currentness\_Reference:* Ground surveys*Source\_Citation\_Abbreviation:* None*Source\_Contribution:* Polygons for Tundra Swan*Source\_Information:**Source\_Citation:**Citation\_Information:**Originator:* P. Martin, USFWS*Publication\_Date:* Unpublished material*Title:* Oldsquaw, Common Eider, and Phalarope Concentration Areas*Geospatial\_Data\_Presentation\_Form:* Expert knowledge*Type\_of\_Source\_Media:* Personal communication



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*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* Unknown

*Source\_Currentness\_Reference:* Ground surveys

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Oldsquaw, Common Eider, and Phalarope concentration polygons

*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* K. Ambrosius, BP Exploration

*Publication\_Date:* 1998

*Title:* High Concentration Areas of Snow Goose

*Geospatial\_Data\_Presentation\_Form:* Vector digital data

*Publication\_Information:*

*Publication\_Place:* Anchorage, AK

*Publisher:* BP Exploration (Alaska) Inc.

*Source\_Scale\_Denominator:* 63360

*Type\_of\_Source\_Media:* CD-ROM

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Range\_of\_Dates/Times:*

*Beginning\_Date:* 1980

*Ending\_Date:* 1995

*Source\_Currentness\_Reference:* Ground Surveys

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Snow geese polygons

*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* D. Bieganski, BLM

*Publication\_Date:* 1997

*Title:* Spectacled Eider Densities 1992 - 1996

*Geospatial\_Data\_Presentation\_Form:* Vector digital data

*Publication\_Information:*

*Publication\_Place:* Fairbanks, AK

*Publisher:* Northeast NPR-A IAP/EIS, U.S. DOI, BLM Northern District Office

*Type\_of\_Source\_Media:* CD-ROM

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

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*Range\_of\_Dates/Times:*

*Beginning\_Date:* 1992

*Ending\_Date:* 1996

*Source\_Currentness\_Reference:* Ground Surveys

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Spectacled eider polygons

*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* D. Bieganski, BLM

*Publication\_Date:* 1997

*Title:* King Eider Densities

*Geospatial\_Data\_Presentation\_Form:* Vector digital data

*Publication\_Information:*

*Publication\_Place:* Fairbanks, AK

*Publisher:* Northeast NPR-A IAP/EIS, U.S. DOI, BLM Northern District Office

*Type\_of\_Source\_Media:* CD-ROM

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* Unknown

*Source\_Currentness\_Reference:* Publication date

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* King eider polygons

*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* D. Bieganski, BLM

*Publication\_Date:* 1998

*Title:* Lakes Surveyed by USFWS for Molting Geese

*Geospatial\_Data\_Presentation\_Form:* Vector digital data

*Publication\_Information:*

*Publication\_Place:* Fairbanks, AK

*Publisher:* Northeast NPR-A IAP/EIS, U.S. DOI, BLM Northern District Office

*Source\_Scale\_Denominator:* 250000

*Type\_of\_Source\_Media:* CD-ROM

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Range\_of\_Dates/Times:*

*Beginning\_Date:* 1982

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*Ending\_Date:* 1996  
*Source\_Currentness\_Reference:* Ground Surveys  
*Source\_Citation\_Abbreviation:* None  
*Source\_Contribution:* Geese polygons  
*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* K. Ambrosius, BP Exploration  
*Publication\_Date:* 1998  
*Title:* Oldsquaw, Eider, and Phalarope Concentrations  
*Geospatial\_Data\_Presentation\_Form:* Vector digital data  
*Publication\_Information:*

*Publication\_Place:* Anchorage, AK  
*Publisher:* BP Exploration (Alaska) Inc.

*Source\_Scale\_Denominator:* 63360  
*Type\_of\_Source\_Media:* CD-ROM  
*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* Unknown  
*Source\_Currentness\_Reference:* Publication date  
*Source\_Citation\_Abbreviation:* None  
*Source\_Contribution:* Oldsquaw, Eider and Phalarope concentration polygons  
*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* USFWS, Fairbanks-Review Edits  
*Publication\_Date:* Unpublished material  
*Title:* Spectacled Eider Concentration  
*Geospatial\_Data\_Presentation\_Form:* map  
*Source\_Scale\_Denominator:* 250000  
*Type\_of\_Source\_Media:* paper  
*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* 1999  
*Source\_Currentness\_Reference:* Review edits  
*Source\_Citation\_Abbreviation:* None  
*Source\_Contribution:* Spectacled eider polygons  
*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

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*Originator:* ADF&G - Review Edits  
*Publication\_Date:* Unpublished material  
*Title:* Snow Goose Concentrations  
*Geospatial\_Data\_Presentation\_Form:* map

*Source\_Scale\_Denominator:* 250000  
*Type\_of\_Source\_Media:* paper  
*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* 1999

*Source\_Currentness\_Reference:* Review edits

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Snow geese polygons

*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* ADF&G - Review Edits  
*Publication\_Date:* Unpublished material  
*Title:* Brant Concentration Areas  
*Geospatial\_Data\_Presentation\_Form:* map

*Source\_Scale\_Denominator:* 250000  
*Type\_of\_Source\_Media:* paper  
*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* 1999

*Source\_Currentness\_Reference:* Review edits

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Brant polygons

*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:* 1997-199909

*Process\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Jill Petersen  
*Contact\_Organization:* NOAA, Office of Response and Restoration  
*Contact\_Position:* GIS Manager  
*Contact\_Address:*

*Address\_Type:* Physical address  
*Address:* 7600 Sand Point Way N.E.  
*City:* Seattle  
*State\_or\_Province:* Washington  
*Postal\_Code:* 98115-6349  
*Contact\_Voice\_Telephone:* (206) 526-6944  
*Contact\_Facsimile\_Telephone:* (206) 526-6329  
*Contact\_Electronic\_Mail\_Address:* jill\_petersen@hazmat.noaa.gov.us

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*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:* 245

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Area point  
*Point\_and\_Vector\_Object\_Count:* 245

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Complete chain  
*Point\_and\_Vector\_Object\_Count:* 538

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Link  
*Point\_and\_Vector\_Object\_Count:* 20645

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Node, planar graph  
*Point\_and\_Vector\_Object\_Count:* 338

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*Spatial\_Reference\_Information:*

*Horizontal\_Coordinate\_System\_Definition:*

*Geographic:*

*Latitude\_Resolution:* 0.00005

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*Longitude\_Resolution:* 0.00005  
*Geographic\_Coordinate\_Units:* Decimal Degrees  
*Geodetic\_Model:*

*Horizontal\_Datum\_Name:* North American Datum of 1927  
*Ellipsoid\_Name:* Clarke 1866  
*Semi-major\_Axis:* 6378206.4  
*Denominator\_of\_Flattening\_Ratio:* 294.98

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*Entity\_and\_Attribute\_Information:*

*Detailed\_Description:*

*Entity\_Type:*

*Entity\_Type\_Label:* GT Polygon

*Entity\_Type\_Definition:*

Nesting sites are of particular concern due to high concentrations of birds in adjacent waters, contamination of eggs and young by oiled adults and prey, and the potential for disturbance from response activities. Waterfowl nesting areas - The vast majority of the North Slope is used by nesting waterfowl. Coastal nesting areas for threatened species and species of special concern (Steller's eider, spectacled eider, king eider, yellow-billed loon, and oldsquaw) are delineated on the map. The waterfowl nesting season is from June through September. The ranges provided for the Steller's eider and spectacled eider are based on a limited number of observations. Other species of waterfowl nesting on the North Slope are northern pintail, greater white-fronted goose, Pacific loon, red-throated loon, scaup, tundra swan, scoter and snow goose. Waterfowl molting areas - The coastal waters behind the barrier islands and in the bays are high-concentration molting areas for oldsquaw, common eider and phalaropes. There may be additional species present in these areas, but data from the surveys are in the preliminary compilation stages and were not available for this project. The lakes between Teshekpuk Lake and the coast are host to over 30,000 molting geese in June and August. Waterfowl are particularly vulnerable during molting.

*Entity\_Type\_Definition\_Source:* Research Planning, Inc.

*Attribute:*

*Attribute\_Label:* RARNUM

*Attribute\_Definition:*

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

*Attribute\_Definition\_Source:* NOAA

*Attribute\_Domain\_Values:*

*Range\_Domain:*

*Range\_Domain\_Minimum:* 1

*Range\_Domain\_Maximum:* N

*Attribute:*

*Attribute\_Label:* ID

*Attribute\_Definition:*

A unique identifier that links to the BIO\_LUT table. ID is a concatenation of atlas

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number (70), 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 North Slope ESI Atlas (SPECIES ID, NAME): 11, Tundra; 12, Canada goose; 13, Brant; 14, Greater whitefronted goose; 15, Snow goose; 27, Oldsquaw; 80, Arctic tern; 81, Horned puffin; 82, Glaucous gull; 103, Common eider; 112, Black guillemot; 114, Sabine's gull; 158, King eider; 159, Steller's eider; 396, Phalaropes; 408, Yellow-billed loon; 415, Spectacled eider; 1003, Waterfowl.

*Attribute\_Definition\_Source:* NOAA

*Attribute\_Domain\_Values:*

*Range\_Domain:*

*Range\_Domain\_Minimum:* 700100001

*Range\_Domain\_Maximum:* 700199999

*Beginning\_Date\_of\_Attribute\_Values:* 199811

*Ending\_Date\_of\_Attribute\_Values:* 199906

---

*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 North Slope, Alaska

*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*).

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*Metadata\_Reference\_Information:*

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*Metadata\_Date:* 200006  
*Metadata\_Review\_Date:* 200006  
*Metadata\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Jill Petersen  
*Contact\_Organization:* NOAA, Office of Response and Restoration  
*Contact\_Position:* GIS Manager  
*Contact\_Address:*

*Address\_Type:* Physical Address  
*Address:* 7600 Sand Point Way N.E.  
*City:* Seattle  
*State\_or\_Province:* Washington  
*Postal\_Code:* 98115-6349

*Contact\_Voice\_Telephone:* (206) 526-6944  
*Contact\_Facsimile\_Telephone:* (206) 526-6329  
*Contact\_Electronic\_Mail\_Address:* jill\_petersen@hazmat.noaa.gov.us

*Metadata\_Standard\_Name:* Content Standards for Digital Geospatial Metadata  
*Metadata\_Standard\_Version:* FGDC-STD-001-1998

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# North Slope, Alaska ESI: Nests

## 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 and the Alaska Department of Environmental Conservation

*Publication Date:* 200006

*Title:* North Slope, Alaska ESI: Nests

*Edition:* First

*Geospatial Data Presentation Form:* Atlas

#### *Series Information:*

*Series Name:* None

*Issue Identification:* North Slope, Alaska

#### *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 and the Alaska Department of Environmental Conservation

### *Description:*

#### *Abstract:*

This data set comprises the Environmental Sensitivity Index (ESI) data for the North Slope of Alaska from Point Barrow to the Canadian Border. 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.

#### *Purpose:*

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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:* 1997

*Ending\_Date:* 1999

*Currentness\_Reference:* Project time span

*Status:*

*Progress:* Complete

*Maintenance\_and\_Update\_Frequency:* None Scheduled

*Spatial\_Domain:*

*Bounding\_Coordinates:*

*West\_Bounding\_Coordinate:* -156.581

*East\_Bounding\_Coordinate:* -140.309

*North\_Bounding\_Coordinate:* 71.479

*South\_Bounding\_Coordinate:* 67.917

*Keywords:*

*Theme:*

*Theme\_Keyword\_Thesaurus:* None

*Theme\_Keyword:* Sensitivity Maps

*Theme\_Keyword:* ESI

*Theme\_Keyword:* Coastal resources

*Theme\_Keyword:* Oil spill planning

*Theme\_Keyword:* Coastal zone management

*Theme\_Keyword:* Nesting colonies

*Place:*

*Place\_Keyword\_Thesaurus:* None

*Place\_Keyword:* North Slope, Alaska

*Place\_Keyword:* Point Barrow

*Place\_Keyword:* Beaufort sea

*Place\_Keyword:* NPR-A

*Place\_Keyword:* Arctic NWR

*Place\_Keyword:* Prudhoe Bay

*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.

*Data\_Set\_Credit:*

This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington and Alaska Department of Environmental Conservation

*Native\_Data\_Set\_Environment:*

The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 7.2.1) and ORACLE(r) RDBMS (version 6.0.36.1.1). The hardware configuration is Hewlett Packard workstations (models 715/50 and 712/80i with 4 X-terminals) with

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UNIX operating system (HP-UX Release A.09.01). The following files are included in the data set: bio\_lut.e00, biofile.e00, biores.e00, birds.e00, breed.e00, breed\_dt.e00, esi.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, m\_mammal.e00, m\_mampt.e00, mgt.e00, nests.e00, seasonal.e00, soc\_dat.e00, soc\_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t\_mammal.e00.

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#### *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 bird nesting colony information was obtained in digital format or data tables. 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. The first layer of information digitized is the ESI shoreline classification. The ESI habitat ranking is compiled onto 1:63,360 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, 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. The hardcopy biological information is compiled onto 1:250,000 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 1:250,000 scale). A team of specialists reviews the entire series of maps, checks all data, and makes final edits. The data are then merged to form the study-wide layers. The data merging includes a final quality control check where labels, chains, and polygons are checked for attribute accuracy. To finalize the data checking process, each coverage is checked using a standardized form by two GIS personnel (a technician and the GIS manager), and each attribute database is checked using several programs that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and ORACLE(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where the data are written to tape and the metadata are written. 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 also distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats. 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 U.S. 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. Five major categories, or ELEMENTs, of biological resources were considered during data compilation: birds; fish; habitats; marine mammals; and terrestrial mammals. The ELEMENTs generally correspond to the coverage or geographic data layer names. There are also six attribute, or data tables, BIORES, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, that are used to store the complex biological data. The point coverage (NESTS) is linked to the Biological Resources table (BIORES) using the unique ID and the lookup table BIO\_LUT, or it can be linked directly using RARNUM. [The ID is a unique combination of the atlas number (for North Slope this is 70), 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 other data tables (primarily the SPECIES table). 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), the date the list of Natural Heritage Program (NHP) ranks was published (DATE\_PUB), biological element (ELEMENT), biological subelement (SUBELEMENT), and the NHP global conservation status rank. The item SUBELEMENT refers to the grouping of the species: (ELEMENT, subelement): NESTS: arctic tern; Horned puffin; glaucous gull; Common eider; Black guillemot; Sabine's gull. The STATUS data table contains records for each species that is threatened or endangered on state or federal lists. The items include: ELEMENT, SPECIES\_ID, STATE (two-letter state abbreviations), S\_F (state or federal status), T\_E (threatened or endangered status), DATE\_PUB, and EL\_SPE. The SEASONAL data table stores the monthly presence of each species where each species is defined as three-character monthly abbreviations. The BIORES table is linked to the SEASONAL table using either the combination of SPECIES\_ID, ELEMENT, and SEASON\_ID items, or the item EL\_SPE\_SEA, which contains the concatenation of these items. The BREED data table contains the life stage or life history data for each unique combination of ELEMENT, SPECIES\_ID, and SEASON\_ID (or EL\_SPE\_SEA), and up to 12 records (corresponding to each month of the year) can have different attributes and therefore separate records. The categories for each element of the items BREED1 through BREED5 are: BIRD: nesting, laying, hatching, fledging (BREED1 through BREED4 respectively). 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 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 SOURCE. 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 nesting data set is based on survey data. The accuracy is < 105 feet.

*Lineage:*

*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* Shawn Stephensen, USFWS

*Publication\_Date:* 1996

*Title:* Migratory Birds Database

*Geospatial\_Data\_Presentation\_Form:* Tabular digital data

*Publication\_Information:*

*Publication\_Place:* Anchorage, AK

*Publisher:* U.S. Department of Interior, U.S. Fish and Wildlife Service

*Type\_of\_Source\_Media:* Electronic bulletin board

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* 1996

*Source\_Currentness\_Reference:* Ground surveys

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Seabird nesting colony point 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

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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:* 1997-199909

*Process\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Jill Petersen

*Contact\_Organization:* NOAA, Office of Response and Restoration

*Contact\_Position:* GIS Manager

*Contact\_Address:*

*Address\_Type:* Physical address

*Address:* 7600 Sand Point Way N.E.

*City:* Seattle

*State\_or\_Province:* Washington

*Postal\_Code:* 98115-6349

*Contact\_Voice\_Telephone:* (206) 526-6944

*Contact\_Facsimile\_Telephone:* (206) 526-6329

*Contact\_Electronic\_Mail\_Address:* jill\_petersen@hazmat.noaa.gov.us

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*Spatial\_Data\_Organization\_Information:*

*Direct\_Spatial\_Reference\_Method:* Vector

*Point\_and\_Vector\_Object\_Information:*

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Entity point

*Point\_and\_Vector\_Object\_Count:* 58

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*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

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*Ellipsoid\_Name:* Clarke 1866  
*Semi-major\_Axis:* 6378206.4  
*Denominator\_of\_Flattening\_Ratio:* 294.98

---

*Entity\_and\_Attribute\_Information:*

*Detailed\_Description:*

*Entity\_Type:*

*Entity\_Type\_Label:* Entity point

*Entity\_Type\_Definition:*

Nesting sites are of particular concern due to high concentrations of birds in adjacent waters, contamination of eggs and young by oiled adults and prey, and the potential for disturbance from response activities. Marine bird nesting sites - Locations are shown where marine birds have been documented as nesting. The nesting colonies range in size from 2 to 518 nests and average around 60 nests. This information was derived from the USFWS database dated January 1997. The USFWS is constantly updating this database, but this region had not been updated as of June 1998.

*Entity\_Type\_Definition\_Source:* Research Planning, Inc.

*Attribute:*

*Attribute\_Label:* RARNUM

*Attribute\_Definition:*

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

*Attribute\_Definition\_Source:* NOAA

*Attribute\_Domain\_Values:*

*Range\_Domain:*

*Range\_Domain\_Minimum:* 1

*Range\_Domain\_Maximum:* N

*Attribute:*

*Attribute\_Label:* ID

*Attribute\_Definition:*

A unique identifier that links to the BIO\_LUT table. ID is a concatenation of atlas number (70), element number (5), and record number. The following BIRD NEST species are found in the North Slope ESI Atlas (SPECIES ID, NAME): 80, arctic tern; 81, Horned puffin; 82, glaucous gull; 103, Common eider; 112, Black guillemot; 114, Sabine's gull.

*Attribute\_Definition\_Source:* NOAA

*Attribute\_Domain\_Values:*

*Range\_Domain:*

*Range\_Domain\_Minimum:* 700500001

*Range\_Domain\_Maximum:* 700599999

*Beginning\_Date\_of\_Attribute\_Values:* 199811

*Ending\_Date\_of\_Attribute\_Values:* 199906

---

*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 North Slope, Alaska*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:* 200006*Metadata\_Review\_Date:* 200006*Metadata\_Contact:**Contact\_Information:**Contact\_Person\_Primary:**Contact\_Person:* Jill Petersen*Contact\_Organization:* NOAA, Office of Response and Restoration*Contact\_Position:* GIS Manager*Contact\_Address:**Address\_Type:* Physical Address*Address:* 7600 Sand Point Way N.E.*City:* Seattle*State\_or\_Province:* Washington



*Postal\_Code:* 98115-6349

*Contact\_Voice\_Telephone:* (206) 526-6944

*Contact\_Facsimile\_Telephone:* (206) 526-6329

*Contact\_Electronic\_Mail\_Address:* [jill\\_petersen@hazmat.noaa.gov.us](mailto:jill_petersen@hazmat.noaa.gov.us)

*Metadata\_Standard\_Name:* Content Standards for Digital Geospatial Metadata

*Metadata\_Standard\_Version:* FGDC-STD-001-1998

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# North Slope, Alaska ESI: Fishl

## Metadata:

- [Identification Information](#)
- [Data Quality Information](#)
- [Spatial Data Organization Information](#)
- [Spatial Reference Information](#)
- [Entity and Attribute Information](#)
- [Distribution Information](#)
- [Metadata Reference Information](#)

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### *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 and the Alaska Department of Environmental Conservation

*Publication Date:* 200006

*Title:* North Slope, Alaska ESI: Fishl

*Edition:* First

*Geospatial Data Presentation Form:* Atlas

##### *Series Information:*

*Series Name:* None

*Issue Identification:* North Slope, Alaska

##### *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 and the Alaska Department of Environmental Conservation

#### *Description:*

##### *Abstract:*

This data set comprises the Environmental Sensitivity Index (ESI) data for the North Slope of Alaska from Point Barrow to the Canadian Border. ESI data characterize estuarine environments and wildlife by their sensitivity to spilled oil. The ESI data includes information for three main components: shoreline habitat, sensitive biological resources, and human-use resources.

##### *Purpose:*

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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:* 1997

*Ending\_Date:* 1999

*Currentness\_Reference:* Project time span

*Status:*

*Progress:* Complete

*Maintenance\_and\_Update\_Frequency:* None Scheduled

*Spatial\_Domain:*

*Bounding\_Coordinates:*

*West\_Bounding\_Coordinate:* -156.581

*East\_Bounding\_Coordinate:* -140.309

*North\_Bounding\_Coordinate:* 71.479

*South\_Bounding\_Coordinate:* 67.917

*Keywords:*

*Theme:*

*Theme\_Keyword\_Thesaurus:* None

*Theme\_Keyword:* Sensitivity Maps

*Theme\_Keyword:* ESI

*Theme\_Keyword:* Coastal resources

*Theme\_Keyword:* Oil spill planning

*Theme\_Keyword:* Coastal zone management

*Theme\_Keyword:* Fish

*Place:*

*Place\_Keyword\_Thesaurus:* None

*Place\_Keyword:* North Slope, Alaska

*Place\_Keyword:* Point Barrow

*Place\_Keyword:* Beaufort sea

*Place\_Keyword:* NPR-A

*Place\_Keyword:* Arctic NWR

*Place\_Keyword:* Prudhoe Bay

*Access\_Constraints:* None

*Use\_Constraints:*

DO NOT USE ESI MAPS FOR NAVIGATIONAL PURPOSES. Besides the above warning, there are no use constraints on these data. Acknowledgment of the publishers and contributing sources listed in Data\_Set\_Credit (below) would be appreciated in products derived from these data.

*Data\_Set\_Credit:*

This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington and the Alaska Department of Environmental Conservation

*Native\_Data\_Set\_Environment:*

The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 7.2.1) and ORACLE(r) RDBMS (version 6.0.36.1.1). The hardware configuration is Hewlett Packard workstations (models 715/50 and 712/80i with 4 X-terminals) with

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UNIX operating system (HP-UX Release A.09.01). The following files are included in the data set: bio\_lut.e00, biofile.e00, biores.e00, birds.e00, breed.e00, breed\_dt.e00, esi.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, m\_mammal.e00, m\_mampt.e00, mgt.e00, nests.e00, seasonal.e00, soc\_dat.e00, soc\_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t\_mammal.e00.

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### *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. The first layer of information digitized is the ESI shoreline classification. The ESI habitat ranking is compiled onto 1:63,360 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, 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. The hardcopy biological information is compiled onto 1:250,000 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 1:250,000 scale). A team of specialists reviews the entire series of maps, checks all data, and makes final edits. The data are then merged to form the study-wide layers. The data merging includes a final quality control check where labels, chains, and polygons are checked for attribute accuracy. To finalize the data checking process, each coverage is checked using a standardized form by two GIS personnel (a technician and the GIS manager), and each attribute database is checked using several programs that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and ORACLE(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where the data are written to tape and the metadata are written. 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 also distributed both in the NOAA

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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 U.S. 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. Five major categories, or ELEMENTs, of biological resources were considered during data compilation: birds; fish; habitats; marine mammals; and terrestrial mammals. The ELEMENTs generally correspond to the coverage or geographic data layer names. There are also six attribute, or data tables, BIORES, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, that are used to store the complex biological data. The biological line coverage (FISH) is linked to the Biological Resources table (BIORES) using the unique ID and the lookup table BIO\_LUT, or it can be linked directly using RARNUM. [The ID is a unique combination of the atlas number (for North Slope this is 70), 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 other data tables (primarily the SPECIES table). 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), the date the list of Natural Heritage Program (NHP) ranks was published (DATE\_PUB), biological element (ELEMENT), biological subelement (SUBELEMENT), and the NHP global conservation status rank. The item SUBELEMENT refers to the grouping of the species: (ELEMENT, subelement): FISH: diadromous; freshwater. The STATUS data table contains records for each species that is threatened or endangered on state or federal lists. The items include: ELEMENT, SPECIES\_ID, STATE (two-letter state abbreviations), S\_F (state or federal status), T\_E (threatened or endangered status), DATE\_PUB, and EL\_SPE. The SEASONAL data table stores the monthly presence of each species where each species is defined as three-character monthly abbreviations. The BIORES table is linked to the SEASONAL table using either the combination of SPECIES\_ID, ELEMENT, and SEASON\_ID items, or the item EL\_SPE\_SEA, which contains the concatenation of these items. The BREED data table contains the life stage or life history data for each unique combination of ELEMENT, SPECIES\_ID, and SEASON\_ID (or EL\_SPE\_SEA), and up to 12 records (corresponding to each month of the year) can have different attributes and therefore separate records. The categories for each element of the items BREED1 through BREED5 are: FISH: spawning, eggs, larvae, juveniles, adults (BREED1 through BREED5 respectively). 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 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 SOURCE. 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 1:250,000 USGS quadrangles are used as a base map 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:* Alaska Department of Fish and Game

*Publication\_Date:* 1992

*Title:* An Atlas to the Catalog of Waters Important for Anadromous Fish: Arctic Region

*Geospatial\_Data\_Presentation\_Form:* Vector digital data

*Publication\_Information:*

*Publication\_Place:* Juneau, AK

*Publisher:* Alaska Department of Fish and Game, Division of Habitat

*Type\_of\_Source\_Media:* Electronic mail

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* 1991

*Source\_Currentness\_Reference:* Ground surveys

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Fish streams

*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:* 1997-199909*Process\_Contact:**Contact\_Information:**Contact\_Person\_Primary:**Contact\_Person:* Jill Petersen*Contact\_Organization:* NOAA, Office of Response and Restoration*Contact\_Position:* GIS Manager*Contact\_Address:**Address\_Type:* Physical address*Address:* 7600 Sand Point Way N.E.*City:* Seattle*State\_or\_Province:* Washington*Postal\_Code:* 98115-6349*Contact\_Voice\_Telephone:* (206) 526-6944*Contact\_Facsimile\_Telephone:* (206) 526-6329*Contact\_Electronic\_Mail\_Address:* jill\_petersen@hazmat.noaa.gov.us

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*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:* 211*SDTS\_Terms\_Description:**SDTS\_Point\_and\_Vector\_Object\_Type:* Link*Point\_and\_Vector\_Object\_Count:* 25876*SDTS\_Terms\_Description:**SDTS\_Point\_and\_Vector\_Object\_Type:* Node, planar graph*Point\_and\_Vector\_Object\_Count:* 249

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*Spatial\_Reference\_Information:**Horizontal\_Coordinate\_System\_Definition:**Geographic:**Latitude\_Resolution:* 0.00005*Longitude\_Resolution:* 0.00005*Geographic\_Coordinate\_Units:* Decimal Degrees*Geodetic\_Model:**Horizontal\_Datum\_Name:* North American Datum of 1927*Ellipsoid\_Name:* Clarke 1866*Semi-major\_Axis:* 6378206.4*Denominator\_of\_Flattening\_Ratio:* 294.98

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*Entity\_and\_Attribute\_Information:**Detailed\_Description:**Entity\_Type:**Entity\_Type\_Label:* Chain*Entity\_Type\_Definition:*

Anadromous fish streams - The streams shown are those which have been classified by Alaska Department of Fish and Game as anadromous streams. The anadromous species include pink salmon, chum salmon, Arctic char (dolly varden), cisco (least and Arctic cisco, broad and humpback whitefish), and Arctic grayling. Spawning starts in August (salmon) and extends through November (Arctic char). The juveniles outmigrate back to the ocean from May through June. Juvenile fish concentrate in shallow nearshore habitats. Because of the potential for higher exposures and increased sensitivity to oil when first entering seawater, these juveniles are especially susceptible to oil impacts.

*Entity\_Type\_Definition\_Source:* Research Planning, Inc.*Attribute:**Attribute\_Label:* RARNUM*Attribute\_Definition:*

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

*Attribute\_Definition\_Source:* NOAA*Attribute\_Domain\_Values:**Range\_Domain:**Range\_Domain\_Minimum:* 1*Range\_Domain\_Maximum:* N*Attribute:**Attribute\_Label:* ID*Attribute\_Definition:*

A unique identifier that links to the BIO\_LUT table. ID is a concatenation of atlas



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number (70), element number (2), and record number. The following FISH species are found in the North Slope ESI Atlas (SPECIES ID, NAME):70, Pink salmon (humpy); 72, Chum salmon (dog); 164, Cisco; 189, Artic char; 503, Artic greyling; 1022, Anadromous fish.

*Attribute\_Definition\_Source*: NOAA

*Attribute\_Domain\_Values*:

*Range\_Domain*:

*Range\_Domain\_Minimum*: 700200001

*Range\_Domain\_Maximum*: 700299999

*Beginning\_Date\_of\_Attribute\_Values*: 199811

*Ending\_Date\_of\_Attribute\_Values*: 199906

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*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 North Slope, Alaska

*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*).

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*Metadata\_Reference\_Information*:

*Metadata\_Date*: 200006

*Metadata\_Review\_Date*: 200006

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*Metadata\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Jill Petersen

*Contact\_Organization:* NOAA, Office of Response and Restoration

*Contact\_Position:* GIS Manager

*Contact\_Address:*

*Address\_Type:* Physical Address

*Address:* 7600 Sand Point Way N.E.

*City:* Seattle

*State\_or\_Province:* Washington

*Postal\_Code:* 98115-6349

*Contact\_Voice\_Telephone:* (206) 526-6944

*Contact\_Facsimile\_Telephone:* (206) 526-6329

*Contact\_Electronic\_Mail\_Address:* jill\_petersen@hazmat.noaa.gov.us

*Metadata\_Standard\_Name:* Content Standards for Digital Geospatial Metadata

*Metadata\_Standard\_Version:* FGDC-STD-001-1998

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# North Slope, Alaska ESI: Habitat

## 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 and the Alaska Department of Environmental Conservation

*Publication\_Date:* 200006

*Title:* North Slope, Alaska ESI: Habitat

*Edition:* First

*Geospatial\_Data\_Presentation\_Form:* Atlas

#### *Series\_Information:*

*Series\_Name:* None

*Issue\_Identification:* North Slope, Alaska

#### *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 and the Alaska Department of Environmental Conservation

### *Description:*

#### *Abstract:*

This data set comprises the Environmental Sensitivity Index (ESI) data for the North Slope of Alaska from Point Barrow to the Canadian Border. 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.

#### *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:* 1997

*Ending\_Date:* 1999

*Currentness\_Reference:* Project time span

*Status:*

*Progress:* Complete

*Maintenance\_and\_Update\_Frequency:* None Scheduled

*Spatial\_Domain:*

*Bounding\_Coordinates:*

*West\_Bounding\_Coordinate:* -156.581

*East\_Bounding\_Coordinate:* -140.309

*North\_Bounding\_Coordinate:* 71.479

*South\_Bounding\_Coordinate:* 67.917

*Keywords:*

*Theme:*

*Theme\_Keyword\_Thesaurus:* None

*Theme\_Keyword:* Sensitivity Maps

*Theme\_Keyword:* ESI

*Theme\_Keyword:* Coastal resources

*Theme\_Keyword:* Oil spill planning

*Theme\_Keyword:* Coastal zone management

*Theme\_Keyword:* Kelp

*Place:*

*Place\_Keyword\_Thesaurus:* None

*Place\_Keyword:* North Slope, Alaska

*Place\_Keyword:* Point Barrow

*Place\_Keyword:* Beaufort sea

*Place\_Keyword:* NPR-A

*Place\_Keyword:* Arctic NWR

*Place\_Keyword:* Prudhoe Bay

*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.

*Data\_Set\_Credit:*

This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington and the Alaska Department of Environmental Conservation

*Native\_Data\_Set\_Environment:*

The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 7.2.1) and ORACLE(r) RDBMS (version 6.0.36.1.1). The hardware configuration is Hewlett Packard workstations (models 715/50 and 712/80i with 4 X-terminals) with

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*Data\_Quality\_Information:*

*Attribute\_Accuracy:*

*Attribute\_Accuracy\_Report:*

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*Completeness\_Report:*

Biological information presented in this atlas was collected and compiled with the assistance of biologists from the U.S. 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. Five major categories, or ELEMENTs, of biological resources were considered during data compilation: birds; fish; habitats; marine mammals; and terrestrial mammals. The ELEMENTs generally correspond to the coverage or geographic data layer names. There are also six attribute, or data tables, BIORES, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, that are used to store the complex biological data. The biological polygon coverage (HABITATS) is linked to the Biological Resources table (BIORES) using the unique ID and the lookup table BIO\_LUT, or it can be linked directly using RARNUM. [The ID is a unique combination of the atlas number (for North Slope this is 70), 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 other data tables (primarily the SPECIES table). 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), the date the list of Natural Heritage Program (NHP) ranks was published (DATE\_PUB), biological element (ELEMENT), biological subelement (SUBELEMENT), and the NHP global conservation status rank. The item SUBELEMENT refers to the grouping of the species: (ELEMENT, subelement): HABITAT: kelp. The STATUS data table contains records for each species that is threatened or endangered on state or federal lists. The items include: ELEMENT, SPECIES\_ID, STATE (two-letter state abbreviations), S\_F (state or federal status), T\_E (threatened or endangered status), DATE\_PUB, and EL\_SPE. The SEASONAL data table stores the monthly presence of each species where each species is defined as three-character monthly abbreviations. The BIORES table is linked to the SEASONAL table using either the combination of SPECIES\_ID, ELEMENT, and SEASON\_ID items, or the item EL\_SPE\_SEA, which contains the concatenation of these items. The 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 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 SOURCE. 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 1:250,000 USGS quadrangles are used as a base map 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:* J. Winters, ADFG

*Publication\_Date:* 1998

*Title:* Kelp communities

*Geospatial\_Data\_Presentation\_Form:* Vector digital data

*Publication\_Information:*

*Publication\_Place:* Anchorage, AK

*Publisher:*

Most Environmentally Sensitive Areas (MESAs), ADFG,  
Habitat and Restoration Division

*Type\_of\_Source\_Media:* Electronic bulletin board

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* Unknown

*Source\_Currentness\_Reference:* Unknown

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Kelp polygons

*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* K. Ambrosius, BP Exploration  
*Publication\_Date:* 1998  
*Title:* Kelp Beds and Boulder Patches  
*Geospatial\_Data\_Presentation\_Form:* Vector digital data  
*Publication\_Information:*

*Publication\_Place:* Anchorage, AK  
*Publisher:* BP Exploration (Alaska) Inc.

*Source\_Scale\_Denominator:* 63360  
*Type\_of\_Source\_Media:* CD-ROM  
*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* Unknown

*Source\_Currentness\_Reference:* Unknown

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Kelp polygons

*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* USFWS, Fairbanks, Review edits

*Publication\_Date:* Unpublished material

*Title:* Kelp Bed Locations

*Geospatial\_Data\_Presentation\_Form:* map

*Source\_Scale\_Denominator:* 250000

*Type\_of\_Source\_Media:* Paper

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* 1999

*Source\_Currentness\_Reference:* Review edits

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Kelp polygons

*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:* 1997-199909

*Process\_Contact:*



*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Jill Petersen  
*Contact\_Organization:* NOAA, Office of Response and Restoration  
*Contact\_Position:* GIS Manager  
*Contact\_Address:*  
  
*Address\_Type:* Physical address  
*Address:* 7600 Sand Point Way N.E.  
*City:* Seattle  
*State\_or\_Province:* Washington  
*Postal\_Code:* 98115-6349  
*Contact\_Voice\_Telephone:* (206) 526-6944  
*Contact\_Facsimile\_Telephone:* (206) 526-6329  
*Contact\_Electronic\_Mail\_Address:* jill\_petersen@hazmat.noaa.gov.us

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*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:* 23

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Area point  
*Point\_and\_Vector\_Object\_Count:* 23

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Complete chain  
*Point\_and\_Vector\_Object\_Count:* 30

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Link  
*Point\_and\_Vector\_Object\_Count:* 5777

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Node, planar graph  
*Point\_and\_Vector\_Object\_Count:* 30

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*Spatial\_Reference\_Information:*

*Horizontal\_Coordinate\_System\_Definition:*

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*Geographic:**Latitude\_Resolution:* 0.00005*Longitude\_Resolution:* 0.00005*Geographic\_Coordinate\_Units:* Decimal Degrees*Geodetic\_Model:**Horizontal\_Datum\_Name:* North American Datum of 1927*Ellipsoid\_Name:* Clarke 1866*Semi-major\_Axis:* 6378206.4*Denominator\_of\_Flattening\_Ratio:* 294.98

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*Entity\_and\_Attribute\_Information:**Detailed\_Description:**Entity\_Type:**Entity\_Type\_Label:* GT Polygon*Entity\_Type\_Definition:*

Boulder fields/kelp beds - These areas are of special concern in the Beaufort Sea, since they are the only known areas with a hard substrate. The hard substrate allows the growth of kelp, soft corals, and anemones. As a result, numerous fish and invertebrates are associated with this habitat, prompting the state to classify the boulder fields as a Most Environmentally Sensitive Area.

*Entity\_Type\_Definition\_Source:* Research Planning, Inc.*Attribute:**Attribute\_Label:* RARNUM*Attribute\_Definition:*

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

*Attribute\_Definition\_Source:* NOAA*Attribute\_Domain\_Values:**Range\_Domain:**Range\_Domain\_Minimum:* 1*Range\_Domain\_Maximum:* N*Attribute:**Attribute\_Label:* ID*Attribute\_Definition:*

A unique identifier that links to the BIO\_LUT table. ID is a concatenation of atlas number (70), element number (3), and record number. ID values of 9999 are holes in polygons and do not contain information. The following HABITAT is found in the North Slope ESI Atlas (SPECIES ID, NAME): 413, Kelp.

*Attribute\_Definition\_Source:* NOAA*Attribute\_Domain\_Values:**Range\_Domain:**Range\_Domain\_Minimum:* 700300001

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*Range\_Domain\_Maximum:* 700399999  
*Beginning\_Date\_of\_Attribute\_Values:* 199811  
*Ending\_Date\_of\_Attribute\_Values:* 199906

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*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 North Slope, Alaska

*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*).

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*Metadata\_Reference\_Information:*

*Metadata\_Date:* 200006  
*Metadata\_Review\_Date:* 200006  
*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:*

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*Address\_Type:* Physical Address  
*Address:* 7600 Sand Point Way N.E.  
*City:* Seattle  
*State\_or\_Province:* Washington  
*Postal\_Code:* 98115-6349

*Contact\_Voice\_Telephone:* (206) 526-6944

*Contact\_Facsimile\_Telephone:* (206) 526-6329

*Contact\_Electronic\_Mail\_Address:* [jill\\_petersen@hazmat.noaa.gov](mailto:jill_petersen@hazmat.noaa.gov)

*Metadata\_Standard\_Name:* Content Standards for Digital Geospatial Metadata

*Metadata\_Standard\_Version:* FGDC-STD-001-1998

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# North Slope, Alaska ESI: Marine 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 and the Alaska Department of Environmental Conservation

*Publication Date:* 200006

*Title:* North Slope, Alaska ESI: Marine Mammals

*Edition:* First

*Geospatial Data Presentation Form:* Atlas

#### *Series Information:*

*Series Name:* None

*Issue Identification:* North Slope, Alaska

#### *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 and the Alaska Department of Environmental Conservation

### *Description:*

#### *Abstract:*

This data set comprises the Environmental Sensitivity Index (ESI) data for the North Slope of Alaska from Point Barrow to the Canadian Border. ESI data characterize estuarine environments and wildlife by their sensitivity to spilled oil. The ESI data includes information for three main components: shoreline habitat, sensitive biological resources, and human-use resources.

#### *Purpose:*

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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:* 1997

*Ending\_Date:* 1999

*Currentness\_Reference:* Project time span

*Status:*

*Progress:* Complete

*Maintenance\_and\_Update\_Frequency:* None Scheduled

*Spatial\_Domain:*

*Bounding\_Coordinates:*

*West\_Bounding\_Coordinate:* -156.581

*East\_Bounding\_Coordinate:* -140.309

*North\_Bounding\_Coordinate:* 71.479

*South\_Bounding\_Coordinate:* 67.917

*Keywords:*

*Theme:*

*Theme\_Keyword\_Thesaurus:* None

*Theme\_Keyword:* Sensitivity Maps

*Theme\_Keyword:* ESI

*Theme\_Keyword:* Coastal resources

*Theme\_Keyword:* Oil spill planning

*Theme\_Keyword:* Coastal zone management

*Theme\_Keyword:* Marine mammal

*Place:*

*Place\_Keyword\_Thesaurus:* None

*Place\_Keyword:* North Slope, Alaska

*Place\_Keyword:* Point Barrow

*Place\_Keyword:* Beaufort sea

*Place\_Keyword:* NPR-A

*Place\_Keyword:* Arctic NWR

*Place\_Keyword:* Prudhoe Bay

*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.

*Data\_Set\_Credit:*

This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington and Alaska Department of Environmental Conservation

*Native\_Data\_Set\_Environment:*

The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 7.2.1) and ORACLE(r) RDBMS (version 6.0.36.1.1). The hardware configuration is Hewlett Packard workstations (models 715/50 and 712/80i with 4 X-terminals) with

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UNIX operating system (HP-UX Release A.09.01). The following files are included in the data set: bio\_lut.e00, biofile.e00, biores.e00, birds.e00, breed.e00, breed\_dt.e00, esi.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, m\_mammal.e00, m\_mampt.e00, mgt.e00, nests.e00, seasonal.e00, soc\_dat.e00, soc\_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t\_mammal.e00.

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#### *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. The first layer of information digitized is the ESI shoreline classification. The ESI habitat ranking is compiled onto 1:63,360 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, 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. The hardcopy biological information is compiled onto 1:250,000 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 1:250,000 scale). A team of specialists reviews the entire series of maps, checks all data, and makes final edits. The data are then merged to form the study-wide layers. The data merging includes a final quality control check where labels, chains, and polygons are checked for attribute accuracy. To finalize the data checking process, each coverage is checked using a standardized form by two GIS personnel (a technician and the GIS manager), and each attribute database is checked using several programs that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and ORACLE(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where the data are written to tape and the metadata are written. 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 also distributed both in the NOAA

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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 U.S. 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. Five major categories, or ELEMENTs, of biological resources were considered during data compilation: birds; fish; habitats; marine mammals; and terrestrial mammals. The ELEMENTs generally correspond to the coverage or geographic data layer names. There are also six attribute, or data tables, BIORES, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, that are used to store the complex biological data. The biological polygon coverage (M\_MAMMAL) is linked to the Biological Resources table (BIORES) using the unique ID and the lookup table BIO\_LUT, or it can be linked directly using RARNUM. [The ID is a unique combination of the atlas number (for North Slope this is 70), 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 other data tables (primarily the SPECIES table). 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), the date the list of Natural Heritage Program (NHP) ranks was published (DATE\_PUB), biological element (ELEMENT), biological subelement (SUBELEMENT), and the NHP global conservation status rank. The item SUBELEMENT refers to the grouping of the species: (ELEMENT, subelement): MARINE MAMMAL: pinniped; polar bear; 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 abbreviations), S\_F (state or federal status), T\_E (threatened or endangered status), DATE\_PUB, and EL\_SPE. The SEASONAL data table stores the monthly presence of each species where each species is defined as three-character monthly abbreviations. The BIORES table is linked to the SEASONAL table using either the combination of SPECIES\_ID, ELEMENT, and SEASON\_ID items, or the item EL\_SPE\_SEA, which contains the concatenation of these items. The BREED data table contains the life stage or life history data for each unique combination of ELEMENT, SPECIES\_ID, and SEASON\_ID (or EL\_SPE\_SEA), and up to 12 records (corresponding to each month of the year) can have different attributes and therefore separate records. The categories for each element of the items BREED1 through BREED5 are: M\_MAMMAL: mating, calving, den/pupping, molting (BREED1 through BREED4 respectively). 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 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 SOURCE. 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 1:250,000 USGS quadrangles are used as a base map 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:* Tracy, S. MMS

*Publication\_Date:* 1998

*Title:* Marine Mammal locations

*Geospatial\_Data\_Presentation\_Form:* Tabular digital data

*Publication\_Information:*

*Publication\_Place:* Anchorage, AK

*Publisher:* MMS

*Type\_of\_Source\_Media:* Electronic mail

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Range\_of\_Dates/Times:*

*Beginning\_Date:* 1985

*Ending\_Date:* 1998

*Source\_Currentness\_Reference:* Aerial survey data

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Whale and seal polygons

*Source\_Information:*

*Source\_Citation:**Citation\_Information:*

*Originator:* W. Horowitz, MMS  
*Publication\_Date:* 1998  
*Title:* Bowhead Whale Locations  
*Geospatial\_Data\_Presentation\_Form:* Vector digital data  
*Publication\_Information:*

*Publication\_Place:* Anchorage, AK

*Publisher:* MMS

*Type\_of\_Source\_Media:* Electronic mail

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:**Range\_of\_Dates/Times:*

*Beginning\_Date:* 1985

*Ending\_Date:* 1998

*Source\_Currentness\_Reference:* Aerial survey dates

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Bowhead whale polygons

*Source\_Information:**Source\_Citation:**Citation\_Information:*

*Originator:* ADF&G - Review Edits

*Publication\_Date:* Unpublished material

*Title:* Spotted Seal Haulouts

*Geospatial\_Data\_Presentation\_Form:* Map

*Source\_Scale\_Denominator:* 250,000

*Type\_of\_Source\_Media:* Paper

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:**Single\_Date/Time:*

*Calendar\_Date:* 1999

*Source\_Currentness\_Reference:* Review edits

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Spotted seal polygons

*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*: 1997-199909

*Process\_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*: 98115-0070

*Contact\_Voice\_Telephone*: (206) 526-6944

*Contact\_Facsimile\_Telephone*: (206) 526-6329

*Contact\_Electronic\_Mail\_Address*: jill\_petersen@hazmat.noaa.gov.us

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*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*: 27

*SDTS\_Terms\_Description*:

*SDTS\_Point\_and\_Vector\_Object\_Type*: Area point

*Point\_and\_Vector\_Object\_Count*: 27

*SDTS\_Terms\_Description*:

*SDTS\_Point\_and\_Vector\_Object\_Type*: Complete chain

*Point\_and\_Vector\_Object\_Count*: 68

*SDTS\_Terms\_Description*:

*SDTS\_Point\_and\_Vector\_Object\_Type*: Link

*Point\_and\_Vector\_Object\_Count*: 1550

*SDTS\_Terms\_Description*:

*SDTS\_Point\_and\_Vector\_Object\_Type*: Node, planar graph

*Point\_and\_Vector\_Object\_Count*: 45

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*Spatial\_Reference\_Information:*

*Horizontal\_Coordinate\_System\_Definition:*

*Geographic:*

*Latitude\_Resolution:* 0.00005

*Longitude\_Resolution:* 0.00005

*Geographic\_Coordinate\_Units:* Decimal Degrees

*Geodetic\_Model:*

*Horizontal\_Datum\_Name:* North American Datum of 1927

*Ellipsoid\_Name:* Clarke 1866

*Semi-major\_Axis:* 6378206.4

*Denominator\_of\_Flattening\_Ratio:* 294.98

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*Entity\_and\_Attribute\_Information:*

*Detailed\_Description:*

*Entity\_Type:*

*Entity\_Type\_Label:* GT Polygon

*Entity\_Type\_Definition:*

Ringed seal - Ringed seals are associated with the floating shorefast-ice zone. They use this zone for pupping and breeding, with the pups being born in late March and April. The pups are extremely sensitive to oil contamination for the first 6 to 8 weeks, since their primary insulation is from fur and not from a thick layer of blubber.

Spotted seal - This species is a summer resident of the area. They arrive in the summer and haulout on sandy beaches and spits, and leave before freeze-up in October. There are no pupping activities in the study area. Bearded seal - This species can generally be found in the deeper waters and is associated with the pack ice. There is very little information on pupping in the study area, though it may occur. Beluga whale - This whale is found normally in the deeper waters off the continental shelf. In June and July they migrate along the ice leads from the Bering Sea to Canada. The summer concentration areas are east of the study area near the mouth of the Mackenzie River.

The fall migration route of the whales follows the continental shelf, even though some whales may be seen closer to shore. Bowhead whales - These whales are a federally endangered species, and their primary fall migration corridor is in the relatively shallow (20-50 m) waters near the shoreline. Bowhead whales are even sited in many of the bays along the shoreline during the fall migration. They follow the ice leads during both spring and fall migrations.

*Entity\_Type\_Definition\_Source:* Research Planning, Inc.

*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:*

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*Range\_Domain:*

*Range\_Domain\_Minimum:* 1  
*Range\_Domain\_Maximum:* N

*Attribute:*

*Attribute\_Label:* ID

*Attribute\_Definition:*

A unique identifier that links to the BIO\_LUT table. ID is a concatenation of atlas number (70), element number (4), and record number. ID values of 9999 are holes in polygons and do not contain information. The following MARINE MAMMAL species are found in the North Slope ESI Atlas (SPECIES ID, NAME): 9, Beluga whale; 15, Bearded seal; 91, Spotted seal; 92, Ringed seal; 95, Bowhead whale.

*Attribute\_Definition\_Source:* NOAA

*Attribute\_Domain\_Values:*

*Range\_Domain:*

*Range\_Domain\_Minimum:* 700400001

*Range\_Domain\_Maximum:* 700499999

*Beginning\_Date\_of\_Attribute\_Values:* 199811

*Ending\_Date\_of\_Attribute\_Values:* 199906

---

*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 North Slope, Alaska

*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:* 200006  
*Metadata\_Review\_Date:* 200006  
*Metadata\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Jill Petersen  
*Contact\_Organization:* NOAA, Office of Response and Restoration  
*Contact\_Position:* GIS Manager  
*Contact\_Address:*

*Address\_Type:* Physical Address  
*Address:* 7600 Sand Point Way N.E.  
*City:* Seattle  
*State\_or\_Province:* Washington  
*Postal\_Code:* 98115-6349

*Contact\_Voice\_Telephone:* (206) 526-6944  
*Contact\_Facsimile\_Telephone:* (206) 526-6329  
*Contact\_Electronic\_Mail\_Address:* jill\_petersen@hazmat.noaa.gov.us

*Metadata\_Standard\_Name:* Content Standards for Digital Geospatial Metadata  
*Metadata\_Standard\_Version:* FGDC-STD-001-1998

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# North Slope, Alaska ESI: Marine Mammal Point

## Metadata:

- [Identification Information](#)
- [Data Quality Information](#)
- [Spatial Data Organization Information](#)
- [Spatial Reference Information](#)
- [Entity and Attribute Information](#)
- [Distribution Information](#)
- [Metadata Reference Information](#)

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### *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 and the Alaska Department of Environmental Conservation

*Publication\_Date:* 200006

*Title:* North Slope, Alaska ESI: Marine Mammal Point

*Edition:* First

*Geospatial\_Data\_Presentation\_Form:* Atlas

#### *Series\_Information:*

*Series\_Name:* None

*Issue\_Identification:* North Slope, Alaska

#### *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 and the Alaska Department of Environmental Conservation

#### *Description:*

#### *Abstract:*

This data set comprises the Environmental Sensitivity Index (ESI) data for the North Slope of Alaska from Point Barrow to the Canadian Border. 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.

*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:* 1997

*Ending\_Date:* 1999

*Currentness\_Reference:* Project time span

*Status:*

*Progress:* Complete

*Maintenance\_and\_Update\_Frequency:* None Scheduled

*Spatial\_Domain:*

*Bounding\_Coordinates:*

*West\_Bounding\_Coordinate:* -156.581

*East\_Bounding\_Coordinate:* -140.309

*North\_Bounding\_Coordinate:* 71.479

*South\_Bounding\_Coordinate:* 67.917

*Keywords:*

*Theme:*

*Theme\_Keyword\_Thesaurus:* None

*Theme\_Keyword:* Sensitivity Maps

*Theme\_Keyword:* ESI

*Theme\_Keyword:* Coastal resources

*Theme\_Keyword:* Oil spill planning

*Theme\_Keyword:* Coastal zone management

*Theme\_Keyword:* Marine mammal

*Place:*

*Place\_Keyword\_Thesaurus:* None

*Place\_Keyword:* North Slope, Alaska

*Place\_Keyword:* Point Barrow

*Place\_Keyword:* Beaufort sea

*Place\_Keyword:* NPR-A

*Place\_Keyword:* Arctic NWR

*Place\_Keyword:* Prudhoe Bay

*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.

*Data\_Set\_Credit:*

This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington and the Alaska Department of Environmental Conservation.

*Native\_Data\_Set\_Environment:*

The software packages used to develop the atlas are Environmental Systems Research Institute's



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ARC/INFO(r) (version 7.2.1) and ORACLE(r) RDBMS (version 6.0.36.1.1). 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.09.01). The following files are included in the data set: bio\_lut.e00, biofile.e00, biores.e00, birds.e00, breed.e00, breed\_dt.e00, esi.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, m\_mammal.e00, m\_mampt.e00, mgt.e00, nests.e00, seasonal.e00, soc\_dat.e00, soc\_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t\_mammal.e00.

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#### *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. The first layer of information digitized is the ESI shoreline classification. The ESI habitat ranking is compiled onto 1:63,360 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, 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. The hardcopy biological information is compiled onto 1:250,000 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 1:250,000 scale). A team of specialists reviews the entire series of maps, checks all data, and makes final edits. The data are then merged to form the study-wide layers. The data merging includes a final quality control check where labels, chains, and polygons are checked for attribute accuracy. To finalize the data checking process, each coverage is checked using a standardized form by two GIS personnel (a technician and the GIS manager), and each attribute database is checked using several programs that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and ORACLE(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where the data are written to tape and the metadata are written. 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 also distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats. 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 U.S. 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. Five major categories, or ELEMENTs, of biological resources were considered during data compilation: birds; fish; habitats; marine mammals; and terrestrial mammals. The ELEMENTs generally correspond to the coverage or geographic data layer names. There are also six attribute, or data tables, BIORES, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, that are used to store the complex biological data. The point coverage for marine mammals (M\_MAMPT) is linked to the Biological Resources table (BIORES) using the unique ID and the lookup table BIO\_LUT, or it can be linked directly using RARNUM. [The ID is a unique combination of the atlas number (for North Slope this is 70), 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 other data tables (primarily the SPECIES table). 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), the date the list of Natural Heritage Program (NHP) ranks was published (DATE\_PUB), biological element (ELEMENT), biological subelement (SUBELEMENT), and the NHP global conservation status rank. The item SUBELEMENT refers to the grouping of the species: (ELEMENT, subelement): MARINE MAMMAL: polar bear. The STATUS data table contains records for each species that is threatened or endangered on state or federal lists. The items include: ELEMENT, SPECIES\_ID, STATE (two-letter state abbreviations), S\_F (state or federal status), T\_E (threatened or endangered status), DATE\_PUB, and EL\_SPE. The SEASONAL data table stores the monthly presence of each species where each species is defined as three-character monthly abbreviations. The BIORES table is linked to the SEASONAL table using either the combination of SPECIES\_ID, ELEMENT, and SEASON\_ID items, or the item EL\_SPE\_SEA, which contains the concatenation of these items. The BREED data table contains the life stage or life history data for each unique combination of ELEMENT, SPECIES\_ID, and SEASON\_ID (or EL\_SPE\_SEA), and up to 12 records (corresponding to each month of the year) can have different attributes and therefore separate records. The categories for each element of the items BREED1 through BREED5 are: M\_MAMMAL: mating, calving, den/pupping, molting (BREED1 through BREED4 respectively). 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 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 SOURCE. 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 1:250,000 USGS quadrangles are used as a base map 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:* S. Kalxdorff, USFWS

*Publication\_Date:* 1998

*Title:* Polar Bear Den Locations

*Geospatial\_Data\_Presentation\_Form:* Tabular digital data

*Publication\_Information:*

*Publication\_Place:* Anchorage, AK

*Publisher:* U.S. Department Of Interior, U.S. Fish and Wildlife Service

*Type\_of\_Source\_Media:* Electronic mail

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Range\_of\_Dates/Times:*

*Beginning\_Date:* 1970

*Ending\_Date:* 1998

*Source\_Currentness\_Reference:* Ground survey dates

*Source\_Citation\_Abbreviation:* None

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*Source\_Contribution:* Polar den points  
*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:* 1997-199909

*Process\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Jill Petersen

*Contact\_Organization:* NOAA, Office of Response and Restoration

*Contact\_Position:* GIS Manager

*Contact\_Address:*

*Address\_Type:* Physical address

*Address:* 7600 Sand Point Way N.E.

*City:* Seattle

*State\_or\_Province:* Washington

*Postal\_Code:* 98115-6349

*Contact\_Voice\_Telephone:* (206) 526-6944

*Contact\_Facsimile\_Telephone:* (206) 526-6329

*Contact\_Electronic\_Mail\_Address:* jill\_petersen@hazmat.noaa.gov.us

---

*Spatial\_Data\_Organization\_Information:*

*Direct\_Spatial\_Reference\_Method:* Vector

*Point\_and\_Vector\_Object\_Information:*

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Entity point

*Point\_and\_Vector\_Object\_Count:* 113

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*Spatial\_Reference\_Information:*

*Horizontal\_Coordinate\_System\_Definition:*

*Geographic:**Latitude\_Resolution:* 0.00005*Longitude\_Resolution:* 0.00005*Geographic\_Coordinate\_Units:* Decimal Degrees*Geodetic\_Model:**Horizontal\_Datum\_Name:* North American Datum of 1927*Ellipsoid\_Name:* Clarke 1866*Semi-major\_Axis:* 6378206.4*Denominator\_of\_Flattening\_Ratio:* 294.98*Entity\_and\_Attribute\_Information:**Detailed\_Description:**Entity\_Type:**Entity\_Type\_Label:* Entity point*Entity\_Type\_Definition:*

Polar bears are faithful to a den habitat type but not to a specific location. The point data on the map indicate historic locations of polar bear dens. The exact location of the dens cannot be predicted, since the dens are built into snowdrifts along bluffs or pressure ridges. On the ice, the den locations move from east to west with the floating ice. Only pregnant females den, starting in November and emerge in March or April. During the fall (October to November), polar bear feeding areas are concentrated on the shoreline, on barrier islands, and along the leads in the ice. Once the ocean is frozen over, the bears disperse onto the ice. Cross Island, Oliktok Point, Narwhal Island, Tigvariak Island, and Barter Island are areas where polar bears historically congregate to feed on carcasses.

*Entity\_Type\_Definition\_Source:* Research Planning, Inc.*Attribute:**Attribute\_Label:* RARNUM*Attribute\_Definition:*

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

*Attribute\_Definition\_Source:* NOAA*Attribute\_Domain\_Values:**Range\_Domain:**Range\_Domain\_Minimum:* 1*Range\_Domain\_Maximum:* N*Attribute:**Attribute\_Label:* ID*Attribute\_Definition:*

A unique identifier that links to the BIO\_LUT table. ID is a concatenation of atlas number (70), element number (8), and record number. The following MARINE MAMMAL point species are found in the North Slope ESI Atlas (SPECIES ID, NAME): 90, Polar bear.

*Attribute\_Definition\_Source:* NOAA

*Attribute\_Domain\_Values:*

*Range\_Domain:*

*Range\_Domain\_Minimum:* 700800001

*Range\_Domain\_Maximum:* 700899999

*Beginning\_Date\_of\_Attribute\_Values:* 199811

*Ending\_Date\_of\_Attribute\_Values:* 199906

---

*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 North Slope, Alaska

*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:* 200006

*Metadata\_Review\_Date:* 200006

*Metadata\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

---

*Contact\_Person:* Jill Petersen  
*Contact\_Organization:* NOAA, Office of Response and Restoration  
*Contact\_Position:* GIS Manager  
*Contact\_Address:*

*Address\_Type:* Physical Address  
*Address:* 7600 Sand Point Way N.E.  
*City:* Seattle  
*State\_or\_Province:* Washington  
*Postal\_Code:* 98115-6349

*Contact\_Voice\_Telephone:* (206) 526-6944  
*Contact\_Facsimile\_Telephone:* (206) 526-6329  
*Contact\_Electronic\_Mail\_Address:* jill\_petersen@hazmat.noaa.gov.us

*Metadata\_Standard\_Name:* Content Standards for Digital Geospatial Metadata  
*Metadata\_Standard\_Version:* FGDC-STD-001-1998

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# North Slope, Alaska ESI: Terrestrial Mammal

## 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 and the Alaska Department of Environmental Conservation

*Publication\_Date:* 200006

*Title:* North Slope, Alaska ESI: Terrestrial Mammal

*Edition:* First

*Geospatial\_Data\_Presentation\_Form:* Atlas

#### *Series\_Information:*

*Series\_Name:* None

*Issue\_Identification:* North Slope, Alaska

#### *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 and the Alaska Department of Environmental Conservation

### *Description:*

#### *Abstract:*

This data set comprises the Environmental Sensitivity Index (ESI) data for the North Slope of Alaska from Point Barrow to the Canadian Border. 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.

#### *Purpose:*



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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:* 1997

*Ending\_Date:* 1999

*Currentness\_Reference:* Project time span

*Status:*

*Progress:* Complete

*Maintenance\_and\_Update\_Frequency:* None Scheduled

*Spatial\_Domain:*

*Bounding\_Coordinates:*

*West\_Bounding\_Coordinate:* -156.581

*East\_Bounding\_Coordinate:* -140.309

*North\_Bounding\_Coordinate:* 71.479

*South\_Bounding\_Coordinate:* 67.917

*Keywords:*

*Theme:*

*Theme\_Keyword\_Thesaurus:* None

*Theme\_Keyword:* Sensitivity Maps

*Theme\_Keyword:* ESI

*Theme\_Keyword:* Coastal resources

*Theme\_Keyword:* Oil spill planning

*Theme\_Keyword:* Coastal zone management

*Theme\_Keyword:* Terrestrial mammal

*Place:*

*Place\_Keyword\_Thesaurus:* None

*Place\_Keyword:* North Slope, Alaska

*Place\_Keyword:* Point Barrow

*Place\_Keyword:* Beaufort sea

*Place\_Keyword:* NPR-A

*Place\_Keyword:* Arctic NWR

*Place\_Keyword:* Prudhoe Bay

*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.

*Data\_Set\_Credit:*

This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington and the Alaska Department of Environmental Conservation.

*Native\_Data\_Set\_Environment:*

The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 7.2.1) and ORACLE(r) RDBMS (version 6.0.36.1.1). The hardware configuration is Hewlett Packard workstations (models 715/50 and 712/80i with 4 X-terminals) with

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UNIX operating system (HP-UX Release A.09.01). The following files are included in the data set: bio\_lut.e00, biofile.e00, biores.e00, birds.e00, breed.e00, breed\_dt.e00, esi.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, m\_mammal.e00, m\_mampt.e00, mgt.e00, nests.e00, seasonal.e00, soc\_dat.e00, soc\_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t\_mammal.e00.

---

#### *Data\_Quality\_Information:*

##### *Attribute\_Accuracy:*

###### *Attribute\_Accuracy\_Report:*

The attribute accuracy is estimated to be "good" given the years of ESI experience, the data input methodology, the quality control review sessions, and the digital logical consistency checks.

##### *Logical\_Consistency\_Report:*

The digitization of shoreline types, biological resources, and human-use resources is a complex and highly quality-controlled process. Existing digital shoreline and wetlands data are integrated into a study-wide basemap. The first layer of information digitized is the ESI shoreline classification. The ESI habitat ranking is compiled onto 1:63,360 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, 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. The hardcopy biological information is compiled onto 1:250,000 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 1:250,000 scale). A team of specialists reviews the entire series of maps, checks all data, and makes final edits. The data are then merged to form the study-wide layers. The data merging includes a final quality control check where labels, chains, and polygons are checked for attribute accuracy. To finalize the data checking process, each coverage is checked using a standardized form by two GIS personnel (a technician and the GIS manager), and each attribute database is checked using several programs that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and ORACLE(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where the data are written to tape and the metadata are written. 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 also distributed both in the NOAA

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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 U.S. 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. Five major categories, or ELEMENTs, of biological resources were considered during data compilation: birds; fish; habitats; marine mammals; and terrestrial mammals. The ELEMENTs generally correspond to the coverage or geographic data layer names. There are also six attribute, or data tables, BIORES, BREED, SEASONAL, SOURCES, SPECIES, and STATUS, that are used to store the complex biological data. The biological polygon coverage (T\_MAMMAL) is linked to the Biological Resources table (BIORES) using the unique ID and the lookup table BIO\_LUT, or it can be linked directly using RARNUM. [The ID is a unique combination of the atlas number (for North Slope this is 70), 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 other data tables (primarily the SPECIES table). 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), the date the list of Natural Heritage Program (NHP) ranks was published (DATE\_PUB), biological element (ELEMENT), biological subelement (SUBELEMENT), and the NHP global conservation status rank. The item SUBELEMENT refers to the grouping of the species: (ELEMENT, subelement): TERRESTRIAL MAMMAL: Ungulate. The STATUS data table contains records for each species that is threatened or endangered on state or federal lists. The items include: ELEMENT, SPECIES\_ID, STATE (two-letter state abbreviations), S\_F (state or federal status), T\_E (threatened or endangered status), DATE\_PUB, and EL\_SPE. The SEASONAL data table stores the monthly presence of each species where each species is defined as three-character monthly abbreviations. The BIORES table is linked to the SEASONAL table using either the combination of SPECIES\_ID, ELEMENT, and SEASON\_ID items, or the item EL\_SPE\_SEA, which contains the concatenation of these items. The BREED data table contains the life stage or life history data for each unique combination of ELEMENT, SPECIES\_ID, and SEASON\_ID (or EL\_SPE\_SEA), and up to 12 records (corresponding to each month of the year) can have different attributes and therefore separate records. There are no BREED variables for T\_MAMMALS. 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 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 SOURCE. 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 1:250,000 USGS quadrangles are used as a base map 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:* P. Reynolds, USFWS

*Publication\_Date:* 1998

*Title:* Caribou Calving Areas

*Geospatial\_Data\_Presentation\_Form:* Vector digital data

*Publication\_Information:*

*Publication\_Place:* Anchorage, AK

*Publisher:* U.S. Department of Interior, U.S. Fish and Wildlife Service

*Type\_of\_Source\_Media:* Electronic mail

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* Unknown

*Source\_Currentness\_Reference:* Publication date

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Caribou polygons

*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* P. Reynolds, USFWS  
*Publication\_Date:* 1998  
*Title:* Surveys for Caribou Calving  
*Geospatial\_Data\_Presentation\_Form:* Vector digital data  
*Publication\_Information:*

*Publication\_Place:* Anchorage, AK  
*Publisher:* U.S. Department of Interior, U.S. Fish and Wildlife Service

*Type\_of\_Source\_Media:* Electronic mail  
*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* Unknown  
*Source\_Currentness\_Reference:* Publication date  
*Source\_Citation\_Abbreviation:* None  
*Source\_Contribution:* Caribou polygons  
*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* P. Reynolds, USFWS  
*Publication\_Date:* 1997  
*Title:* Moose Distributions  
*Geospatial\_Data\_Presentation\_Form:* Vector digital data  
*Publication\_Information:*

*Publication\_Place:* Anchorage, AK  
*Publisher:* U.S. Department of Interior, U.S. Fish and Wildlife Service

*Type\_of\_Source\_Media:* Electronic mail  
*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* Unknown  
*Source\_Currentness\_Reference:* Publication date  
*Source\_Citation\_Abbreviation:* None  
*Source\_Contribution:* Moose polygons  
*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* Bieganski, D. BLM  
*Publication\_Date:* 1997

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*Title:* Locations for Caribou During Calving Season  
*Geospatial\_Data\_Presentation\_Form:* Vector digital data  
*Publication\_Information:*

*Publication\_Place:* Fairbanks, AK  
*Publisher:* Northeast NPR-A IAP/EIS, U.S. DOI, BLM Northern District Office

*Type\_of\_Source\_Media:* CD-ROM

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Range\_of\_Dates/Times:*

*Beginning\_Date:* 1990

*Ending\_Date:* 1996

*Source\_Currentness\_Reference:* Ground survey

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Caribou polygons

*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* D. Bieganski, BLM

*Publication\_Date:* 1997

*Title:* Distribution of Moose

*Geospatial\_Data\_Presentation\_Form:* Vector digital data

*Publication\_Information:*

*Publication\_Place:* Fairbanks, AK

*Publisher:* Northeast NPR-A IAP/EIS, U.S. DOI, BLM Northern District Office

*Source\_Scale\_Denominator:* 1000000

*Type\_of\_Source\_Media:* CD-ROM

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* 1978

*Source\_Currentness\_Reference:* Content date

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Moose polygons

*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* ADF&G - Review Edits

*Publication\_Date:* Unpublished material

*Title:* Moose Concentration Area

*Geospatial\_Data\_Presentation\_Form:* Map

*Source\_Scale\_Denominator:* 250,000

*Type\_of\_Source\_Media:* Paper  
*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* 1999

*Source\_Currentness\_Reference:* Review edits

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Moose polygons

*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* USFWS, Fairbanks-Review Edits

*Publication\_Date:* Unpublished material

*Title:* Dall Sheep Migration

*Geospatial\_Data\_Presentation\_Form:* Map

*Source\_Scale\_Denominator:* 250,000

*Type\_of\_Source\_Media:* Paper

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* 1999

*Source\_Currentness\_Reference:* Review edits

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Dall sheep polygons

*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:* 1997-199909

*Process\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Jill Petersen

*Contact\_Organization:* NOAA, Office of Response and Restoration

*Contact\_Position:* GIS Manager

*Contact\_Address:*

*Address\_Type*: Physical address  
*Address*: 7600 Sand Point Way N.E.  
*City*: Seattle  
*State\_or\_Province*: Washington  
*Postal\_Code*: 98115-6349  
*Contact\_Voice\_Telephone*: (206) 526-6944  
*Contact\_Facsimile\_Telephone*: (206) 526-6329  
*Contact\_Electronic\_Mail\_Address*: jill\_petersen@hazmat.noaa.gov.us

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*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*: 28

*SDTS\_Terms\_Description*:

*SDTS\_Point\_and\_Vector\_Object\_Type*: Area point

*Point\_and\_Vector\_Object\_Count*: 28

*SDTS\_Terms\_Description*:

*SDTS\_Point\_and\_Vector\_Object\_Type*: Complete chain

*Point\_and\_Vector\_Object\_Count*: 43

*SDTS\_Terms\_Description*:

*SDTS\_Point\_and\_Vector\_Object\_Type*: Link

*Point\_and\_Vector\_Object\_Count*: 3332

*SDTS\_Terms\_Description*:

*SDTS\_Point\_and\_Vector\_Object\_Type*: Node, planar graph

*Point\_and\_Vector\_Object\_Count*: 29

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*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

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*Semi-major\_Axis:* 6378206.4  
*Denominator\_of\_Flattening\_Ratio:* 294.98

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*Entity\_and\_Attribute\_Information:*

*Detailed\_Description:*

*Entity\_Type:*

*Entity\_Type\_Label:* GT polygons

*Entity\_Type\_Definition:*

Caribou - Polygons on the map depict the caribou calving areas for three of the four major caribou herds on the North Slope. The caribou usually concentrate within these areas during calving (late May to June) but also may be found in other areas. The entire coastline is an insect-relief zone for the caribou. From mid-June through mid-August, when temperatures warm up and the wind dies down, insects force the caribou to seek refuge in and near the water. Moose - The Colville River is a winter concentration area for moose. As many as half of the moose present on the western North Slope overwinter along the Colville River.

*Entity\_Type\_Definition\_Source:* Research Planning, Inc.

*Attribute:*

*Attribute\_Label:* RARNUM

*Attribute\_Definition:*

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

*Attribute\_Definition\_Source:* NOAA

*Attribute\_Domain\_Values:*

*Range\_Domain:*

*Range\_Domain\_Minimum:* 1

*Range\_Domain\_Maximum:* N

*Attribute:*

*Attribute\_Label:* ID

*Attribute\_Definition:*

A unique identifier that links to the BIO\_LUT table. ID is a concatenation of atlas number (70), element number (9), and record number. ID values of 9999 are holes in polygons and do not contain information. The following TERRESTRIAL MAMMAL species are found in the North Slope ESI Atlas (SPECIES ID, NAME): 117, Moose; 118, Caribou; 122, Dall's sheep.

*Attribute\_Definition\_Source:* NOAA

*Attribute\_Domain\_Values:*

*Range\_Domain:*

*Range\_Domain\_Minimum:* 700900001

*Range\_Domain\_Maximum:* 70099999

*Beginning\_Date\_of\_Attribute\_Values:* 199811

*Ending\_Date\_of\_Attribute\_Values:* 199906

*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 North Slope, Alaska

*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*).

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*Metadata\_Reference\_Information:*

*Metadata\_Date:* 200006

*Metadata\_Review\_Date:* 200006

*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

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*Postal\_Code:* 98115-6349

*Contact\_Voice\_Telephone:* (206) 526-6944

*Contact\_Facsimile\_Telephone:* (206) 526-6329

*Contact\_Electronic\_Mail\_Address:* [jill\\_petersen@hazmat.noaa.gov.us](mailto:jill_petersen@hazmat.noaa.gov.us)

*Metadata\_Standard\_Name:* Content Standards for Digital Geospatial Metadata

*Metadata\_Standard\_Version:* FGDC-STD-001-1998

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# North Slope, Alaska ESI: Socioeconomic Points

## Metadata:

- [Identification Information](#)
- [Data Quality Information](#)
- [Spatial Data Organization Information](#)
- [Spatial Reference Information](#)
- [Entity and Attribute Information](#)
- [Distribution Information](#)
- [Metadata Reference Information](#)

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### *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 and the Alaska Department of Environmental Conservation

*Publication\_Date:* 200006

*Title:* North Slope, Alaska ESI: Socioeconomic Points

*Edition:* First

*Geospatial\_Data\_Presentation\_Form:* Atlas

#### *Series\_Information:*

*Series\_Name:* None

*Issue\_Identification:* North Slope, Alaska

#### *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 and the Alaska Department of Environmental Conservation

#### *Description:*

#### *Abstract:*

This data set comprises the Environmental Sensitivity Index (ESI) data for the North Slope of Alaska from Point Barrow to the Canadian Border. 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.

*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:* 1997

*Ending\_Date:* 1999

*Currentness\_Reference:* Project time span

*Status:*

*Progress:* Complete

*Maintenance\_and\_Update\_Frequency:* None Scheduled

*Spatial\_Domain:*

*Bounding\_Coordinates:*

*West\_Bounding\_Coordinate:* -156.581

*East\_Bounding\_Coordinate:* -140.309

*North\_Bounding\_Coordinate:* 71.479

*South\_Bounding\_Coordinate:* 67.917

*Keywords:*

*Theme:*

*Theme\_Keyword\_Thesaurus:* None

*Theme\_Keyword:* Sensitivity Maps

*Theme\_Keyword:* ESI

*Theme\_Keyword:* Coastal resources

*Theme\_Keyword:* Oil spill planning

*Theme\_Keyword:* Coastal zone management

*Theme\_Keyword:* Human-use features

*Theme\_Keyword:* Airport

*Theme\_Keyword:* Road

*Theme\_Keyword:* Pipeline

*Theme\_Keyword:* Oil facility

*Theme\_Keyword:* Mining

*Place:*

*Place\_Keyword\_Thesaurus:* None

*Place\_Keyword:* North Slope, Alaska

*Place\_Keyword:* Point Barrow

*Place\_Keyword:* Beaufort sea

*Place\_Keyword:* NPR-A

*Place\_Keyword:* Arctic NWR

*Place\_Keyword:* Prudhoe Bay

*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.

*Data\_Set\_Credit:*

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This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington and the Alaska Department of Environmental Conservation

*Native\_Data\_Set\_Environment:*

The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 7.2.1) and ORACLE(r) RDBMS (version 6.0.36.1.1). 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.09.01). The following files are included in the data set: bio\_lut.e00, biofile.e00, biores.e00, birds.e00, breed.e00, breed\_dt.e00, esi.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, m\_mammal.e00, m\_mampt.e00, mgt.e00, nests.e00, seasonal.e00, soc\_dat.e00, soc\_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t\_mammal.e00.

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*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. The first layer of information digitized is the ESI shoreline classification. The ESI habitat ranking is compiled onto 1:63,360 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, 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. The hardcopy biological information is compiled onto 1:250,000 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 1:250,000 scale). A team of specialists reviews the entire series of maps, checks all data, and makes final edits. The data are then merged to form the study-wide layers. The data merging includes a final quality control check where labels, chains, and polygons are checked for attribute accuracy. To finalize the data checking process, each coverage is checked using a standardized form by two GIS personnel (a technician and the GIS manager), and each attribute database is checked using several programs that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and ORACLE(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where the data are written to tape and the metadata are written. 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 also distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format. This metadata document includes information on both of these database formats. 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 socio-economic, features are included in ESI atlases. Entity points and complete chains (arcs) are digitized into the coverage SOCECON and managed area polygonal data are stored in the MGT coverage. 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 (70). ID is a concatenation of atlas number (70), element number (SOCECON = 10), and unique record number. The TYPE item for entity points may contain the following values: Airport, A; Mining, M2; Oil Facilities, OF. The TYPE item for complete chains may contain the following values: International Border, IB; Pipeline, PL; Roads, R; State Water Limit, SW. 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.

*Lineage:*

*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* K. Ambrosius, BP Exploration

*Publication\_Date:* Unpublished material

*Title:* Infrastructure points

*Geospatial\_Data\_Presentation\_Form:* Tabular digital data

*Type\_of\_Source\_Media:* CD-ROM

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* 1998

*Source\_Currentness\_Reference:* Production date

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Soc-econ points

*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* D. Mortenson, Alaska DNR

*Publication\_Date:* 1998

*Title:* Airports and Runways

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*Geospatial\_Data\_Presentation\_Form:* Vector digital data  
*Publication\_Information:*

*Publication\_Place:* Anchorage, Alaska

*Publisher:* ADNR

*Source\_Scale\_Denominator:* 63360

*Type\_of\_Source\_Media:* Electronic mail

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* 1995

*Source\_Currentness\_Reference:* Content date

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Airport location points

*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:* 1997-199909

*Process\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Jill Petersen

*Contact\_Organization:* NOAA, Office of Response and Restoration

*Contact\_Position:* GIS Manager

*Contact\_Address:*

*Address\_Type:* Physical address

*Address:* 7600 Sand Point Way N.E.

*City:* Seattle

*State\_or\_Province:* Washington

*Postal\_Code:* 98115-6349

*Contact\_Voice\_Telephone:* (206) 526-6944

*Contact\_Facsimile\_Telephone:* (206) 526-6329

*Contact\_Electronic\_Mail\_Address:* jill\_petersen@hazmat.noaa.gov.us

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*Spatial\_Data\_Organization\_Information:*



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*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:* 1067

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Link  
*Point\_and\_Vector\_Object\_Count:* 11761

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Entity point  
*Point\_and\_Vector\_Object\_Count:* 157

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Node, planar graph  
*Point\_and\_Vector\_Object\_Count:* 2943

---

*Spatial\_Reference\_Information:*

*Horizontal\_Coordinate\_System\_Definition:*

*Geographic:*

*Latitude\_Resolution:* 0.00005  
*Longitude\_Resolution:* 0.00005  
*Geographic\_Coordinate\_Units:* Decimal Degrees

*Geodetic\_Model:*

*Horizontal\_Datum\_Name:* North American Datum of 1927  
*Ellipsoid\_Name:* Clarke 1866  
*Semi-major\_Axis:* 6378206.4  
*Denominator\_of\_Flattening\_Ratio:* 294.98

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*Entity\_and\_Attribute\_Information:*

*Detailed\_Description:*

*Entity\_Type:*

*Entity\_Type\_Label:* Complete Chain  
*Entity\_Type\_Definition:*

The maps include other human-use resources and oceanographic features related to oil spill planning and response. Roads - All primary and secondary roads are shown. Pipelines - The major production pipelines, including the Trans Alaska Pipeline, are shown.

*Entity\_Type\_Definition\_Source*: Research Planning, Inc.  
*Attribute*:

*Attribute\_Label*: Type

*Attribute\_Definition*:

Identifies a line or point with a socio-economic, or human-use, feature. This attribute allows direct access to the type of feature instead of linking to the more detailed SOC\_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*: PL

*Enumerated\_Domain\_Value\_Definition*: Pipeline

*Enumerated\_Domain\_Value\_Definition\_Source*: Research Planning, Inc.

*Attribute\_Domain\_Values*:

*Enumerated\_Domain*:

*Enumerated\_Domain\_Value*: R

*Enumerated\_Domain\_Value\_Definition*: Road

*Enumerated\_Domain\_Value\_Definition\_Source*: Research Planning, Inc.

*Attribute\_Domain\_Values*:

*Enumerated\_Domain*:

*Enumerated\_Domain\_Value*: SW

*Enumerated\_Domain\_Value\_Definition*: State Water Limit

*Enumerated\_Domain\_Value\_Definition\_Source*: Research Planning, Inc.

*Beginning\_Date\_of\_Attribute\_Values*: 199811

*Ending\_Date\_of\_Attribute\_Values*: 199906

*Detailed\_Description*:

*Entity\_Type*:

*Entity\_Type\_Label*: Entity point

*Entity\_Type\_Definition*:

Airports - The airports depicted are all capable of handling small, twin-engine airplanes. Private, as well as public, airports have been included. Oil production facilities - Facilities related to oil production, as of November 1998, are depicted, including production wells, transfer facilities, and pumping stations.

*Entity\_Type\_Definition\_Source*: Research Planning, Inc.

*Attribute*:

*Attribute\_Label*: Type

*Attribute\_Definition*:

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

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*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*: M2

*Enumerated\_Domain\_Value\_Definition*: Mine Site

*Enumerated\_Domain\_Value\_Definition\_Source*: Research Planning, Inc.

*Attribute\_Domain\_Values*:

*Enumerated\_Domain*:

*Enumerated\_Domain\_Value*: OF

*Enumerated\_Domain\_Value\_Definition*: Oil Facilities

*Enumerated\_Domain\_Value\_Definition\_Source*: Research Planning, Inc.

*Beginning\_Date\_of\_Attribute\_Values*: 199811

*Ending\_Date\_of\_Attribute\_Values*: 199906

*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*: 1

*Range\_Domain\_Maximum*: N

*Attribute*:

*Attribute\_Label*: ID

*Attribute\_Definition*:

A unique identifier that links to the SOC\_LUT table. ID is a concatenation of atlas number (70), element number (10), and record number.

*Attribute\_Definition\_Source*: NOAA

*Attribute\_Domain\_Values*:

*Range\_Domain*:

*Range\_Domain\_Maximum*: 701000001

*Range\_Domain\_Minimum*: 701099999

*Beginning\_Date\_of\_Attribute\_Values*: 199811

*Ending\_Date\_of\_Attribute\_Values*: 199906

*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 North Slope, Alaska*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*).

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*Metadata\_Reference\_Information:**Metadata\_Date:* 200006*Metadata\_Review\_Date:* 200006*Metadata\_Contact:**Contact\_Information:**Contact\_Person\_Primary:**Contact\_Person:* Jill Petersen*Contact\_Organization:* NOAA, Office of Response and Restoration*Contact\_Position:* GIS Manager*Contact\_Address:**Address\_Type:* Physical Address*Address:* 7600 Sand Point Way N.E.*City:* Seattle*State\_or\_Province:* Washington*Postal\_Code:* 98115-6349*Contact\_Voice\_Telephone:* (206) 526-6944

*Contact\_Facsimile\_Telephone:* (206) 526-6329

*Contact\_Electronic\_Mail\_Address:* jill\_petersen@hazmat.noaa.gov.us

*Metadata\_Standard\_Name:* Content Standards for Digital Geospatial Metadata

*Metadata\_Standard\_Version:* FGDC-STD-001-1998

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# North Slope, Alaska ESI: 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 and the Alaska Department of Environmental Conservation

*Publication\_Date:* 200006

*Title:* North Slope, Alaska ESI: Management Areas

*Edition:* First

*Geospatial\_Data\_Presentation\_Form:* Atlas

#### *Series\_Information:*

*Series\_Name:* None

*Issue\_Identification:* North Slope, Alaska

#### *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 and the Alaska Department of Environmental Conservation

### *Description:*

#### *Abstract:*

This data set comprises the Environmental Sensitivity Index (ESI) data for the North Slope of Alaska from Point Barrow to the Canadian Border. 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

#### *Purpose:*

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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:* 1997

*Ending\_Date:* 1999

*Currentness\_Reference:* Project time span

*Status:*

*Progress:* Complete

*Maintenance\_and\_Update\_Frequency:* None Scheduled

*Spatial\_Domain:*

*Bounding\_Coordinates:*

*West\_Bounding\_Coordinate:* -156.581

*East\_Bounding\_Coordinate:* -140.309

*North\_Bounding\_Coordinate:* 71.479

*South\_Bounding\_Coordinate:* 67.917

*Keywords:*

*Theme:*

*Theme\_Keyword\_Thesaurus:* None

*Theme\_Keyword:* Sensitivity Maps

*Theme\_Keyword:* ESI

*Theme\_Keyword:* Coastal resources

*Theme\_Keyword:* Oil spill planning

*Theme\_Keyword:* Coastal zone management

*Theme\_Keyword:* Management area

*Place:*

*Place\_Keyword\_Thesaurus:* None

*Place\_Keyword:* North Slope, Alaska

*Place\_Keyword:* Point Barrow

*Place\_Keyword:* Beaufort sea

*Place\_Keyword:* NPR-A

*Place\_Keyword:* Arctic NWR

*Place\_Keyword:* Prudhoe Bay

*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.

*Data\_Set\_Credit:*

This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington and the Alaska Department of Environmental Conservation

*Native\_Data\_Set\_Environment:*

The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 7.2.1) and ORACLE(r) RDBMS (version 6.0.36.1.1). The hardware configuration is Hewlett Packard workstations (models 715/50 and 712/80i with 4 X-terminals) with

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UNIX operating system (HP-UX Release A.09.01). The following files are included in the data set: bio\_lut.e00, biofile.e00, biores.e00, birds.e00, breed.e00, breed\_dt.e00, esi.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, m\_mammal.e00, m\_mampt.e00, mgt.e00, nests.e00, seasonal.e00, soc\_dat.e00, soc\_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t\_mammal.e00.

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#### *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. The first layer of information digitized is the ESI shoreline classification. The ESI habitat ranking is compiled onto 1:63,360 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, 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. The hardcopy biological information is compiled onto 1:250,000 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 1:250,000 scale). A team of specialists reviews the entire series of maps, checks all data, and makes final edits. The data are then merged to form the study-wide layers. The data merging includes a final quality control check where labels, chains, and polygons are checked for attribute accuracy. To finalize the data checking process, each coverage is checked using a standardized form by two GIS personnel (a technician and the GIS manager), and each attribute database is checked using several programs that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and ORACLE(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where the data are written to tape and the metadata are written. 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 also distributed both in the NOAA



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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 socio-economic, features are included in ESI atlases. Entity points and complete chains (arcs) are digitized into the coverage SOCECON and managed area polygonal data are stored in the MGT coverage. 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 (70). ID is a concatenation of atlas number (70), element number (MGT = 11), and unique record number. The TYPE item for polygons may contain the following values: Indian Reserve, IN; Management Area, MA; National Park, NP; Wildlife Refuge, WR. 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.

*Lineage:*

*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* K. Ambrosius, BP Exploration

*Publication\_Date:* 1998

*Title:* Areas of Critical Environmental Concern

*Geospatial\_Data\_Presentation\_Form:* Vector digital data

*Publication\_Information:*

*Publication\_Place:* Anchorage, AK

*Publisher:* BP Exploration (Alaska) Inc.

*Source\_Scale\_Denominator:* 63360

*Type\_of\_Source\_Media:* CD-ROM

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* Unknown

*Source\_Currentness\_Reference:* Publication date

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Management area polygons

*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* D. Bieganski, BLM

*Publication\_Date:* 1997

*Title:* Land Status

*Geospatial\_Data\_Presentation\_Form:* Vector digital data

*Publication\_Information:*

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*Publication\_Place:* Fairbanks, AK

*Publisher:* Northeast NPR-A IAP/EIS, U.S. DOI, BLM Northern District Office

*Source\_Scale\_Denominator:* 2000000

*Type\_of\_Source\_Media:* CD-ROM

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Single\_Date/Time:*

*Calendar\_Date:* 1994

*Source\_Currentness\_Reference:* Publication date

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Management area polygons

*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:* 1997-199909

*Process\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Jill Petersen

*Contact\_Organization:* NOAA, Office of Response and Restoration

*Contact\_Position:* GIS Manager

*Contact\_Address:*

*Address\_Type:* Physical address

*Address:* 7600 Sand Point Way N.E.

*City:* Seattle

*State\_or\_Province:* Washington

*Postal\_Code:* 98115-6349

*Contact\_Voice\_Telephone:* (206) 526-6944

*Contact\_Facsimile\_Telephone:* (206) 526-6329

*Contact\_Electronic\_Mail\_Address:* jill\_petersen@hazmat.noaa.gov.us

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*Spatial\_Data\_Organization\_Information:*

*Direct\_Spatial\_Reference\_Method:* Vector

*Point\_and\_Vector\_Object\_Information:*

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*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* GT-polygon composed of rings  
*Point\_and\_Vector\_Object\_Count:* 179

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Area point  
*Point\_and\_Vector\_Object\_Count:* 179

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Complete chain  
*Point\_and\_Vector\_Object\_Count:* 325

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Link  
*Point\_and\_Vector\_Object\_Count:* 60638

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Node, planar graph  
*Point\_and\_Vector\_Object\_Count:* 292

---

*Spatial\_Reference\_Information:**Horizontal\_Coordinate\_System\_Definition:**Geographic:*

*Latitude\_Resolution:* 0.00005  
*Longitude\_Resolution:* 0.00005  
*Geographic\_Coordinate\_Units:* Decimal Degrees

*Geodetic\_Model:*

*Horizontal\_Datum\_Name:* North American Datum of 1927  
*Ellipsoid\_Name:* Clarke 1866  
*Semi-major\_Axis:* 6378206.4  
*Denominator\_of\_Flattening\_Ratio:* 294.98

---

*Entity\_and\_Attribute\_Information:**Detailed\_Description:**Entity\_Type:*

*Entity\_Type\_Label:* GT Polygon

*Entity\_Type\_Definition:*

Management areas/parks - The boundaries of national parks, national wildlife refuges, and special management areas such as National Petroleum Reserve - Alaska (NPR-A)

are shown. Native lands - The boundaries of the native corporation lands are shown.

*Entity\_Type\_Definition\_Source*: Research Planning, Inc.

*Attribute*:

*Attribute\_Label*: Type

*Attribute\_Definition*:

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

*Attribute\_Definition\_Source*: Research Planning, Inc.

*Attribute\_Domain\_Values*:

*Enumerated\_Domain*:

*Enumerated\_Domain\_Value*: IR

*Enumerated\_Domain\_Value\_Definition*: Indian Reservation

*Enumerated\_Domain\_Value\_Definition\_Source*: Research Planning, Inc.

*Attribute\_Domain\_Values*:

*Enumerated\_Domain*:

*Enumerated\_Domain\_Value*: MA

*Enumerated\_Domain\_Value\_Definition*: Management Area

*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*: WR

*Enumerated\_Domain\_Value\_Definition*: Wildlife Refuge

*Enumerated\_Domain\_Value\_Definition\_Source*: Research Planning, Inc.

*Beginning\_Date\_of\_Attribute\_Values*: 199811

*Ending\_Date\_of\_Attribute\_Values*: 199906

*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*: 1

*Range\_Domain\_Maximum*: N

*Attribute*:

*Attribute\_Label*: ID

*Attribute\_Definition*:

A unique identifier that links to the BIO\_LUT table. ID is a concatenation of atlas

---

number (70), 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*: 701100001

*Range\_Domain\_Maximum*: 701199999

*Beginning\_Date\_of\_Attribute\_Values*: 199811

*Ending\_Date\_of\_Attribute\_Values*: 199906

---

*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 North Slope, Alaska

*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*).

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*Metadata\_Reference\_Information*:

*Metadata\_Date*: 200006

*Metadata\_Review\_Date*: 200006

*Metadata\_Contact*:

---

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Jill Petersen

*Contact\_Organization:* NOAA, Office of Response and Restoration

*Contact\_Position:* GIS Manager

*Contact\_Address:*

*Address\_Type:* Physical Address

*Address:* 7600 Sand Point Way N.E.

*City:* Seattle

*State\_or\_Province:* Washington

*Postal\_Code:* 98115-6349

*Contact\_Voice\_Telephone:* (206) 526-6944

*Contact\_Facsimile\_Telephone:* (206) 526-6329

*Contact\_Electronic\_Mail\_Address:* jill\_petersen@hazmat.noaa.gov.us

*Metadata\_Standard\_Name:* Content Standards for Digital Geospatial Metadata

*Metadata\_Standard\_Version:* FGDC-STD-001-1998

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# North Slope, Alaska ESI: Bathymetry

## 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 and the Alaska Department of Environmental Conservation

*Publication Date:* 200006

*Title:* North Slope, Alaska ESI: Bathymetry

*Edition:* First

*Geospatial Data Presentation Form:* Atlas

#### *Series Information:*

*Series Name:* None

*Issue Identification:* North Slope, Alaska

#### *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 and the Alaska Department of Environmental Conservation

### *Description:*

#### *Abstract:*

This data set comprises the Environmental Sensitivity Index (ESI) data for the North Slope of Alaska from Point Barrow to the Canadian Border. 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.

#### *Purpose:*

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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:* 1997

*Ending\_Date:* 1999

*Currentness\_Reference:* Project time span

*Status:*

*Progress:* Complete

*Maintenance\_and\_Update\_Frequency:* None Scheduled

*Spatial\_Domain:*

*Bounding\_Coordinates:*

*West\_Bounding\_Coordinate:* -156.581

*East\_Bounding\_Coordinate:* -140.309

*North\_Bounding\_Coordinate:* 71.479

*South\_Bounding\_Coordinate:* 67.917

*Keywords:*

*Theme:*

*Theme\_Keyword\_Thesaurus:* None

*Theme\_Keyword:* Sensitivity Maps

*Theme\_Keyword:* ESI

*Theme\_Keyword:* Coastal resources

*Theme\_Keyword:* Oil spill planning

*Theme\_Keyword:* Coastal zone management

*Theme\_Keyword:* Bathymetry

*Place:*

*Place\_Keyword\_Thesaurus:* None

*Place\_Keyword:* North Slope, Alaska

*Place\_Keyword:* Point Barrow

*Place\_Keyword:* Beaufort sea

*Place\_Keyword:* NPR-A

*Place\_Keyword:* Arctic NWR

*Place\_Keyword:* Prudhoe Bay

*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.

*Data\_Set\_Credit:*

This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington and the Alaska Department of Environmental Conservation

*Native\_Data\_Set\_Environment:*

The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 7.2.1) and ORACLE(r) RDBMS (version 6.0.36.1.1). The hardware configuration is Hewlett Packard workstations (models 715/50 and 712/80i with 4 X-terminals) with



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UNIX operating system (HP-UX Release A.09.01). The following files are included in the data set: bio\_lut.e00, biofile.e00, biores.e00, birds.e00, breed.e00, breed\_dt.e00, esi.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, m\_mammal.e00, m\_mampt.e00, mgt.e00, nests.e00, seasonal.e00, soc\_dat.e00, soc\_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t\_mammal.e00.

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*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:*

Digital bathymetry was obtained from U.S. Geological Service, Biological Resource Division (USGS - BRD). Under this project, the digital data sources were imported, projected, checked for quality control, and integrated into the spatial data structure (for selected resources). The data were checked using both digital and on-screen procedures. To finalize the data checking process, each coverage is checked using a standardized form by two GIS personnel (a technician and the GIS manager), and each attribute database is checked using several programs that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and ORACLE(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where the data are written to tape and the metadata are written.

*Completeness\_Report:*

Bathymetry was obtained from U.S. Geological Service, Biological Resource Division (USGS - BRD) in Anchorage, AK. The data were only checked for topological and attribute accuracy. The data are in the 10, 20, 60, and 200 meter contours. These contour intervals are significant in that they can be used as guidelines for the distribution of marine mammals, and also the extent of shorefast ice.

*Positional\_Accuracy:*

*Horizontal\_Positional\_Accuracy:*

*Horizontal\_Positional\_Accuracy\_Report:*

The accuracy was tested using ARC/INFO's RMS Errors. When the digitized map is converted from table inches to real world coordinates, RMS errors averaged 150 m for the approximately 100 maps digitized.

*Lineage:*

*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* USGS/BRD

*Publication\_Date:* 1997

*Title:* NOS Bathymetry

*Geospatial\_Data\_Presentation\_Form:* Vector digital data

*Publication\_Information:*

*Publication\_Place:* Anchorage, AK

*Publisher:* USGS BRD

*Source\_Scale\_Denominator:* 250000

*Type\_of\_Source\_Media:* Online

*Source\_Time\_Period\_of\_Content:*

*Time\_Period\_Information:*

*Range\_of\_Dates/Times:*

*Beginning\_Date:* 1900

*Ending\_Date:* 1971

*Source\_Currentness\_Reference:* Content time period

*Source\_Citation\_Abbreviation:* None

*Source\_Contribution:* Bathymetry arcs

*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:* 1997-199909

*Process\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Jill Petersen

*Contact\_Organization:* NOAA, Office of Response and Restoration

*Contact\_Position:* GIS Manager

*Contact\_Address:*

*Address\_Type:* Physical address

*Address:* 7600 Sand Point Way N.E.

*City:* Seattle

*State\_or\_Province:* Washington

*Postal\_Code:* 98115-6349

*Contact\_Voice\_Telephone:* (206) 526-6944

*Contact\_Facsimile\_Telephone:* (206) 526-6329

*Contact\_Electronic\_Mail\_Address:* jill\_petersen@hazmat.noaa.gov.us

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*Spatial\_Data\_Organization\_Information:*

*Direct\_Spatial\_Reference\_Method:* Vector

*Point\_and\_Vector\_Object\_Information:*

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*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Complete chain  
*Point\_and\_Vector\_Object\_Count:* 333

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Link  
*Point\_and\_Vector\_Object\_Count:* 13218

*SDTS\_Terms\_Description:*

*SDTS\_Point\_and\_Vector\_Object\_Type:* Node, planar graph  
*Point\_and\_Vector\_Object\_Count:* 1251

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*Spatial\_Reference\_Information:**Horizontal\_Coordinate\_System\_Definition:**Geographic:*

*Latitude\_Resolution:* 0.00005  
*Longitude\_Resolution:* 0.00005  
*Geographic\_Coordinate\_Units:* Decimal Degrees

*Geodetic\_Model:*

*Horizontal\_Datum\_Name:* North American Datum of 1927  
*Ellipsoid\_Name:* Clarke 1866  
*Semi-major\_Axis:* 6378206.4  
*Denominator\_of\_Flattening\_Ratio:* 294.98

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*Entity\_and\_Attribute\_Information:**Detailed\_Description:**Entity\_Type:*

*Entity\_Type\_Label:* Complete chain

*Entity\_Type\_Definition:*

Contours for 10, 20, 60 and 200 meters are shown. In addition to providing information for dispersant use, the contours correspond to marine mammal distributions and the extent of shorefast ice.

*Entity\_Type\_Definition\_Source:* Research Planning, Inc.

*Attribute:*

*Attribute\_Label:* Methods

*Attribute\_Definition:* Method used to generate the contour interval.

*Attribute\_Definition\_Source:* Research Planning, Inc.

*Attribute\_Domain\_Values:*

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*Enumerated\_Domain:**Enumerated\_Domain\_Value:* Digitize*Enumerated\_Domain\_Value\_Definition:* None*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.*Beginning\_Date\_of\_Attribute\_Values:* 199811*Ending\_Date\_of\_Attribute\_Values:* 199906*Attribute:**Attribute\_Label:* Elevation*Attribute\_Definition:* Depth below sea level in meters*Attribute\_Definition\_Source:* Research Planning, Inc.*Attribute\_Domain\_Values:**Range\_Domain:**Range\_Domain\_Minimum:* 0*Range\_Domain\_Maximum:* 200*Attribute\_Units\_of\_Measure:* Meter*Beginning\_Date\_of\_Attribute\_Values:* 199811*Ending\_Date\_of\_Attribute\_Values:* 199906

---

*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 North Slope, Alaska*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:* 200006  
*Metadata\_Review\_Date:* 200006  
*Metadata\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Jill Petersen  
*Contact\_Organization:* NOAA, Office of Response and Restoration  
*Contact\_Position:* GIS Manager  
*Contact\_Address:*

*Address\_Type:* Physical Address  
*Address:* 7600 Sand Point Way N.E.  
*City:* Seattle  
*State\_or\_Province:* Washington  
*Postal\_Code:* 98115-6349

*Contact\_Voice\_Telephone:* (206) 526-6944  
*Contact\_Facsimile\_Telephone:* (206) 526-6329  
*Contact\_Electronic\_Mail\_Address:* jill\_petersen@hazmat.noaa.gov.us

*Metadata\_Standard\_Name:* Content Standards for Digital Geospatial Metadata  
*Metadata\_Standard\_Version:* FGDC-STD-001-1998

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# North Slope, Alaska ESI: Ice

## 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 and the Alaska Department of Environmental Conservation

*Publication Date:* 200006

*Title:* North Slope, Alaska ESI: Ice

*Edition:* First

*Geospatial Data Presentation Form:* Atlas

#### *Series Information:*

*Series Name:* None

*Issue Identification:* North Slope, Alaska

#### *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 and the Alaska Department of Environmental Conservation

### *Description:*

#### *Abstract:*

This data set comprises the Environmental Sensitivity Index (ESI) data for the North Slope of Alaska from Point Barrow to the Canadian Border. 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.

#### *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:* 1997

*Ending\_Date:* 1999

*Currentness\_Reference:* Project time span

*Status:*

*Progress:* Complete

*Maintenance\_and\_Update\_Frequency:* None Scheduled

*Spatial\_Domain:*

*Bounding\_Coordinates:*

*West\_Bounding\_Coordinate:* -156.581

*East\_Bounding\_Coordinate:* -140.309

*North\_Bounding\_Coordinate:* 71.479

*South\_Bounding\_Coordinate:* 67.917

*Keywords:*

*Theme:*

*Theme\_Keyword\_Thesaurus:* None

*Theme\_Keyword:* Sensitivity Maps

*Theme\_Keyword:* ESI

*Theme\_Keyword:* Coastal resources

*Theme\_Keyword:* Oil spill planning

*Theme\_Keyword:* Ice Extent

*Theme\_Keyword:* Coastal zone management

*Place:*

*Place\_Keyword\_Thesaurus:* None

*Place\_Keyword:* North Slope, Alaska

*Place\_Keyword:* Point Barrow

*Place\_Keyword:* Beaufort sea

*Place\_Keyword:* NPR-A

*Place\_Keyword:* Arctic NWR

*Place\_Keyword:* Prudhoe Bay

*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.

*Data\_Set\_Credit:*

This project was supported by the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Office of Response and Restoration, Hazardous Materials Response Division, Seattle, Washington and the Alaska Department of Environmental Conservation

*Native\_Data\_Set\_Environment:*

The software packages used to develop the atlas are Environmental Systems Research Institute's ARC/INFO(r) (version 7.2.1) and ORACLE(r) RDBMS (version 6.0.36.1.1). The hardware configuration is Hewlett Packard workstations (models 715/50 and 712/80i with 4 X-terminals) with

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UNIX operating system (HP-UX Release A.09.01). The following files are included in the data set: bio\_lut.e00, biofile.e00, biores.e00, birds.e00, breed.e00, breed\_dt.e00, esi.e00, fishl.e00, habitats.e00, hydro.e00, index.e00, m\_mammal.e00, m\_mampt.e00, mgt.e00, nests.e00, seasonal.e00, soc\_dat.e00, soc\_lut.e00, socecon.e00, sources.e00, species.e00, status.e00, t\_mammal.e00.

---

*Data\_Quality\_Information:*

*Attribute\_Accuracy:*

*Attribute\_Accuracy\_Report:*

The attribute accuracy is estimated to be "good" given the years of ESI experience, the data input methodology, the quality control review sessions, and the digital logical consistency checks.

*Logical\_Consistency\_Report:*

The average extent of 50% pack ice was digitized based on a 1-kilometer resolution coverage of pack ice extent provided by the National Ice Center. Under this project, new digital data sources were imported, projected, checked for quality control, and integrated into the spatial data structure (for selected resources). The data were checked using both digital and on-screen procedures. To finalize the data checking process, each coverage is checked using a standardized form by two GIS personnel (a technician and the GIS manager), and each attribute database is checked using several programs that test the files for missing or duplicate data, rules for proper coding, GIS topological consistencies (such as dangles, unnecessary nodes, etc.), and ORACLE(r) to ARC/INFO(r) consistencies. A final review is made by the GIS manager, where the data are written to tape and the metadata are written.

*Completeness\_Report:*

The ice line represents the average extent of 50% pack ice coverage by month. For the months after September and before August, the 50% pack ice usually covers the entire area.

*Positional\_Accuracy:*

*Horizontal\_Positional\_Accuracy:*

*Horizontal\_Positional\_Accuracy\_Report:*

The ESI data uses USGS 1:63,360 topographic quadrangles as the base map. It is estimated that the ESI shoreline classification has a minimum mapping unit of 50 feet.

*Lineage:*

*Source\_Information:*

*Source\_Citation:*

*Citation\_Information:*

*Originator:* National Ice Center

*Publication\_Date:* 1999

*Title:* Monthly Mean Ice Edge Extent

*Geospatial\_Data\_Presentation\_Form:* Raster digital data

*Publication\_Information:*

*Publication\_Place:* Washington, DC

*Publisher:* National Ice Center

*Source\_Scale\_Denominator:* 2000000

*Type\_of\_Source\_Media:* Electronic mail



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*Source\_Time\_Period\_of\_Content:**Time\_Period\_Information:**Single\_Date/Time:**Calendar\_Date:* Unknown*Source\_Currentness\_Reference:* Survey*Source\_Citation\_Abbreviation:* None*Source\_Contribution:* Ice boundary lines*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:* 1997-199909*Process\_Contact:**Contact\_Information:**Contact\_Person\_Primary:**Contact\_Person:* Jill Petersen*Contact\_Organization:* NOAA, Office of Response and Restoration*Contact\_Position:* GIS Manager*Contact\_Address:**Address\_Type:* Physical address*Address:* 7600 Sand Point Way N.E.*City:* Seattle*State\_or\_Province:* Washington*Postal\_Code:* 98115-6349*Contact\_Voice\_Telephone:* (206) 526-6944*Contact\_Facsimile\_Telephone:* (206) 526-6329*Contact\_Electronic\_Mail\_Address:* jill\_petersen@hazmat.noaa.gov.us

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*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:* 2

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*SDTS\_Terms\_Description:**SDTS\_Point\_and\_Vector\_Object\_Type:* Link*Point\_and\_Vector\_Object\_Count:* 85*SDTS\_Terms\_Description:**SDTS\_Point\_and\_Vector\_Object\_Type:* Node, planar graph*Point\_and\_Vector\_Object\_Count:* 4

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*Spatial\_Reference\_Information:**Horizontal\_Coordinate\_System\_Definition:**Geographic:**Latitude\_Resolution:* 0.00005*Longitude\_Resolution:* 0.00005*Geographic\_Coordinate\_Units:* Decimal Degrees*Geodetic\_Model:**Horizontal\_Datum\_Name:* North American Datum of 1927*Ellipsoid\_Name:* Clarke 1866*Semi-major\_Axis:* 6378206.4*Denominator\_of\_Flattening\_Ratio:* 294.98

---

*Entity\_and\_Attribute\_Information:**Detailed\_Description:**Entity\_Type:**Entity\_Type\_Label:* Complete chain*Entity\_Type\_Definition:*

The ice lines show the average extent of the 50 percent coverage of pack ice by month.

*Entity\_Type\_Definition\_Source:* Research Planning, Inc.*Attribute:**Attribute\_Label:* Description*Attribute\_Definition:* None*Attribute\_Definition\_Source:* Research Planning, Inc.*Attribute\_Domain\_Values:**Enumerated\_Domain:**Enumerated\_Domain\_Value:* Pack Ice*Enumerated\_Domain\_Value\_Definition:* Leading edge of Pack Ice*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.*Beginning\_Date\_of\_Attribute\_Values:* 199811

*Ending\_Date\_of\_Attribute\_Values:* 199906  
*Attribute:*

*Attribute\_Label:* Month  
*Attribute\_Definition:* Month of pack ice extent  
*Attribute\_Definition\_Source:* Research Planning, Inc.  
*Attribute\_Domain\_Values:*

*Enumerated\_Domain:*

*Enumerated\_Domain\_Value:* August  
*Enumerated\_Domain\_Value\_Definition:* None  
*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.  
*Attribute\_Domain\_Values:*

*Enumerated\_Domain:*

*Enumerated\_Domain\_Value:* September  
*Enumerated\_Domain\_Value\_Definition:* None  
*Enumerated\_Domain\_Value\_Definition\_Source:* Research Planning, Inc.  
*Beginning\_Date\_of\_Attribute\_Values:* 199811  
*Ending\_Date\_of\_Attribute\_Values:* 199906

---

*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 North Slope, Alaska

*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:* 200006  
*Metadata\_Review\_Date:* 200006  
*Metadata\_Contact:*

*Contact\_Information:*

*Contact\_Person\_Primary:*

*Contact\_Person:* Jill Petersen  
*Contact\_Organization:* NOAA, Office of Response and Restoration  
*Contact\_Position:* GIS Manager  
*Contact\_Address:*

*Address\_Type:* Physical Address  
*Address:* 7600 Sand Point Way N.E.  
*City:* Seattle  
*State\_or\_Province:* Washington  
*Postal\_Code:* 98115-6349

*Contact\_Voice\_Telephone:* (206) 526-6944  
*Contact\_Facsimile\_Telephone:* (206) 526-6329  
*Contact\_Electronic\_Mail\_Address:* jill\_petersen@hazmat.noaa.gov.us

*Metadata\_Standard\_Name:* Content Standards for Digital Geospatial Metadata  
*Metadata\_Standard\_Version:* FGDC-STD-001-1998

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