*Please provide the following information, and submit to the NOAA DM Plan Repository.*

**Reference to Master DM Plan (if applicable)**

*As stated in Section IV, Requirement 1.3, DM Plans may be hierarchical. If this DM Plan inherits provisions from a higher-level DM Plan already submitted to the Repository, then this more-specific Plan only needs to provide information that differs from what was provided in the Master DM Plan.*

URL of higher-level DM Plan (if any) as submitted to DM Plan Repository:

## 1. General Description of Data to be Managed

### 1.1. Name of the Data, data collection Project, or data-producing Program:

ESI GIS Data and PDF Maps: Environmental Sensitivity Index including GIS Data and Maps (for the U.S. Shorelines, including Alaska, Hawaii, and Puerto Rico)

### 1.2. Summary description of the data:

Environmental Sensitivity Index (ESI) maps are an integral component in oil-spill contingency planning and assessment. They serve as a source of information in the event of an oil spill incident. ESI maps are a product of the Hazardous Materials Response Division of the Office of Response and Restoration (OR&R).ESI maps contain three types of information: shoreline habitats (classified according to their sensitivity to oiling), human-use resources, and sensitive biological resources. Most often, this information is plotted on 7.5 minute USGS quadrangles, although in Alaska, USGS topographic maps at scales of 1:63,360 and 1:250,000 are used, and in other atlases, NOAA charts have been used as the base map. Collections of these maps, grouped by state or a logical geographic area, are published as ESI atlases. Digital data have been published for most of the U.S. shoreline, including Alaska, Hawaii and Puerto Rico.

### 1.3. Is this a one-time data collection, or an ongoing series of measurements?

One-time data collection

### 1.4. Actual or planned temporal coverage of the data:

1984 to 2007

### 1.5. Actual or planned geographic coverage of the data:

W: -180, E: 180, N: 72, S: -14.72

### 1.6. Type(s) of data:

*(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)*
atlas

### 1.7. Data collection method(s):

*(e.g., satellite, airplane, unmanned aerial system, radar, weather station, moored buoy, research vessel, autonomous underwater vehicle, animal tagging, manual surveys, enforcement activities, numerical model, etc.)*

**1.8. If data are from a NOAA Observing System of Record, indicate name of system:**

**1.8.1. If data are from another observing system, please specify:**

**2. Point of Contact for this Data Management Plan (author or maintainer)**

**2.1. Name:**
ESI Program Manager

**2.2. Title:**
Metadata Contact

**2.3. Affiliation or facility:**

**2.4. E-mail address:**
orr.esi@noaa.gov

**2.5. Phone number:**

**3. Responsible Party for Data Management**
*Program Managers, or their designee, shall be responsible for assuring the proper management of the data produced by their Program. Please indicate the responsible party below.*

**3.1. Name:**
ESI Program Manager

**3.2. Title:**
Data Steward

**4. Resources**
*Programs must identify resources within their own budget for managing the data they produce.*

**4.1. Have resources for management of these data been identified?**

**4.2. Approximate percentage of the budget for these data devoted to data management ( specify percentage or "unknown"):**

**5. Data Lineage and Quality**
*NOAA has issued Information Quality Guidelines for ensuring and maximizing the quality, objectivity, utility, and integrity of information which it disseminates.*

**5.1. Processing workflow of the data from collection or acquisition to making it publicly**

**accessible**

*(describe or provide URL of description):*

Process Steps:

- ESI maps are comprised of three general types of information: SHORELINE CLASSIFICATION - ESI maps include a shoreline ranking, based on a scale relating sensitivity, natural persistence of oil, and ease of cleanup. The shoreline classification scheme combines an understanding of the physical and biological character of the shoreline environment, as well as the substrate type and grain size. Relationships among physical processes, substrate type, and associated biota produce specific geomorphic/ecological shoreline types, sediment transport patterns and predictable oil behaviors and biological impacts. The sensitivity ranking (Rank 1 - Rank 10) is dictated by the following factors: relative exposure to wave and tidal energy, shoreline slope, substrate type (grain size, mobility, penetration and/or burial, and trafficability), and biological productivity and sensitivity. Methods for classifying shorelines include review of existing maps, literature, and remote imagery, incorporated with observations from low-altitude aerial surveys and ground observations. Base maps, shoreline, wetland boundaries, and aerial photographs are gathered prior to a survey. Using this information, along with any previous studies of the area, the geologist completes a preliminary shoreline classification. This classification is modified during the fieldwork process. Fieldwork consists of two parts: aerial surveys and ground verifications. During the overflight phase, the geologist annotates the shoreline base map with ESI Rankings, carefully noting transitions in habitats. Shorelines with more than one ESI type in the intertidal zone are annotated on the map in order from landward to seaward ESI classification. A segment of coastline may be assigned up to three ESI shoreline types. In areas where the coastline has changed significantly from the base map (either through natural or artificial processes), the geologist modifies the base map by hand. In addition to classifying the shoreline, the observer takes representative low-altitude, oblique photographs for each ESI habitat. Ground verification consists of spot-checking to confirm aerial observations. Ideally, an example of each habitat is visited and photographed from the ground. At a minimum, ground verification concentrates on confirming grain-size classification for sedimentary substrates, since this can be difficult to recognize from the air. If a portion of the coast is identified during the overflights as problematic or difficult to classify, that segment is ground checked and maps are updated according to the ground observations. Once the field component of the project is complete, the maps are scanned and the digital shoreline arcs are updated with the ESI attributes noted in the field. The shape and position of the digital shoreline may also be modified at this time to reflect field observations. After the information from the field map has been incorporated into the digital database, the ESI shoreline is color-coded and replotted at the same scale as the original base maps. The geologist then compares the classified shoreline plots to the original field-annotated base maps and any errors in shoreline attributes, as recorded in the GIS database, are corrected.
- SENSITIVE BIOLOGICAL RESOURCES - ESI maps depict oil-sensitive animals and

rare plants, as well as habitats that are used by oil-sensitive species. Some habitats, such as submersed aquatic vegetation and coral reefs, that are themselves sensitive to oil spills may also be depicted. Biological resource information is gathered from local officials who provide expert knowledge and suggest relevant source materials for biological resources in the study area. When the data have been collected and reviewed, the biologist plans how each resource will be mapped throughout the entire study area. During this process, it may be necessary to prioritize the species to be mapped in order to avoid excess clutter, which makes the final product difficult to read or interpret. Considerations may include species that are rare or listed as protected or endangered, or those species that have a particular commercial, recreational, or cultural value in the area. It may also be appropriate to limit some species-mapping to particularly critical life stages, such as nesting or spawning. Biological features are mapped as points, polygons, and lines, and are given unique numbers corresponding to associated data tables, for easy identification and editing.
- HUMAN-USE RESOURCES - ESI maps also include human-use areas that could be impacted by an oil spill or that could provide access for spill response operations. They include areas that have added sensitivity and value because of their use, such as beaches, parks and marine sanctuaries, water intakes, and archaeological sites. Human-use resources are divided into four major components: high-use recreational and shoreline access locations, management areas, resource extraction locations, and archaeological and historical cultural resource locations. Each human-use resource is assigned a feature type and feature code. Management areas are typically mapped as polygons, while the remaining socio-economic resources are depicted as points. For more information about the data resources and process for a particular resource refer to the metadata record for the desired resource in the ESI atlas of interest. Process Date Range is 1984 - present. Spatial Reference Information - Varies (For more information please refer to the metadata for the atlas of interest).

**5.1.1. If data at different stages of the workflow, or products derived from these data, are subject to a separate data management plan, provide reference to other plan:**

**5.2. Quality control procedures employed (describe or provide URL of description):**

## 6. Data Documentation

*The EDMC Data Documentation Procedural Directive requires that NOAA data be well documented, specifies the use of ISO 19115 and related standards for documentation of new data, and provides links to resources and tools for metadata creation and validation.*

**6.1. Does metadata comply with EDMC Data Documentation directive?**

No

**6.1.1. If metadata are non-existent or non-compliant, please explain:**

Missing/invalid information:
- 1.7. Data collection method(s)
- 4.1. Have resources for management of these data been identified?
- 4.2. Approximate percentage of the budget for these data devoted to data management
- 5.2. Quality control procedures employed
- 7.1. Do these data comply with the Data Access directive?
- 7.1.1. If data are not available or has limitations, has a Waiver been filed?
- 7.1.2. If there are limitations to data access, describe how data are protected
- 7.2. Name of organization of facility providing data access
- 7.2.1. If data hosting service is needed, please indicate
- 7.4. Approximate delay between data collection and dissemination
- 8.1. Actual or planned long-term data archive location
- 8.3. Approximate delay between data collection and submission to an archive facility
- 8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?

**6.2. Name of organization or facility providing metadata hosting:**

NMFS Office of Science and Technology

**6.2.1. If service is needed for metadata hosting, please indicate:**

**6.3. URL of metadata folder or data catalog, if known:**

https://www.fisheries.noaa.gov/inport/item/40691

**6.4. Process for producing and maintaining metadata**
*(describe or provide URL of description):*

Metadata produced and maintained in accordance with the NOAA Data Documentation Procedural Directive: https://nosc.noaa.gov/EDMC/DAARWG/docs/EDMC_PD-Data_Documentation_v1.pdf

**7. Data Access**

*NAO 212-15 states that access to environmental data may only be restricted when distribution is explicitly limited by law, regulation, policy (such as those applicable to personally identifiable information or protected critical infrastructure information or proprietary trade information) or by security requirements. The EDMC Data Access Procedural Directive contains specific guidance, recommends the use of open-standard, interoperable, non-proprietary web services, provides information about resources and tools to enable data access, and includes a Waiver to be submitted to justify any approach other than full, unrestricted public access.*

**7.1. Do these data comply with the Data Access directive?**

**7.1.1. If the data are not to be made available to the public at all, or with**

**limitations, has a Waiver (Appendix A of Data Access directive) been filed?**

**7.1.2. If there are limitations to public data access, describe how data are protected from unauthorized access or disclosure:**

**7.2. Name of organization of facility providing data access:**

**7.2.1. If data hosting service is needed, please indicate:**

**7.2.2. URL of data access service, if known:**

https://response.restoration.noaa.gov/esi_download
https://response.restoration.noaa.gov/esi_download
https://response.restoration.noaa.gov/esi_download

**7.3. Data access methods or services offered:**

Contact NOAA for distribution options (see Distributor). ESI maps and data are available on CD/DVD through the Office of Response and Restoration. 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 3.X ESI project and an ESI_Viewer product are also included on the distribution CDs for ease of use of the data. The database files are distributed both in the NOAA standard relational database format (see NOAA Technical Memorandum NOS ORCA 115) and in a simplified desktop flat file format.;

**7.4. Approximate delay between data collection and dissemination:**

**7.4.1. If delay is longer than latency of automated processing, indicate under what authority data access is delayed:**

## 8. Data Preservation and Protection

*The NOAA Procedure for Scientific Records Appraisal and Archive Approval describes how to identify, appraise and decide what scientific records are to be preserved in a NOAA archive.*

**8.1. Actual or planned long-term data archive location:**

*(Specify NCEI-MD, NCEI-CO, NCEI-NC, NCEI-MS, World Data Center (WDC) facility, Other, To Be Determined, Unable to Archive, or No Archiving Intended)*

**8.1.1. If World Data Center or Other, specify:**

**8.1.2. If To Be Determined, Unable to Archive or No Archiving Intended, explain:**

**8.2. Data storage facility prior to being sent to an archive facility (if any):**

Office of Response and Restoration - Silver Spring, MD

**8.3. Approximate delay between data collection and submission to an archive facility:**

**8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?**

*Discuss data back-up, disaster recovery/contingency planning, and off-site data storage relevant to the data collection*

## 9. Additional Line Office or Staff Office Questions

*Line and Staff Offices may extend this template by inserting additional questions in this section.*