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:

National Fish Habitat Action Plan (NFHAP) - Coastal Spatial Framework and Coastal Indicator Data

1.2. Summary description of the data:

The NFHAP Coastal Spatial Framework and Indicator Datasets consist of a geospatial base layer developed in ArcGIS, and associated data fields joined to the spatial framework. The Coastal Spatial Framework is a layer of 612 distinct polygons covering coastal areas of the Continental U.S. Polygons represent either coastal watersheds (land) or coastal waters (estuaries, inshore marine, offshore marine),and are classified into six regions and 22 nested subregions. Each polygon is assigned a unique code (UniqueID) to provide location reference for indicator data, and enable joins to separate data tables.s for information recorded in the Bibliography and Assessment tables. Key indicator data fields attributed to each estuarine polygon include scores for eutrophication, pollutants and contaminants, coastal watershed land use changes, and freshwater inflow and hydrologic alteration over time. In addition, a composite score is calculated as the geometric mean of the four indicator scores.

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:

2011

1.5. Actual or planned geographic coverage of the data:

W: -125, E: -67, N: 49, S: 24

1.6. Type(s) of data:

(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)
GIS shapefile and associated data sets

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:
NCCOS Scientific Data Coordinator

2.2. Title:
Metadata Contact

2.3. Affiliation or facility:

2.4. E-mail address:
NCCOS.data@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:
NCCOS Scientific Data Coordinator

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:

- 2010-01-01 00:00:00 - The GIS base layer was developed in ArcGIS, and is subdivided into four zones watersheds, estuaries, nearshore marine, and offshore marine. It is based on NOAAs Coastal Assessment Framework, including estuarine waterbodies and their associated watersheds. The Coastal Assessment Framework is a set of digital GIS layers, with lineage back to an earlier data atlas known as the National Estuarine Inventory (NOAA 1985). The NEI and CAF further subdivide estuarine waters into salinity zones (tidal fresh, mixing, and seawater). These subdivisions were not used in the current version of the NFHAP coastal spatial framework, but may be used in future analyses. The CAF does not extend into marine waters, so the scheme was modified to meet the needs of the 2010 NFHAP Assessment. Because the CAF focused on estuaries and watersheds, and did not extend into marine waters, polygons were added to the NFHAP Coastal Spatial Framework for both State and Federal marine waters, with boundaries based on both biogeographic and jurisdictional boundaries. Jurisdictional considerations were based on legally-vetted boundary layers in the Multipurpose Marine Cadastre, a joint project of the U.S. Minerals Management Service, NOAAs Coastal Services Center, and other partners (MMS 2008, NOAA/CSC 2008). State waters extend to the 3 nautical mile limit, and Federal waters extend to the 200 nmi Exclusive Economic Zone (EEZ). Exceptions to this include state waters of Texas, and the Gulf Coast of Florida, where state jurisdiction extends to 9 nmi instead of 3. Offshore marine waters Federal waters, extending to 200 nmi, were subdivided into regions based on natural geography. On the Atlantic Coast, major regional biogeographic breaks were selected at Cape Cod, Cape Hatteras, and Cape Canaveral, creating four regions: North Atlantic, Mid-Atlantic, South Atlantic, and South Florida, consistent with generally accepted biogeographic classifications. The Gulf of Mexico was considered as a single large region, as was the Pacific Coast. Within each large region, sub-regions for inshore state waters were delineated, also based on existing biogeographic classifications (eight on the Atlantic coast, eight in the Gulf of Mexico, and six on the Pacific coast). State boundaries were retained in the inshore state marine waters polygons for purposes of display and analysis. Careful review of the draft spatial framework suggested that there were significant numbers of true estuaries that had not been designated as such in the original CAF. Therefore, the NFHAP Coastal Assessment Team identified these within each of the regions, and delineated them in ArcGIS by: 1. clipping off an estuarine area from the adjacent inshore state marine waters polygon, 2. renaming the new polygon as an estuary, and 3. re-designating the associated watershed as an Estuarine Drainage Area. In many cases, the boundaries of the new estuarine area were clearly visible in the medium-resolution shoreline provided with the Coastal Assessment Framework GIS layer. However, on the Pacific coast, in some cases the apparent estuarine area was very small, and these were designated as River Mouth estuaries. (continued)

- 2010-01-01 00:00:00 - (continued from above) The numbers of estuaries added to the spatial framework using these procedures, by region, are: North Atlantic: 4 estuaries added Mid-Atlantic: 6 estuaries added South Atlantic: 7 estuaries added South Florida: 1 estuary added Gulf of Mexico: 14 estuaries added Pacific Coast: 27 estuaries, and 19 river mouth estuaries added When the final set of polygons were fully delineated and named, they were merged into a single polygon layer, 612 polygons in total, preserving their attributes for region, subregion state, zone (watershed, estuarine, marine), and waterbody name: Coastal watersheds - 346 polygons total, including 195 Estuarine Drainage Areas (EDAs), and 151 Coastal Drainage Areas (CDAs). Estuaries - 220 polygons total, including 124 taken from NOAAs Coastal Assessment Framework, 59 estuaries added, and 19 river mouth estuaries added. Nearshore marine waters - 40 polygons total, delineated using both geographic subregions and state boundaries (3 or 9 nmi). Offshore marine waters - 6 polygons total, including Federal waters of the Exclusive Economic Zone (EEZ) extending to 200 nmi, separated into 6 marine biogeographic regions. (end continuation) The Eutrophication Score, used as one of four coastal indicators in the 2010 NFHAP Assessment, was derived from an assessment completed in 2007: Effects of Nutrient Enrichment in the Nations Estuaries: A decade of Change (Bricker et al. 2007). In a few cases, assessment values were missing for some estuaries in the 2007 assessment, so results from the 1999 version of the assessment were substituted (Bricker et al. 1999). For each estuary considered in Bricker et al. (2007 and 1999), the Overall Eutrophic Condition (OEC) is estimated using both quantitative and categorical information on primary symptoms (chlorophyll A and macroalgal blooms) and secondary symptoms (impacts to dissolved oxygen, nuisance algal blooms, and impacts to SAV). The final estimated value for each estuary varies from 0 to 1 with 1 indicating a high eutrophic condition. For the purposes of the NFHAP assessment, the Eutrophication Score was calculated as 1-OEC, so that 0 would represent poor condition, and 1 would represent good condition. These index values were then assigned percentile ranks, to transform their distribution from 0 to 1 with 0.5 as a median value. The resulting percentile rank is what was used as the final Eutrophication Score in the NFHAP analysis. (Citation: National Estuarine Eutrophication Assessment)
- 2010-01-01 00:00:00 - The NFHAP Coastal Assessment Team used ten indicators of river discharge to determine a river discharge or "Flow Score". The first indicator density of dams in an estuarys watershed captures barriers to river flow. The other indicators are a subset of the Indicators of Hydrologic Alteration (Richter et al. 1996) capturing average, magnitude and duration of flow in recent years, and changes in these attributes over longer time periods. Dam density: This value reports the density of dams on tributary streams and rivers in an estuarys entire watershed, in units of number of dams per square kilometer (dams/km2). Mean annual discharge (MAD): This value reports the average flow across the entire year, for the 15 most recent years, in units of cubic feet per second (ft3/s). 7-day minimum discharge: This value reports the average flow during the seven consecutive lowest-flow days in a year, averaged across the 15 most recent years, in

units of cubic feet per second (ft3/s). 7-day maximum discharge: This value reports the average flow during the seven consecutive highest-flow days in a year, averaged across the 15 most recent years, in units of cubic feet per second (ft3/s). Low pulse duration: This value reports the average number of consecutive days of low flows (beneath the 25th percentile of daily flow), averaged over the 15 most recent years, in units of days. High pulse duration: This value reports the average number of consecutive days of high flows (above the 75th percentile of daily flow), averaged over the 15 most recent years, in units of days. Trend in 7-day minimum discharge: This value reports the linear coefficient of the change in 7-day minimum discharge over the entire annual time series (= 35 years), in units of cubic feet per second per year (ft3/s/year). Trend in 7-day maximum discharge: This value reports the linear coefficient of the change in 7-day maximum discharge over the entire annual time series (= 35 years), in units of cubic feet per second per year (ft3/s/year). Trend in low pulse duration: This value reports the linear coefficient of the change in low pulse duration across the entire annual time series (= 35 years), in units of days per year (days/year). Trend in high pulse duration: This value reports the linear coefficient of the change in high pulse duration across the entire annual time series (= 35 years), in units of days per year (days/year). Dam data were summarized from the Army Corps of Engineers National Inventory of Dams by the Inland Assessment. All other indicators were obtained from daily time series, primarily from USGS surface water gages. We used the lowest flow gages in an estuarys watershed, and focused only on gages with = 35 years of data. These indicators were calculated using The Nature Conservancys Indicators of Hydrologic Alteration software. The River Discharge or Flow Score, as used in the NFHAP Coastal Assessment, was derived by calculating a percentile for each indicator score, and then recomputing a new percentile based on the average of the indicator scores. Mean annual discharge (MAD) was adjusted by drainage area, and minimum and maximum discharge was adjusted by MAD to facilitate comparisons across watersheds of variable size and discharge. (Citation: USGS Surface Water Data)

- 2011-01-01 00:00:00 - To characterize the land cover of estuaries and their watersheds, NOAA's Coastal Change Analysis Program (CCAP) data were analyzed (2011). The CCAP dataset contains land cover data representing 1996 and 2006 land cover, compiled from remotely sensed imagery as the coastal expression of the National Land Cover Database. Together, the datasets provide information about both current land cover (2006) and land cover change from 1996 to 2006. While the CCAP dataset contains 25 land cover classes, these were combined into 5 key categories which impact estuaries. The Developed Land Cover Intensity value is not a true area value, but a density-weighted score reflecting development. These data were processed and summarized in order to investigate land cover in two key areas: estuarine shoreline and NFHAP CAF watershed. The shoreline area was defined as an area that was within 30 m of grid cells identified as water in the 2006 CCAP land cover dataset. Shoreline areas which intersected or connected to a shoreline that intersected NFHAP CAF estuaries were selected to isolate estuarine

and marine shorelines from freshwater shorelines. Areas within 500 m of a NFHAP CAF estuary were then selected from the shoreline area as representative of each estuarys shoreline land cover. The watershed area for each estuary was defined by the NFHAP CAF watershed(s) which drained into that estuary. To compensate for discontinuities between the NFHAP CAF and CCAP datasets, all land cover cells seaward of NFHAP CAF watersheds were attributed to the nearest watershed. The number of grid cells within each estuarine shoreline and watershed, as described above, was then tabulated for each land cover class. The land cover area was tabulated by multiplying the number of grid cells in a class by the area (90 m2) for each grid cell. To summarize land cover impacts to estuaries, each of the five land cover classes were calculated for both the estuarine shoreline and watershed, yielding ten total variables. For classes with an expected presettlement baseline area of zero, the percent area for 2006 CCAP land cover was calculated as the best estimate of current land cover impacts. Therefore, the current percent area for agriculture was calculated to represent the impacts of agricultural disturbance to watersheds and estuarine shorelines. The relative disturbance of developed land cover was estimated by calculating the density-weighted area. For land cover classes with no national baseline for presettlement conditions, the difference in percent area between 2006 and 1996 was calculated as a metric of land cover change. This method was used to describe impacts for estuarine, palustrine, and undeveloped other land cover classes. To create a consistent score by which high values represent lower impacts than low values, the agriculture and density-weighted development percent area values were subtracted from 100%. The above processes yielded five estuarine shoreline land cover metrics and five watershed land cover metrics which describe impacts to estuarine water quality and habitat. The average of these ten variables was then calculated and represented as a percent rank, yielding the land cover component disturbance index. (Citation: NOAA's Coastal Change Analysis Program (CCAP) Land Cover Data)
- 2010-01-01 00:00:00 - Esselman et al. (2011) summarized publicly available point data for Toxic Release Inventory sites (TRI), sites with National Pollution Discharge Elimination System (NPDES) permits, Superfund National Priority Sites, and mine site using the National Hydrography Dataset Plus (NHDplus) (USEPA and USGS 2005) . TRI sites is the number of facilities that reported the release of toxic chemicals established under the US EPA Toxics Release Inventory (TRI) in 2007 (EPA 2007). The Pollution Prevention Act requires facilities to report additional data on waste management and source reduction activities to EPA under the TRI program. The goal of the TRI Program is to provide communities with information about toxic chemical releases and waste management activities and to support decision making at all levels by industry, government, non-governmental organizations, and the public. NPDES sites is the number of facilities with US EPA regulated National Pollution Discharge Elimination System (NPDES) permits in 2007 (EPA 2007). The US EPA NPDES permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. Superfund sites is the number of US EPA National Priority List (NPL) or Superfund (hazardous waste) sites

in 2007 (EPA 2007). These sites were established as a result of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund. CERCLA is a law which created a tax on the chemical and petroleum industries and provided Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. The Hazard Ranking System (HRS) screening processes was used to prepare the National Priority List of known sites of releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States. Mine sites is the number of active mines and mineral (metals) processing plants in the United States on record in 2003. It represents commodities monitored by the National Minerals Information Center of the USGS, and the operations included are those considered active in 2003 and surveyed by the MIT (USGS 2003). The NHDplus database is a network of streams and their respective catchments, and is defined with a topology which connects stream segments to upstream and downstream segments. Using the accumulate tool distributed with NHDplus, Esselman et al. accumulated the number of TRI, NPDES, Superfund, and mine sites in the watersheds of and upstream to each stream segment. Therefore, each stream segment was assigned a value representing the number of Toxic Release Inventory, NPDES, Superfund, or mine sites which were in that segments watershed. A more detailed methodology can be found in Esselman et al. (in press). Esselman et al. provided this data (personal comm.), which was further analyzed as described below. To estimate the number of sites for each estuary, NHDplus reaches described as Stream/River which connected to features described as coast were selected. After manually removing instances of split channels, which duplicated accumulated data, the number of TRI, Superfund, and mine sites for all terminal segments within 500 m of a NFHAP CAF estuary were summed by estuary. The total watershed area per estuary was calculated with a similar method, summing the watershed area (km2) of each NHDplus reach attributed to the estuary. This value represents the total number of TRI, NPDES, Superfund, and mine sites in the NHDplus watershed(s) for each estuary. (continued)

- 2010-01-01 00:00:00 - (continued from above) The density of the pollution source sites per estuary (based on the total watershed area of the estuary) was calculated by summing the total number of pollutant source sites (TRI, NPDES, Superfund and mines) and dividing this by the area of the watershed (km2). A percentile rank was run on the densities for all of the estuaries, the percentrank value was subtracted from 1 and this value represented the pollution component index for each estuary. A score of 0 represents the site(s) with the highest pollution site density and a score of 1 represents site(s) with the 0 pollution source sites. (end continuation) The NFHAP Composite Score (RHabDist) for each estuary was calculated by taking the geometric mean of the four disturbance indices (a disturbance score of zero was reassigned a value of one half the next lowest score so it could be included in the geometric mean calculation), which was then rescaled from 0 to 100 by calculating the percent rank. Due to data limitations, not all estuaries had an index for all four disturbance categories, so a combined score was

assigned only when the estuary had at least three of the four disturbance indices. River discharge included trends of river flow magnitude and pulse duration and density of dams. Pollution summarized the density of point source pollution sites including National Pollution Discharge Elimination Sites, Toxic Release Inventory sites, National Superfund sites, and mines. Eutrophication summarized measurements of chlorophyll a concentrations, occurrence of algal blooms, and dissolved oxygen and nutrient levels. Land cover summarized percent coverage and trends of urban, agricultural, and wetland land cover. Component datasets were combined either by direct summation if the datasets were similar or statistical approaches to create one index for each of the four disturbance categories in each estuary. These four disturbance indices were rescaled from 0 to 1 by calculating the percent rank (a score of 0 was assigned for estuaries with the highest degree of disturbance and 1 for the lowest disturbance). (Citation: National Estuarine Eutrophication Assessment)

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
- 7.4. 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/38929

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:
U.S. Geological Survey

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

7.2.2. URL of data access service, if known:
https://www.sciencebase.gov/catalog/item/50118bbfe4b0d78fd4e59b9a

7.3. Data access methods or services offered:
Hardcopy or other documentation, or custom spreadsheet versions of data are available upon request from: David Moe Nelson NOAA N/SCI-1 1305 East-West Hwy, 9th Floor Silver Spring MD 20910 phone 301-713-3028 x154 email david.moe.nelson@noaa.gov;

The NFHAP Data Viewer can be accessed through the National Fish Habitat Partnership Data System hosted by USGS at http://ecosystems.usgs.gov/fishhabitat/. Electronic GIS shapefile or spreadsheet versions of the NFHAP coastal spatial framework or indicator data sets may be requested from: David Moe Nelson NOAA N/SCI1 1305 East-West Hwy, 9th Floor Silver Spring MD 20910 phone 301-713-3028 x154 email david.moe.nelson@noaa.gov;

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):
National Centers for Coastal Ocean Science - 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.