

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:

High Tide Flooding Products from NOAA CO-OPS

### 1.2. Summary description of the data:

High tide flooding is the overflow or excess accumulation of water that covers typically dry coastal land and occurs during high tides. As relative sea levels rise, high tide flooding (HTF) is occurring more frequently, even on sunny days. HTF creates short term impacts like road closures, overflowing storm drains, and temporary business closures. Over the long term, recurrent HTF causes more severe impacts like damage to below-ground infrastructure and degraded wetlands.

Through NOAA's National Ocean Service (NOS), the Center for Operational Oceanographic Products and Services (CO-OPS) and its predecessors have gathered oceanographic data along our nation's coasts for over 200 years to protect life, property, and the environment. Serving both the public and other government agencies, CO-OPS is the authoritative source for accurate, reliable, and timely water-level and current measurements that support safe and efficient maritime commerce, sound coastal management, and recreation. As part of those roles, CO-OPS offers a suite of interactive products that helps communities understand when, where, and how often high tide flooding may occur along the coast to better inform their coastal flood planning and mitigation efforts. The suite includes a summary of historical HTF days as well as Monthly and Annual HTF Outlooks which are produced for specific stations.

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

Ongoing series of measurements

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

2016 to Present

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

W: 144.6, E: -66.9, N: 61.24, S: -14.3

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

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

Plots, downloadable data (CSV, JSON, XML, PDF)

**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:**

Stakeholder Services Branch

**2.2. Title:**

Metadata Contact

**2.3. Affiliation or facility:**

**2.4. E-mail address:**

tide.predictions@noaa.gov

**2.5. Phone number:**

301-713-2815

**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:**

Stakeholder Services Branch

**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):

Lineage Statement:

CO-OPS updates high tide flooding likelihoods monthly using a methodology based on Dusek et al. 2023 (see URL 1 above). Flooding likelihoods are derived from a probabilistic model that incorporates tide predictions, sea level rise trends, and seasonal changes in coastal sea level to predict the potential that a higher than normal high tide may exceed established NOS flood thresholds. During these periods, high tide flooding may occur in flood-prone areas.

Process Steps:

- Verified water level data from a water level station (the verified 6-minute data, and the secondary datasets of highs and lows (except for Great Lakes stations), hourly heights, daily means (Great Lakes stations only), and monthly means) are made available roughly one month after collection. This is a 2-step process where one person reviews the data, and if necessary, removes erroneous data or fills gaps by either using data from the station's back-up sensor, predictions for that station, or similar data from proximal stations. With exception of the corrected errors or filled gaps, most preliminary (raw) 6-minute data become the verified 6-minute data. Secondary datasets are also generated during this step. Then a second person reviews the work of the first, and when satisfied, marks the data in the database as "verified." The order in which the 300+ water level stations are processed each month is random, to prevent the same stations or geographical locations from always being first or last. Verified water level data are made available on a monthly basis for the previous month's data.
- Water level gauges mounted along the U.S. coastlines (including Pacific and Caribbean Islands) employ acoustic or microwave technology (with pressure sensors as the back-up sensor). Historic stations employed paper trace rolls (marigram and ADR rolls) until the late 1990's. The type of sensor used today depends on the station's environment. The lack of infrastructure may prevent the use of the desired sensor type at that location.

**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
- 7.3. Data access methods or services offered
- 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/70135>

### 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](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:**

Center for Operational Oceanographic Products and Services (CO-OPS)

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

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

<https://tidesandcurrents.noaa.gov/high-tide-flooding/annual-outlook.html>  
<https://tidesandcurrents.noaa.gov/high-tide-flooding/monthly-outlook.html>  
[https://github.com/NOAA-CO-OPS/Seasonal\\_High\\_Tide\\_Flooding\\_Prediction](https://github.com/NOAA-CO-OPS/Seasonal_High_Tide_Flooding_Prediction)  
<https://api.tidesandcurrents.noaa.gov/dpapi/prod/>  
<https://tidesandcurrents.noaa.gov/inundationdb/>

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

**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):**

Center for Operational Oceanographic Products and Services - 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.*