

## 1. DATA AND INFORMATION TYPES

### A. Provide a contextual description of the data stream.

The Herring Monitoring and Research Program provides critical information, such as evaluations of recruitment, trends in disease, how ocean conditions affect recruitment, and relative productivity of various nursery bays. Research may also lead to a better understanding of the role of disease, predictability of disease outbreaks, and potential disease management practices that reduce disease impacts. Monitoring of herring populations, quantification and measurement of critical life-history attributes will allow for the development of better predictive models of herring stocks that lead to adaptive fisheries management practices, and longer-term sustainability of the stock. This supportive information can then be used if active intervention were to be implemented in the future. The Herring Monitoring and Research Program is administered with a five-year contract through NOAA. Over 25 principal investigators are engaged in over 20 individual research projects. More information: <http://pwssc.org/herring-research-and-monitoring/>.

Website URL: <http://portal.aos.org/gulf-of-alaska>

### B. How many station locations are there for this data stream?

N/A

### C. What are the specific parameters of the data.

Numerous parameters are monitored by the HRM program, including: herring biology, spawn observations, herring biomass estimates, herring age sex length, commercial harvest volumes, oceanographic measurements, herring habitat characterizations, and incidental marine mammal observations.

### D. Provide information about the sampling platform or instrumentation.

A suite of sampling platforms are utilized. These include: Profiling CTD - Brand: Seabird SEACAT 19; temperature loggers; echosounder transducer; plankton nets; ship-based surveys; human-based observations in the nearshore and pelagic environments; fixed wing airplane for aerial surveys, and in situ experiments.

## 2. DATA PATHWAY

### A. Is a data sharing agreement required?

This material is based upon work funded by multiple entities, including the Exxon Valdez Oil Spill Trustee Council. Any opinions, findings, conclusions, or recommendations expressed herein are those of the author(s) and do not necessarily reflect the views or positions of funding entities. Standard scientific norms for attribution, credit, and potential co-authorship should be followed when using these data including to the Owners, Exxon

Valdez Oil Spill Trustee Council and other sources of funding. Please let the Owner know when these data are used.

**B. In which format(s) were data received by AOOS?**

Data are provided in their native file formats directly from originator. The originator submits data to the AOOS Research Workspace and then uses an auto-publication pathway to make the data publically available through the AOOS Gulf of Alaska data portal. For visualized datasets, the data was received as shapefiles directly from the originator.

**C. How can the information be accessed?**

This project-specific data are available through the AOOS data portal in the native file formats provided by the data owner. Additionally, a subset of the data, including herring spawn, aerial survey route, herring biomass, and incidental marine mammals observations, are available through the AOOS data portal, where it can be downloaded or explored through interactive visualizations. Specifically, these later datasets are available from three unique access points: Web Mapping Service (WMS); Web Feature Service (WFS); and File Downloads (PNG, Shapefile, CSV).

**D. What file formats will be used for sharing data, if different from original?**

Data are shared in the original native file format as submitted by the originator. Data are available for download in the public-facing AOOS Gulf of Alaska portal, but not by exploration via interactive, graphical visualizations. The exception is the Spawn/Survey route/ Biomass/Marine mammals file observations. This format is different than the original to accommodate interactive visualizations in the AOOS Gulf of Alaska data portal.

**E. Describe how the data are ingested(e.g. the flow of data from source to AOOS data portals) and any transformations or modifications made to share data in the AOOS data portal.**

Data are uploaded by the originator to the AOOS Research Workspace using their secure user account. Data files are stored on servers in the AOOS data management system. The user elects data files to push from the Workspace to the AOOS Gulf of Alaska data portal for public-access. Data are available in the AOOS Gulf of Alaska portal through the access point but not via graphic display (with the exception of some herring data files, mentioned previously). Data files may be downloaded by the user from the AOOS data portal. A user request for a particular file pulls the data from the server cache. For interactive visualizations of herring biomass observation, spawning locations, and commercial harvest data, flat tables were restructured into a relational database and a geometry was created from latitude and longitude values. Lookup tables were generated for user to explore the attributes of interest. Additionally, individual marine mammal species observations were mapped to labels. These observations were then summarized into a hexagonal heat map with coverage at 15 zoom levels. Observations were summarized into colored hexagons at each zoom level. The color of the hexagon varies relative to the total number of observations within that hexagon.

**F. What metadata or contextual information is provided with the data?**

Data are shared in the AOOS portals with descriptive project and file metadata describing the data and accompanying fields. For visualized data, metadata records are available as FGDC Content Standard for Digital Geospatial Metadata FGDC-STD-001-1998.

**G. Are there ethical restrictions to data sharing?**

No

**a. If so, how will these be resolved?**

N/A

**H. Who holds intellectual property rights (IPR) to the data?**

Exxon Valdez Oil Spill Trustee Council

**I. Describe any effect of IPR on data access.**

None

**3. DATA SOURCE AND QUALITY CONTROL**

**A. Indicate the data source type (i.e. Federal, Non-Federal, University, State Agency, Local Municipality, Military Establishment (branch), private industry, NGO, non-Profit, Citizen Science, Private individual)**

Various: Federal, State, University, NGO, and Private individual

**a. If Federal data source, were changes applied to the data?**

No

**b. If Yes, describe any changes to the data that require documentation?**

N/A

**B. Indicate the data reporting type (e.g. real-time, historical).**

Historical

**C. If real-time, list the QARTOD procedures that are currently applied.**

Not required

**D. If real-time, list the QARTOD procedures that are planned for implementation.**

N/A

**E. What is the status of the reported data? (e.g. raw, some QC, incomplete, delayed mode processed but not QC'd)**

Some QC as delivered from the originator(s) and presented with metadata.

**F. Describe the data control procedures that were applied by the originator.**

QC methods are described by project in the field sampling protocols. Protocols are published to the AOOS data portal alongside data files and reported in the metadata.

- a. **Provide a link to any documented procedures.**

N/A

- G. **Describe the data control procedures that were applied by AOOS.**

None applied

- a. **Provide a link to any documented procedures.**

N/A

- H. **List the procedures taken for data that could not be QC'd as directed.**

N/A

#### **4. STEWARDSHIP AND PRESERVATION POLICIES**

- A. **Who is responsible for long-term data archiving?**

Through an agreement with the HRM program, AOOS is taking responsibility for archiving these data with DataOne and NCEI via a planned, automated pathway.

- B. **Which long-term data storage facility will be used for preservation?**

DataOne and NCEI

- C. **Describe any transformation necessary for data preservation.**

Transformations of data will be to non-proprietary file formats to facilitate long-term preservation, including CSV, TXT, XLS, AND NetCDF.

- D. **List the metadata or other documentation that will be archived with the data.**

ISO-19115 or .xml FGDC CSDGM metadata records will be provided by the data collectors prior to archive. Field sampling protocols will also be archived with the data files.