Semi-annual Program Performance Report for NA16NOS0120027
FY 2016-20 Implementation and Development of a Regional Coastal Ocean Observing System: Alaska Ocean Observing System
For reporting period June 1, 2018 – November 30, 2018
Prepared by Molly McCammon, Project PI on December 22, 2018

1.0 PROGRESS AND ACCOMPLISHMENTS

1.1 Regional Governance & Management Subsystem

1.1.1 *Support ongoing board and committee activities.*

- The AOOS Board's Executive Committee met in July to accept funding and tasks from the national IOOS Program Office as part of the year 3 cooperative agreement and to approve a reallocation of funds.
- The full AOOS board met in Sitka November 2 to renew all current officer positions until November 2020, as recommended by the Nominating Committee: Katrina Hoffman, Chair; Ed Page, Vice-Chair; Cheryl Rosa, Secretary; and Jim Kendall, treasurer. Budget revisions and additions were approved.
- The makeup and functions of the Data Management Advisory Committee is being reviewed.

1.1.2 *Provide ongoing fiscal and administrative oversight for program.*

- Executive Director Molly McCammon conducted annual evaluations for Operations Director, Carol Janzen and Alaska Ocean Acidification Network Director, Darcy Dugan.
- Staff for projects approved for NOAA year 3 cooperative agreement funding by the board at the July board meeting.
- Staff collected statements of work and budgets from PIs, submitted and received approval on a de-scoped budget and work plan for the current cooperative agreement year 3 funds on October 31, and finalized no cost extensions or new subaward agreements.
- AOOS continues to seek additional external funding, and in this reporting period, awards were received as a subaward to the University of Notre Dame for $220,133 over three years from NOAA's Ocean Technology Transition program to develop Western Alaska storm models.

1.1.3 *Support national and international partnerships and collaborations.*

- AOOS Director Molly McCammon testified in Washington DC in June at a House subcommittee on the need for ocean and coastal observing infrastructure to support new transportation activities in Alaska's Arctic.
- McCammon attended several sessions of Capitol Hill Ocean Week, sponsored by the National Marine Sanctuary Foundation in June. Sessions focused on NOAA's vision and priorities and ocean acidification.
- McCammon delivered a keynote address at the Arctic Observing Summit in Davos, Switzerland in June.
- McCammon met with Julie Gourley, U.S. Senior Arctic Official with the State Department and other Alaska host committee members during their Anchorage visit in July for an update on recent Arctic activities by the State Department.
- McCammon and Janzen briefed the Director of Coast Survey Rear Adm. Shepard Smith in July on AOOS water level pilot projects in advance of the HSRP's August meeting in Juneau.
- McCammon and AOOS partners participated in NOAA's Hydrographic Services Review Panel (HSRP) and Integrated Ocean Observing System Advisory Committee (IOOSAC) meetings in Juneau in August. McCammon was selected for a 3 year term on the IOOSAC.

- McCammon participated in an external review of the European Commission's Integrated Arctic Observing System project (INTAROS), including a meeting in Brussels in September.
- Janzen participated in a workshop held by the Arctic Domain Awareness Center in Anchorage in September to address North American Arctic Maritime & Environmental Security.
- McCammon and AOOS Board Members Brad Moran, Katrina Hoffman and Jim Kendall participated in 3 days of meetings in Fairbanks in September held by the NAS Ocean Studies Board and the Polar Research Board.
- McCammon gave 3 talks at the annual Asian trade conference held in Qingdao, China in October. An invited keynote presentation was on "Ocean Observing in Alaska's Arctic: Challenges and Opportunities". Another talk focused on AOOS as a model program for stakeholder engagement, and a third talk focused on IOOS programs working with aquaculture (primarily shellfish growers).
- McCammon participated in a 2-day conference sponsored by The Nature Conservancy in Seattle in October focused on how to engage the public regarding climate change impacts.
- McCammon met with Jorge Sanchez, the head of Europe HF radars, and Enrique Alvarez, the head of the observing system for Spanish ports, in Madrid, Spain.
- McCammon participated in the September IOOS meeting in Annapolis, MD, as well as numerous teleconferences and work groups with the IOOS Program Office and the IOOS Association.

1.1.4 *Support Alaska and regional partnerships and collaborations.*

- Janzen presented an update at the Arctic Domain Awareness Center's Partners' and Customers' Roundtable in June on the status of the AOOS project with Axiom Data Science and Marine Exchange of Alaska on using historical AIS vessel tracking data for prioritizing where NOAA performs new and updated bathymetric surveys in the Arctic.
- Janzen attended the Kachemak Bay and Lower Cook Inlet Circulation Workgroup by teleconference in June.
- McCammon joined the Cook Inlet Regional Citizens Advisory Council's Environmental Monitoring Committee as the chair, for a tour of NOAA's Kasitsna Bay Lab near Seldovia in July.
- AOOS, NOAA's Arctic Program, and Alaska Sea Grant, with additional funding support from the US Arctic Research Commission and NOAA's Alaska Regional Collaboration Team, joined together to implement some pilot research and monitoring efforts for potential harmful algal blooms in the Bering Strait region last summer and fall.
- Alaska Ocean Acidification Network Coordinator Darcy Dugan participated in an in-person meeting of the Alaska Center for Climate Assessment and Policy's advisory group in October to hear the latest activities and discuss a potential climate change economics workshop.

1.1.5 *Finalize certification application*

- All 11 Regional Associations are now certified. AOOS is working with other Ras on branding/outreach efforts for certification.

1.2 Outreach, Stakeholder Engagement & Education Subsystem

1.2.1 *Support website, Facebook and printed publications as key AOOS communication tools.*

- Kent continued to add content to the AOOS website and Facebook page, including news, featured stories, and descriptions of new data tools.
- Staff produced monthly updates and monthly proposal updates for board members.
- Staff circulated quarterly e-newsletters in June and November to a list-serve of over 500 recipients.
- Staff produced and distributed a press release and recorded webinar in June introducing the

next generation user interface for the data portal.

- Staff produced and distributed a press release announcing a new U.S. Army Corps of Engineers Coastal Data Information Program (CDIP) wave and current buoy deployed off the coast of Nome, Alaska in July.
- Director of Administration and Outreach, Holly Kent, assembled a team and began work to refresh the AOOS website in August.
- AOOS launched a project webpage and data portal on the AOOS website for the Automated Information System Prioritizing Arctic Charting effort in October.

1.2.2 *Support ongoing stakeholder interactions.*

- AOOS cohosted a stakeholder meeting in Sitka with the Alaska Marine Conservation Council to identify and highlight key stakeholder concerns and needs for Southeast Alaska, as well as key gaps in ecosystem monitoring and ecosystem-based fisheries observing.

1.2.3 *Support stakeholder working groups including ocean acidification network, integrated water level observation network, Alaska Pacific Anomalies Working Group, and long-term observing system coordination and integration.*

<u>Alaska Ocean Acidification Network</u>

- The network produced a 'State of the science' report for stakeholders through a collaborative process with scientists and fishermen.
- Community sampling programs were expanded to now cover ~20 communities across Alaska.
- The network ordered parts and assembled hands-on kits for educators that will be circulated to schools starting in 2019.
- The network organized and facilitated a panel of scientists to speak about OA at the Pacific Marine Expo in Seattle in November, and also hosted a booth.
- The network continued the video series "Ask a Scientist".
- The network continued producing monthly eNews, including articles about monitoring, research, outreach and scientist interviews.
- In-person community outreach was conducted in Gambell and Savoonga in September, and in Yakutat in November.
- AOOS continued to coordinate the 6 topic-specific working groups and facilitate the network steering committee.

<u>Alaska Harmful Algal Bloom Network</u>

- Starting in September, AOOS began supervising Sea Grant Fellow Kayla Schommer who is helping with coordination of the network. Schommer met with AHAB partners in Homer, Sitka, Kodiak and Anchorage.
- The network held a steering committee meeting in October and an AHAB meeting in November to recap the 2018 HABS season across the state and discuss improved coordination.
- The network collaborated with NOAA, IARPC and local Bering Sea partners to augment HABS sampling in the Bering Strait region during the 2018 field season.

<u>Alaska Water Level Watch</u>

- McCammon and Janzen continue to work with partners to implement pilot projects for alternative water level observation technologies. AOOS and Axiom are using part of their Fill the Gaps add-on to develop the Alaska Water Level Watch (AWLW) data portal for the tiered water level data in Alaska. This portal will accommodate a range of observational water level data beyond just the NWLON data currently most accessible real-time. This AWLW portal will mirror the CO-OPS Tides & Currents system, but will be inclusive of Tiered water level data (A, B).

1.2.4 *Support partnerships with marine education and outreach programs.*

- Kent participated on the organizing committee for the 2019 Communicating Ocean Sciences Workshop (COSW) featuring Editor in Chief of Hakai Magazine, Jude Isabella in conjunction with AMSS. This committee is also organizing a one-day science communication workshop in January led by the American Geophysical Union's Sharing Sciences group.
- Staff supported the Shorezone project as a partner.
- Kent maintained a web page with resources for educators on AOOS.org.
- Staff provided support to Alaska Sea Grant's marine education programs.

1.2.5 *Support Alaska Marine Policy Forum*

- AOOS partnered with Alaska Sea Grant to host sessions of the Alaska Marine Policy Forum (AMPF) in June, August, and October 2018.

1.2.6 *Continue AOOS short film contest.*

- AOOS has suspended the film contest pending further review. The fourth and final annual Short Film Contest was held in November 2017 with 13 entries.

1.2.7 *Continue to co-sponsor the Alaska Marine Science Symposium.*

- AOOS staff participated on the steering committee for the event.
- AOOS staff coordinated workshops and keynote addresses for symposium week.

1.2.8 *Participate in IOOS Outreach Committee*

- Kent attended monthly meetings of the committee and responded to various requests for materials from the IOOS office for inclusion into IOOS publications and website.
- Kent updated the IOOS Education and Outreach Inventory.

1.3 Observing Subsystem

1.3.1 *Marine Operations*

1.3.1.1 Sustain weather observations in the GOA.

- **Subaward to Prince William Sound Science Center to service 8 SnoTel stations in Prince William Sound and Cook Inlet.**
  - Service Snotel stations in Prince William Sound;
    Original Completion Date: September 2018
    Status: Completed September 2018

1.3.1.2 Increase access to weather observations using AIS.

- **Subaward to the Marine Exchange of Alaska to increase access to Weather Observations using AIS.**
  - Design and conduct bench and field evaluations of 3 weather sensors: Airmar 200WX/IPX7, Gill Maximet GX500 and Vaisala WXT536;
    Original completion Date: July 2018.
    Status: Completed – July 2018.
  - Install Savoonga, St. Lawrence weather sensor;
    Original completion Date: August 2018.
    Status: On Track - Delayed but on-track for installing a new weather station and AIS eATON/transceiver in spring 2019. Sensors have been purchased and are on the shelf awaiting installation.
  - Install Gambell, St. Lawrence weather sensor;
    Original completion Date: August 2018.

Status: On Track - Delayed but on-track for installing a new weather station and AIS eATON/transceiver in spring 2019. Sensors have been purchased and are on the shelf, awaiting installation.

- Install Kaktovik weather sensor;
  Original completion Date: August 2018.
  Status: Completed – August 2018. New weather station (Gill Maximet GX500) and AIS eATON/transceiver installed.
- Install Wainwright weather sensor;
  Original completion Date: August 2018.
  Status: Completed – August 2018. New weather station (Gill Maximet GX500) and AIS eATON/transceiver installed.
- Install new weather sensor and service existing peripheral equipment at Cape Decision lighthouse.
  Original completion Date: August 2018.
  Status: On Track - Trip delayed but on-track for spring 2019. Weather sensor has been purchased and is on the shelf, awaiting installation.
- Complete integration of Nome current/wave buoy into MXAK network for transmitting of real-time observations via AIS.
  Original completion Date: September 2018.
  Status: Completed - Nome buoy website page (https://www.mxak.org/services/mda/weather/port-of-nome/) completed in late July, and AIS integration completed in mid-September.
- Install new "weather camera" on Nome Causeway showing weather conditions at Nome entrance breakwater.
  Original completion Date: September 2018.
  Status: On-track - Installation scheduled for spring 2019.
- Install new weather sensor and service existing peripheral equipment at Mary Island (Dixon Entrance).
  Original completion Date: May 2019.
  Status: Completed – August 2018. Upgraded the weather sensor – replaced Airmar WX150 with a Gill GMX500.
- Install new weather sensor and service existing peripheral equipment at Guard Island (Tongass Narrows/Clarence Strait).
  Original completion Date: May 2019.
  Status: Completed – August 2018. Upgraded the weather sensor – replaced Airmar WX150 with a Gill GMX500 – installed a new tower, new power plant, and AIS transceiver.
- Install new weather sensor and service existing peripheral equipment at Pt. Gardner (Frederick Sound/Chatham Strait).
  Original completion Date: May 2019.
  Status: On-track - Installation scheduled for spring 2019. Weather sensor has been purchased and is on the shelf, awaiting installation.
- Install new weather sensor and service existing peripheral equipment at Rocky Island.
  Original completion Date: May 2019.
  Status: On-track - Installation scheduled for spring 2019. Weather sensor has been purchased and is on the shelf, awaiting installation.

1.3.1.3 Support sea ice radar in Barrow

- **Subaward to University of Alaska Fairbanks (UAF), Geophysical Institute.**
  - Replace the UAF coastal sea ice radar system in Utqiaġvik. Original Completion

Date: May 2019.
Status: Pending. – System needs complete replacement. PI is seeking funds to do so, with possible AOOS contribution.

1.3.1.4 Sustain critical wave buoys for navigation safety.

- **Operate and maintain Cook Inlet buoy; Original completion date: May 2019.** Status: On Track. The buoy was recovered in July and a replacement buoy was deployed with fresh batteries in June and has been operational through November 2018.

1.3.1.5 Map surface currents with high frequency radars (HFRs).

- **Subaward to University of Alaska Fairbanks to support operation and maintenance of three HFR sites on the Chukchi and Beaufort Seas as part of a consortium**.
  - Install Wainwright and Point Barrow HFR field sites to collect hourly surface current data in real-time; Original Completion Date: June 2018.
    Status: Complete – June 2018.
  - Install Cape Simpson HFR field site to collect hourly surface current data in real-time; Original Completion Date: July 2018.
    Status: Complete – August 2018. The delay was due to coastal erosion that washed away an HFR antenna. Thanks to an equipment loan from IOOS and CODAR Ocean Sensors, the lost antenna was replaced within a few weeks to bring the site to operational status.
  - Monitor HFR and power systems and perform maintenance, as necessary, until freezeup; Original Completion Date: July to November 2018.
    Status: Complete – July through November, 2018.

1.3.1.6. Install two new high frequency radar field sites in the Bering Strait

- A subaward is currently in development with the University of Alaska Fairbanks to install two new HFR filed sites in the Bering Strait Region.

1.3.2 *Coastal Hazards & Inundation*

1.3.2.6 Increase water level observations in western & northern Alaska

- **Subaward to the Alaska Department of Natural Resources to Facilitate an Integrated, Interagency Water Level Network for the Alaska Coast.**
  - Install an ARGUS wave monitoring camera at Unalakleet, Alaska; Original Completion Date: September 2018.
    Status: Complete - August 2018.
  - Contract for iradar and igage sensors; Original Completion Date: May 2018.
    Status: Complete - August 2018.
  - Construct an igage at Tununak; Original Completion Date: August 2018.
    Status: On Track.
  - Reinstall igage at Dillingham; Original Completion Date: August 2018.
    Status: Delayed. Dillingham site was re-established by UAF, however, sensor almost immediately malfunctioned. Sensor was repaired by manufacturer, however, has been delayed in re-installation by Alaska Sea Grant MAP agent. Re-installation planned by May 2019.
  - Deploy radar sensor at Kotzebue; Original Completion Date: September 2018.
    Status: Complete - September 2018.
  - Purchase and deploy an igage at Deering. Original Completion Date: September 2018.
    Status: Complete - September 2018.

- Install tide staffs at Quinhagak, Nunapitchuk, and White Mountain; Original Completion Date: June 2018.
  Status: Delayed. Tide staffs were installed at Quinhagak and Nunapitchuk in June 2018 but White mountain installation has been delayed to June 2019.
- Create color-indexed maps for flood communication at communities where: tide datums, community infrastructure, and elevation information are available; Original Completion Date: September 2018.
  Status: Delayed. Staff encountered problems with data at some locations, expected completion in February 2019.
- Create coastal storm flood documentation for state database; Original Completion Date: November 2018.
  Status: Delayed. Denali Commission has delayed the release of the state threat assessment to December 2018.
- Inform the National Weather Service (NWS) of potential flood impacts in advance of storm events; Original Completion Date: October - December 2018.
  Status: Complete - October - November 2018.
- Develop and maintain Alaska Water Level Watch Webpage; Original Completion Date: November 2018.
  Status: Complete – November 2018.
- Train NWS and SEOC to use coastal flood mapping products; Original Completion Date: November 2018.
  Status: Delayed. New products still under development.
- Attend conferences and meetings for discussions on water level sensors and deployments; Original Completion Date: November 2018.
  Status: Complete – November 2018. Attended and presented at Hydrographic Services Review Panel meeting and National Science Foundation permafrost coastal erosion research coordination network meeting.

- **Subaward to ASTRA LLC for a Pilot Study to Monitor Ocean Tides and Space Weather Using GPS Receivers.**
  - Build and deliver remote power support for GPS hardware; Original Completion Date: May 2019.
    Status: On Track.
  - Remove and redeploy equipment from Seward to Anchorage and Homer and train AOOS personnel in deployment and routine maintenance of equipment; Original Completion Date: July 2018.
    Status: Complete – July 2018.
  - Monitor daily health status of the re-deployed equipment, review and provide quality-controlled tide and space weather data on a daily basis for these new locations; Original Completion Date: May 2019.
    Status: On Track.

1.3.2.7 Increase wave observations for forecasting and planning

- **New CDIP Buoy Deployed in Nome; Original completion date: May 2019.**
  Status: Completed. A new U.S. Army Corps of Engineers Coastal Data Information Program (CDIP) wave and current buoy was deployed off the Port of Nome in July. Support for this buoy and data comes from the U.S. Army Corps of Engineers, the Port of Nome, AOOS, and the Marine Exchange of Alaska.

1.3.2.8 Initiate statewide geospatial mapping coordination

- Funding was acquired for a short-term AOOS position to develop a statewide coastal

mapping strategy and implementation plan with support from NOAA and the state of Alaska.

- Status: On Track. Position hired and survey to support prioritization for strategy has been developed and will soon be underway.

1.3.2.9. Improve the robustness of NOAA tsunami warnings for earthquakes in Alaska.

- A subaward is in development with the Alaska Earthquake Center at the Geophysical Institute of the University of Alaska Fairbanks.

1.3.3 *Ecosystems, Fisheries & Climate Trends*

1.3.3.1 Sustain ship-based sampling along the Seward Line.

- **Subaward to University of Alaska Fairbanks to support two sampling cruises along the Seward Line; Original Completion Date: September 2018.**
  Status: Complete – May 2018.

1.3.3.2 Support ecosystem moorings in Alaska's Large Marine Ecosystems.

- **Subaward to University of Alaska Fairbanks to begin the incremental build-out of a moored Gulf of Alaska Ecosystem Observatory (GEO) by providing funding for equipment purchases.**
  - Complete design of real-time surface buoy and data transmitting features; Original Completion Date: August 2018.
    Status: Complete – August 2018.
  - Continue and complete purchase of observatory equipment and hardware; Original Completion Date: August 2018.
    Status: On Track.
  - Begin construction of project website; Original Completion Date: August 2018.
    Status: On Track.
  - Continue equipment purchases with funds that would become available in UAF Fiscal Year 2019 (FY19); Original Completion Date: July 2018.
    Status: On Track.
  - Assemble first mooring for deployment; Original Completion Date: August 2019.
    Status: On Track.
- Continue support to UAF for Chukchi Sea Ecosystem Mooring.
  - 2018 mooring turnaround was successful using ship of opportunity. All data was successfully recovered, except that sediment trap did not collect samples properly.

1.3.3.3 Pilot use of gliders to monitor ocean conditions and marine mammals

- **Subawards to Woods Hole Oceanographic Institute, University of Alaska Fairbanks and University of Washington to conduct a simultaneous marine mammal and oceanographic survey of the Chukchi Sea using a Slocum autonomous underwater glider.**
  - Deploy glider in southern Chukchi Sea using a ship of opportunity; Original Completion Date: July 2018.
    Status: Complete – June 2018.
  - At sea data collection and maintenance of website with real-time acoustic detections and oceanographic data; Original Completion Date: October 2018.
    Status: Complete – September 2018. The glider developed a leak in the air bladder at deployment and was recovered by the Sikuliaq. The glider was then shipped out for immediate repairs, and returned to Alaska in time to be redeployed in August.
  - Glider recovery and download of acoustic and oceanographic data; Original Completion Date: October 2018.
    Status: Complete – September 2018. All acoustic (pitch track) and oceanographic data were posted in near real time during the mission to dcs.whoi.edu.

- Data QA/QC'd and delivered to Axiom; Original Completion Date: June 2019. Status: On Track.

1.3.3.4 Host regional ATN workshop

AOOS to host a regional ATN workshop and build on data tools previously developed; Original Completion Date: December 2017.
Status: Workshop held. Final report from ATN program at IOOS office is still pending.

1.3.3.5 Regional Sentinel Observations

- **Subaward to Prince William Sound Science Center to support partnership to operate and maintain acoustic arrays across major PWS entrances and maintain conductivity sensor.**
  - Swap conductivity sensor at Cordova tide station; Original Completion Date: June 2018 Status: Completed June 2018.
  - Clean conductivity sensor at Cordova tide station; Original Completion Date: September 2018 Status: Completed September 2018.
- **Funding set aside to NOAA/UAF's Kasitsna Bay Laboratory and other partners to collect oceanographic data along repeated transects in Kachemak Bay and lower Cook Inlet.**
  - Conduct monthly CTD surveys at mid-Kachemak Bay transect**;** Original Completion Date: November 2018.
    Status: Complete – Monthly mid-Kachemak Bay oceanographic surveys were completed on 22 June, 24 July, 23 August, 13 September, 17 October and 8 November 2018.
  - Conduct three seasonal surveys at outer Kachemak Bay transect (spring, summer, fall); Original Completion Date: November 2018.
    Status: Complete. Seasonal outer Kachemak Bay oceanographic surveys were completed on 25 June, 24 July and 13 October 2018.
  - Conduct two seasonal oceanographic surveys on an along-Kachemak Bay transect (spring, summer). Original Completion Date: November 2018.
    Status: Complete, with four additional surveys. Along-Kachemak Bay oceanographic surveys were completed on 22 June, 18 July, 23 August, 17 September, 17 October, and 8 November 2018.
  - Deliver quality assured/quality controlled oceanographic data to AOOS data contractor Axiom. Original Completion Date: November 2017 2018 (for data through May 2018).
    Status: Complete (early). Quality assured/quality controlled oceanographic data from the Kachemak Bay CTD surveys through 11 November 2017 have been provided to Axiom via the AOOS Research Workspace.
  - Present oceanographic and nutrient monitoring results at one or more science conferences annually (Alaska Marine Science Symposium or other); Original Completion Date: November 2018.
    Status: Complete. Kachemak Bay oceanographic sampling results were presented during talks on 2012-2018 monitoring results at annual Gulf Watch Alaska program principal investigators meeting in Anchorage Alaska in November 2018.
  - Participate in one or more science outreach events, using graphic products developed from Kachemak Bay oceanography data; Original Completion Date: November 2018.
    Status: Complete. Kachemak Bay oceanographic survey data were presented at the Kachemak Bay Marine Ecosystem Working Group meeting on 23 October 2018.

1.3.3.6 Climate Products

- **Subaward to University of Alaska Fairbanks, Alaska Center for Climate Assessment and Policy to develop distance learning modules on climate decision support.**
  - Identify training objectives, scope, delivery format, and potential audiences; original Completion Date: December 2018.
    Status: On Track.

1.3.4 *Water Quality*

1.3.4.1 Sustain Ocean acidification (OA) monitoring including moorings, sampling along the Seward Line, Burkolators and an instrumented ferry.

- **Subaward to University of Alaska Fairbanks to continue a ten-year time-series in the Gulf of Alaska along the Seward Line as well as support the deployment of OA moorings adjacent to the oceanographic sampling line.**
  - Support OA Sampling along Seward Line; Original Completion Date: September 2018.
    Status: Complete - September 30 - May 5 (GAK1-15), most Prince William Sound (PWS) stations completed except for PWSA-F (due to weather and time constraints).
- **Subaward to Alutiiq Pride Shellfish Hatchery to maintain continuous ocean acidification monitoring using a permanently installed Burke-o-Lator; Original Completion Date: June 2019.**
  Status: On Track. Installed Burke-o-Lator has been continuously monitoring seawater during this project period.

1.3.4.2 Support Alaska OA Network

- **AOOS received funding from the national OA Program to support the Alaska OA Network. Original Completion Date: May 2019.**
  Status: On Track.

1.3.4.3. Support Alaska Harmful Algal Bloom Network

- Two subawards are in progress with Alaska Sea Grant to provide outreach support to Bering Strait Communities.

1.3.4.4. Support the University of Alaska's Ocean Acidification Research Center (OARC).

- **Subaward to the University of Alaska Fairbanks to execute a comprehensive carbonate chemistry assessment of US Distributed Biological Observatory (DBO) activities.**
  - Conduct a research cruise for the DBO; Original Completion Date: August 2019.
    Status: Complete.
  - Participate in a national meeting or workshop; Original Completion Date: May 2019.
    Status: On Track. Natalie Monacci attended the American Geophysical Union's (AGU) Fall meeting in Washington, DC in December 2018 to meet with DBO collaborators.
- **Subaward to the University of Alaska Fairbanks to support the ocean acidification monitoring network in Alaska Coastal Seas.**
  - Support equipment maintenance and turnaround for OA surface mooring at M2; Original Completion Date: Fall 2018.
    Status: Complete. The M2 and M8 sensors were successfully recovered from the MV Aquila in October 2018. The normally scheduled cruise aboard the NOAA Ship Dyson was canceled due to engine problems, pushing the recovery and turnarounds back by approximately one month.
  - Support equipment maintenance and turnaround for OA surface mooring at

GAKOA; Original Completion Date: Spring 2019.
Status: On track. The GAKOA surface mooring and subsurface sensors at GAK1 will be turned around in late February 2019.

- Support equipment maintenance and turnaround for OA surface mooring at M2; Original Completion Date: Spring 2019.
  Status: On track. The M2 surface mooring and subsurface sensors will be turned around in late April 2019.
- Participate in a national meeting or workshop to present any new findings; Original Completion Date: May 2019.
  Status: On Track. Natalie Monacci presented a poster highlighting findings from our surface mooring sites at the American Geophysical Union's (AGU) Fall meeting in Washington, DC in December 2018: "An Integrated Approach to Ocean Acidification Research and Monitoring: Using Observations and Models to Support the Alaskan Blue Economy."

1.3.5 Streamline access to Observations

AOOS received $75k to help fill gaps and streamline access to ocean observations.
Original Completion Date: June 2019.
Status: On track. The AOOS Board approved $25k to go towards Phase I of a pilot data portal for Tier B and C water level data. The staff also identified two additional options for the additional funding.

1.4 Data Management & Communications Subsystem, subaward to Axiom Data Sciences

1.4.1 Provide Core Data Management Support

1.4.1.1 Provide technical support for AOOS cyber infrastructure.

- Throughout this performance period project, Axiom ensured that the AOOS Data System was healthy, secure and monitored; provided technical support to system problems; and mapped out future upgrade strategies.
  Status: On Track.

1.4.1.2 Continue development of AOOS Data Portal.

- During this performance period, version 2.9 of the AOOS data portal was released, which features improvements to the existing search functionality and introduction of a new method for accessing help docs. Changes were made relative to AOOS and other IOOS RA stakeholder feedback received at meeting and through the portal feedback tab.
  Status: On Track.

1.4.1.3 Implement QARTOD QA/QC checks for AOOS real time data feeds.

- Axiom is working with AOOS to implement protocols for applying QARTOD checks to real-time data feeds according to the FY2018 Plan for Quality Control of Sensor Data plan.
- Axiom has completed Phase 1 of this work to prototype visible QARTOD flags in the portal for data provider flags. Examples of visible flags displayed from data providers implementing QARTOD can be found in the IOOS Sensor Map (e.g. USF CMS datasets here; Moss Landing Marine Laboratories Seawater Intake Monitoring Station (MLSC1) here). In the AOOS region, there are a limited number of providers who currently submit QARTOD flags with their datasets. Axiom is actively working with the Kachemak Bay NERR to ingest and display their quality-tested water quality datasets as a prototype dataset for the Alaska region.

- Demonstration of QARTOD display through the portal was conducted with AOOS staff for feedback, which will be incorporated into future revisions to the prototype.
- Building on the success of Phase 1, Axiom is actively modifying the portal backend infrastructure to run the basic QARTOD tests itself after downloading observation data. This phase 2 of development is focused on getting the test calculation infrastructure and test type documentation in place for the simpler subset of IOOS required QARTOD tests.
  Status: On Track.

1.4.2 *Develop and Maintain Special Data Products*

1.4.2.1 Support existing data products.

- Axiom maintained the operation and maintenance of existing products, as identified by AOOS and its partners.
- The Alaska HAB map that aims to reduce health risks to humans from HABs by providing access to up-to-date results for phytoplankton and shellfish biotoxin monitoring across Southeast and Southcentral AK regions was maintained during this performance period.
- Updates were made to the US Arctic Observing Network website in collaboration with NOAA partner in relation to the 'Mobilizing Arctic Observing in Support of Societal Needs' effort.
  Status: On Track.

1.4.2.2 Ingest new datasets and metadata.

- In partnerships with the Central Beaufort Sea Wave and Hydrodynamic Modeling Study, a new met station was deployed on Foggy Bay Island and served through the AOOS Data Portal.
- Real-time water level information for two new tide stations located at Chinitna Bay in lower Cook Inlet and Coal Point in Kachemak Bay were added to the AOOS portal.
- Work was completed with Ray Brunsting to ingest Burkeolator (Sitka) data via the Hakai.org's ERRDAP instance together with QARTOD data flags. Real-time data ingest has been completed to the AOOS system with input from the data provider. Work is underway to backfill data feeds with historic data, though data provider is not currently serving those data via interoperability. Accessing the data through this ERDDAP instance will dovetail with Columbia Ferry 2019 ocean acidification data feeds (as indicated by data provider).
- The Aluttiq Burkeolator data feed was updated to include the QA/QC/d data. A new sensor parameter was also included to display 'total dissolved inorganic carbon'.
- Three new water level sensors were added for Deering, Kotzebue, and Dillingham (feed added but station not active) in western Alaska in collaboration with the State of Alaska.
- A 2018 Harmful Algal Bloom Coordinated Data Collection data layer was added to the AOOS portal (link) to show phytoplankton and toxicity testing locations in the Bering Sea and U.S. Arctic.
- Six new Marine Exchange Weather stations were added to the AOOS portal's real time sensor layer.
  Status: On Track.

1.4.2.3 Develop new data products.

- Axiom worked to support the needs of AOOS, through the Alaska Water Level Watch (AWLW) partnerships, to augment the existing NWLON network with coastal water level observation products (real-time stations, short-term time series, and high-water mark measurements) derived from sites with accuracy standards adequate for identified application. During this performance period, a prototype data inventory

system featuring of the CO-OPS water level station site to present was developed using the AOOS data system. Axiom met with AOOS and stakeholders to gather feedback on the prototype and isolate tasks to mirror functionality of the CO-OPS Tides and System by the Alaska Water Level Watch system. This project relates to the water level activities and implementation of the NOAA tiered water level data policy for AK region.

Axiom continues to support to development of a Cook Inlet Salmon Modeling Project. A Research Workspace campaign is maintained from the project as a data storage, sharing and documentation platform. Technical support was provided to the team to convert NPZ models for the Gulf of Alaska into Jupyter Notebooks (hosted through the Research Workspace) for access and use by researchers during the modeling activities of this project.

Status: On Track.

1.4.2.4 Engage with data providers and data stakeholders.

- Axiom provided support services to ensure that data providers and users can access, understand, and appropriately document data (metadata and QA/QC).

  Status: On Track.

1.4.3 *Host and Support AOOS Website*

During the performance period the AOOS web site, hosted by Axiom, was stable and secure. Additional Axiom initiated activity working with the AOOS Web Team on the early scoping for the website redesign and new portal interface pages.

Status: On Track.

1.4.4 *Provide DMAC support to the AOOS program*

1.4.4.1 Provide overall DMAC project management and oversight.

- Participated in regular, bi-monthly meetings with AOOS to discuss and communicate progress on project tasks. Maintained a Trello project management board to track progress.
- Contributed monthly data management highlights to the AOOS newsletter.

  Status: On Track.

1.4.4.2 Participate in regional, state, national and international DMAC activities

- Attended or presented at the following meetings related to AOOS DMAC activities: Arctic Domain Awareness Center (ADAC), Alaska Landscape Conservation Cooperative, AK Harmful Algal Bloom, Network, AK Department of Natural Resources, Audubon Alaska, Cook Inlet Regional Citizens Advisory Council, Alaska Fisheries Development Fund, Defenders of Wildlife, The Nature Conservancy, the NOAA Arctic Research Program Water Level and the U.S. Coast Guard.
- Axiom participated in national meetings of interest to AOOS and/or the IOOS community, including: ATN-MBON-OTN Biological Observation Workshop (November 2018) and the SECOORA WebCam workshop (November 2018).

  Status: On Track.

1.4.4.3 Implement recommended and standard data management procedures for AOOS data assets.

- Maintained IOOS compliant services and applications for integration with national products.
  - THREDDS 4.6.10 - https://thredds.aoos.org/iso
  - ERDDAP 1.82 - https://erddap.aoos.org/
  - SECOORA ISO WAF - https://thredds.aoos.org/iso
  - NCEI Archive - https://ncei.axiomdatascience.com/aoos/
- Made programmatic improvements to ERDDAP services for faster and more efficient calculation of long time-series requests.

- Added tracking of data requests to and from THREDDS and ERDDAP to capture metrics on which dataset are being accessed and how much data is being downloaded.
- Worked with AOOS staff to finalize an AOOOS Data Management Information Transfer Plan is ready for distribution with the AOOS FY18-19 awards and contracts.
- Each of the AOOS Special Funded projects were supported with an AOOS Research Workspace account to submit project data and metadata. Projects PIs were provided technical assistance for use of the Workspace to load data and author metadata for AOOS projects and partnered research programs.
  Status: On Track.

1.4.4.4 Implement AOOS Data System Review recommendations

- In October 2018 the Axiom software engineers implemented a technical exercise to simulate the disaster and recovery of the compute infrastructure at the Axiom data center, which is the backbone of the AOOS data system. In part, involved spinning up a parallel system on a cloud provider to protect those data assets. The approach and lessons learned from that exercise are being formalized into a disaster recovery plan
  Status: Ongoing and On Track.

1.4.5 *Support national IOOS Program data management activities*

1.4.5.1 *Continue enhancements to the Environmental Sensor Map*

- Work is underway to implement protocols for applying QARTOD checks to real-time data feeds according to the FY2018 Plan for Quality Control of Sensor Data plan.
- Axiom has completed Phase 1 of this work to prototype visible QARTOD flags in the portal for data provider flags. Examples of visible flags displayed from data providers implementing QARTOD can be found in the IOOS Sensor Map (e.g. USF COMPS C13 Buoy here; Moss Landing Marine Laboratories Seawater Intake Monitoring Station (MLSC1) here; Avon Lake Pump Station here).
- Demonstration of QARTOD display through the portal was conducted with IOOS RA staff from AOOS, CeNCOOS, and SECOORA for feedback, which will be incorporated into future revisions to the prototype.
- Building on the success of Phase 1, Axiom is actively modifying the portal backend infrastructure to run the basic QARTOD tests itself after downloading observation data. This phase 2 of development is focused on getting the test calculation infrastructure and test type documentation in place for the simpler subset of IOOS required QARTOD tests.
- Contributed to news release for Eyes on the Ocean relative to the release of the next generation Sensor Map .
- The Sensor Map landing page was updated to include recent and historic data views. New data views were assembled to spotlight environmental conditions during hurricanes Lane and Florence.
- New sensor stations added to the Sensor Map include:
  - Three new water level sensors were added for Deering, Kotzebue, and Dillingham (feed added but station not active) in western Alaska in collaboration with the State of Alaska.
  - Six new Marine Exchange Weather stations from Alaska were added.
  - Added GLOS (Great Lakes Nearshore Buoy Network) source feeds from to their THREDDS server.
  - Nine water quality and phytoplankton monitoring stations from GLOS (link).
  - LOBO station, Tampa Bay (here)
  - Grays' Reef, UGA (here)
  - Cheeca Rocks Reef Mooring, NOAA PMEL (here)
  - CDIP wave buoy 42078- Big Pine Key, FL (here)

- USF CMS COMPS station C10, C12 and C13 (C10, C12, C13) Original Completion date: May 2018.

Status: On Track.

1.4.5.2 *Support ATN DAC*

- Data from Core 1 and Core 2 databases from Hopkins transitioned to Axiom. Data was processed along with metadata into standard netcdf objects. These data sets and metadata were then exposed through a dedicated ERDAPP instance for the ATN DAC.
- During this performance period a version of interactive web-based tool was migrated from the NOAA-Southwest Fisheries Science Center (SWFSC) and deployed on Axiom's infrastructure to geographically display ATN assets transferred from Hopkins Marine Lab. The map can be found: http://atn.axds.co/map/#map The map is connected to the ATN ERDDAP instance which contains the tagging data provided by Hopkins.
- Axiom prototyped, evaluated and refined the automated ingestion and monitoring cyberinfrastructure to interact with tag manufacturer data systems at Wildlife Computers, Argos and SMRU. Wildlife Computers and Argos data flows were fully automated into the ATN data system. Progress was made towards data ingestion from SMRU, which still currently requires manual intervention by Axiom staff due to issues on the SMRU service API end.
- The initial structure of the ATN Research Workspace instance has been established. The ATN instance in the Research Workspace currently contains 2 organizations, 23 network users and 24 projects all of which contain data and metadata submitted by data providers in various degrees of curation.
- The ATN Data portal component prototypes were deployed during this performance period as follows:
  - ATN status dashboard - https://admin.axds.co/atn.html#!/
  - ATN Portal (map and catalog) - https://dev.axiomdatascience.com/?portal_id=99
  - Real-time tag trajectories - https://dev.axiomdatascience.com/?portal_id=99#map
  - Map view of individual ATN projects, example shown for Costa Lab UCSC northern elephant seals - https://dev.axiomdatascience.com/?portal_id=99&ls=d27af6f8-e69a-2102-4404-582ea4bbc6dc#map
- Axiom worked with existing regional acoustic telemetry researchers and aggregators at the Florida Atlantic Coast Telemetry (FACT) project to support their network coordination and movement of data to the Ocean Tracking Network (OTN).
- The position description for the IOOS ATN Science Coordinator was drafted with the IOOS National office and advertised during September 2018. Initial phone interviews were held with the top 6 candidates in October 2018. Second, in-depth interviews were held with the top three candidates and a hiring committee of Axiom, IOOS, Navy, and CeNCOOS managers during the last week of November. The selection and offer of the
- Develop a draft, internal document of the data management policies and procedures with defined roles and responsibilities, and processes for the collection, quality control, storage, maintenance, and dissemination of ATN data assets. The document was shared with project partners for review and feedback. These procedures include: data asset registration; data formats and standards; steps for data submission; tag attributions; metadata documentation; data QA/QC; and data publication and archive. The procedures, once finalized, will be disseminated to the data providers and PIs through the ATN website: https://atn.ioos.us/

- Similarly, the data management procedures for data providers to submit data to the ATN DAC were drafted. The procedures were also shared for feedback among partners relative to the new ATN DAC system.
- Participation and presentation at the ATN-MBON-OTN Biological Observation Workshop (November 2018) in Santa Cruz, CA.
- Participation in regular weekly or bi-weekly calls with project partners to provide progress summaries and coordinate the continued development of Phases 1, 2, and 3 activities of this project.
  Status: On Track.

1.4.5.3 *USGS Geospatial Data Portal Development*

- Axiom worked with Rich Signell and Ellyn Montgomery to set up the USGS CSW server to serve out the USGS observations database and allow for streamlining of the portal data ingestion process. During this performance period the next steps were isolated with partners to setup a new sensor pipeline that uses the CSW server to check for new data.
- Axiom supported Ellyn to add new waves datasets to the collection of netCDF files, which were not included in the previous phases of work due to the complexity of the historic data formats.
- A new layout and style of the portal were created to be compliant with hosting on a .gov address.
  Status: On Track.

1.4.5.4 *Maintain and Enhance Data Access Services (ERDDAP) for the Environmental Sensor Map on ioos.us*

- Axiom worked collaboratively with IOOS staff to draft and revise a guidelines document that details the process that would be required to implement ERDDAP service for data harvest to the Environmental Sensor Map
- A document entitled IOOS Data Contribution Guidelines: Proposed ERDDAP Standards was created that explains proposed IOOS changes needed to switch to ERDDAP and improve data and metadata ingestion into national products. This document was shared with a subset of the IOOS RA DMAC staff and NOAA (Kevin O'Brien, Bob Fleming) who actively work to maintain ERDDAP instances in order to get their perspective on the draft guidelines and metadata profiles. An informal discussion was held with these members to also get their feedback to further inform and revise these procedures.
- In concert with the proposed ERDDAP standards the IOOS Metadata Profile v1.2 was updated to accommodate these changes (link).
- To bring these standard to full light, Axiom is actively developing "Gold Standard" ERDDAP examples and template that will be shared with IOOS RA DMAC. The examples will be live at https://standards.sensors.ioos.us/erddap/index.html and have accompanying documentation.
  Status: On Track.

1.4.5.5 *MBON Portal Development*

- Axiom worked to promote IOOS Regional Association and partners participation in the MBON portal via three web-based demonstrations given during this performance period.
- New biodiversity data were ingested into the MBON Data Portal or IOOS RA portals data via standard interfaces: SBC MBON Kelp Forest Reef Fish Abundance, AMBON biodiversity datasets for epifauna, seabird, and marine mammals, Zooplankton Species Distribution and Abundance Data from the Applied California Current Ecosystem Studies (ACCESS). Axiom also provided technical assistance to the partner network

to revise their database for visualization of long time series effort and marine mammal beach carcasses surveys for central California. Draft visualizations have been shared internally for feedback with partners and CeNCOOS and are actively being modified via an ERDDAP instance.

- Technical assistance was provided to data providers for aligning data to the Darwin Core and OBIS—ENV formats. All new datasets (listed above) were transformed to the Darwin Core standard for ingestion and access through the MBON Data Portal. Technical assistance was also provided to the Florida Keys National Marine Sanctuary group on their fish, coral, and water quality database for standardization and ingestion to the MBON Data Portal.
- Throughout the performance period, standard services for output enabling users to retrieve biological data from the MBON Portal were maintained.
- The MBON Data Portal infrastructure was updated to the Version 2.9, which features improvements to the existing search functionality and introduction of a new method for accessing help docs. Changes were made relative to stakeholder feedback received at the February biological data workshops and through portal feedback from IOOS RAs sharing the same data system infrastructure. A summary of the version releases is below and full release notes can be found: https://axiomdatascience.com/portal-updates/

  Status: On Track.

1.4.5.6 *Finalize HFR Range Series File Archiving through the Research Workspace*

- Axiom worked to gain familiarity with the data formats and types coming from IOOS HFRNet to scope out the implementation for this project.

  A prototype ingestion and processing workflow was developed in Jupyter Notebook to display HFR data stored within the Research Workspace.

  Status: On Track.

1.4.6 *Increase Access to Biological Data*

- Original Completion Date: May 2019.

  Status: On Track. Interviewed agency and program managers regarding needs for biological data. Working with NOAA to identify additional needs for biological data for Integrated Ecosystem Assessments and with BOEM for data for NEPA analyses.

1.5 Modeling, Analysis & Product Development Subsystem

1.5.1 Support existing models & data products including Historical Sea Ice Atlas, Research Assets Map and Yukon-Kuskokwim Chinook Run Timing Forecast

- **Subaward to University of Alaska International Arctic Research Center to update Historical Sea Ice Atlas twice a year.**

  Original Completion Date: October 2018.

  Status: completed – First annual update completed.

1.6 Additional Activities and Successes Related to Mission

- Continued financial support for Alaska Harmful Algal Bloom Network is being sought.
- Future support for the Shorezone program is also being pursued

2.0 Scope of Work

- The Norton Sound Buoy has been shipped back to Seward for maintenance as we investigate a longer-term plan for its deployment.
- Only one of the four HF radars on the North Slope was actually removed this summer due to a lack of long-term funding.

- We do not expect any other changes to the project Scope of Work at this time.

3.0 Personnel and Organizational Structure

AOOS is funding a one-year Alaska Sea Grant fellow to assist with harmful algal bloom network activities.

4.0 Budget Analysis

All financial reports are up to date and have been submitted on time. There are no risks to the project that need identifying. The following equipment was purchased during this period.

- An Edgetech Acoustic Release.

RA	Station ID	WMO ID or NWS/CMAN ID	Station Long Name	Station Description	Latitude (dec deg)	Longitude (dec deg)	Platform Type	Station Deployment (mm/yyyy, yyyy, <5 yr, >5 yr)	Currently Operational? (Y, N, O, U)	Platform Funder/Sponsor	RA Funding Involvement (Yf, Yp, N)	Platform Operator/Owner	Operator Sector	Platform Maintainer	Data Manager	Variable Names + water column depth of measurement in meters [CF_name (# m, # m) or CF_name (mult) or CF_name (# depths)].	Additional notes	
AOOS	Beaufort Sea WL		Beaufort Sea Water Level Sensors	Annual Turnaround	69.607098	-139.715423	moored_buoy	11/01/16	Y	AOOS	Yf	UAF	Academic	UAF	AOOS	sea_water_temperature (seafloor), sea_water_electrical_conductivity (seafloor), sea_water_practical_salinity (near-bottom), sea_water_pressure_at_sea_floor	Need to find out what near--bottom depth is here (Seafloor): I am checking to see what swpressure variable was submitted	
AOOS	CSESM		Chukchi Sea Ecosystem Mooring (CSESM) Array	Hannah Shoal subsurface ecosystem mooring; Seabird 37sm, SBE SEAPHox, Contros HYDRO-C, Satlantic SUNA, Hydrobios, Aural Sequoia LISST, Teledyne ADCP, Aanderaa RCM9,	71.6	-161.5	moored_buoy	09/01/15	Y	AOOS, NPRB, UAF, others	Yp	UAF_COFS	Academic	UAF	AOOS	sea_water_temperature (35m, 48m, near-bottom), sea_water_electrical_conductivity (35m, 48m, near-bottom), sea_water_practical_salinity (35m, 48m, near-bottom), current_velocity (3-30 m, 1m bins; near-bottom), sea_surface_wave_significant_height, sea_surface_wave_to_direction, sea_surface_wave_mean_period, nitrate (35m), dissolved_oxygen (35 m), sea_water_pH_reported_on_total_scale(35 m), partial_pressure_of_carbon_dioxide_in_sea_water (35 m), sediment_trap_parameters (38m), fish_and_plankton_acoustic_profile (0.5-30m in 4 cm bins), partical_size_spectra (35 m), sea_water_pressure (35 m, near bottom)	Rotated Annually. ~1 year lag on data ingestion. NOT SURE OF CF NAMES for all these variables as it depends on the units; Not sure what sediment trap parameters are being reported; not sure CF name for fish and plankton acoustics; not sure CF name for partical size. These data are being processed in the workspace...as soon as I know the variables reported out, I will update. 2018	
AOOS	urn:ioos:station:org.mxak:JUNEAU_AJ_DOCK	CMAN AJXA2	Juneau AJ Dock	Weather (no AIS)	58.287244	-134.397994	Fixed		Y	City and Bororugh of Juneau	N	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	need to cross check station	
AOOS	urn:ioos:station:org.mxak:JUNEAU_ANG_DOCK		Juneau ANG Dock	Weather (no AIS)	58.290687	-134.393968	Fixed		Y	City and Bororugh of Juneau	N	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	need to cross check station	
AOOS	urn:ioos:station:org.mxak:JUNEAU_LIBRARY	CMAN JLXA2	Juneau Library	Weather (no AIS)	28.298233	-134.404517	Fixed		Y	City and Bororugh of Juneau	N	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	need to cross check station	
AOOS	urn:ioos:station:org.mxak:POINT_GARDNER	CMAN PGXA2	Point Gardner	WEATHER (no AIS)	57.015542	-134.618333	Fixed	05/22/17	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	need to cross check station	
AOOS	urn:ioos:station:org.mxak:NOME		Nome, Port Breakwater	WEATHER (no AIS); AIS AT DIFFERENT NOME LOCALE	64.494037	-165.440035	Fixed	08/01/17	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	need to cross check station	
AOOS	urn:ioos:station:org.mxak:KETCHIKAN		Ketchikan, Harbor Master facility	AIS TRANSCEIVER WITH WEATHER	55.35155	-131.644231	Fixed	03/21/13	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	need to cross check station	
AOOS	urn:ioos:station:org.mxak:SALMON_LANDING	CMAN SLXA2	Ketchikan, Salmon Landing	WEATHER (no AIS)	55.3395	-1331.644231	Fixed		Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	need to cross check station	
AOOS			Akutan, Port	WEATHER (no AIS); AIS LOCATED AT DIFFERENT SPOT	54.131775	165.7853167	Fixed	06/14/17	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	need to cross check station	
AOOS	urn:ioos:station:org.mxak:WHITTIER_AMHS		Whittier, AMHS	AIS TRANSCEIVER WITH WEATHER	60.77673	-148.682278	Fixed	05/09/17	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	need to cross check station	
AOOS	urn:ioos:station:org.mxak:HAINES	CMAN HAXA2	Haines Harbor	AIS TRANSCEIVER WITH WEATHER	59.234083	-135.441717	Fixed	09/01/15	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	need to cross check station	
AOOS	urn:ioos:station:org.mxak:SKAGWAY_WX	CMAN SKXA2	Skagway	Weather (no AIS)	59.448383	-135.326367	Fixed	02/02/16	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	need to cross check station	
AOOS	urn:ioos:station:org.mxak:SITKA_HARBOR	CMAN SHXA2	Sitka Harbor	AIS STATION WITH WEATHER	57.055488	-135.349431	Fixed	04/27/16	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	need to cross check station	
AOOS	urn:ioos:station:org.mxak:SITKA_AML	CMAN STXA2	Sitka AML	AIS TRANSCEIVER WITH WEATHER	57.116326	-135.390701	Fixed	04/08/16	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	need to cross check station	
AOOS	urn:ioos:station:org.mxak:SEWARD_HARBOR		Seward Harbor	AIS TRANSCEIVER WITH WEATHER	60.115578	-149.434214	Fixed	06/16/16	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	need to cross check station	
AOOS	urn:ioos:station:org.mxak:GUSTAVUS	CMAN GUXA2	Gustavus Dock	AIS TRANSCEIVER WITH WEATHER	58.407733	-135.726317	Fixed	09/19/14	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	need to cross check station	
AOOS	urn:ioos:station:org.mxak:CORDOVA_WX		Cordova	AIS TRANSCEIVER WITH WEATHER	60.542375	-145.765979	Fixed		Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS			
AOOS	urn:ioos:station:org.mxak:MIDDLETON_ISLAND		Middleton Island	AIS TRANSCEIVER WITH WEATHER	59.437667	-146.327533	Fixed		Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS			
AOOS	urn:ioos:station:org.mxak:VALDEZ		Valdez Port	AIS TRANSCEIVER with Weather	61.12706	-146.343876	Fixed		Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS			
AOOS	Seward Line		Seward Line Data, CTD	Shiboard CTD surveys, sampled twice per year since 2006, but data exists before 2006.	59.845 to 58.098334	lon -149.46667 to -147.01	Ship	10/10/97	Y	AOOS, Exxon Valdez Oil Spill Trustees Council (EVOSTC)	Yp	UAF_CFOS	Academic	UAF_CFOS	AOOS	water column parameters (multi-depth): sea_water_pressure, sea_water_electrical_conductivity, sea_water_temperature, chlorophyll_fluorescence, beam transmission, PAR/Irradiance, dissolved_oxygen, altimeter, sea_water_density (variables), sea_water_practical_salnity	so far, AOOS serves data from 2012-2016 and is ongoing; there are also zoo and phyto plankton data for these	
AOOS	Seward Line OA Sampling		Seward Line Data, Ocean Acidification Sampling	10 year OA sampling, shipboard sampling twice per year, 2008-2017	59.845 to 58.098333	lon -149.46667 to -147.00	Ship	06/30/05	Y	AOOS	Yf	UAF_OARC	Academic	UAF_OARC	AOOS, NOAA PMEL	water column parameters (muulti-depth): partial_pressure_of_carbon_dioxide_in_sea_water, Aragonite Saturation, sea_water_temperature, sea_water_salinity, sea_water_dissolved_oxygen, sea_water_alkalinity_expressed_as_mole_equivalent (total _lkalinity), sea_water_ pH	Not sure ontology for PAR, Beam Transimission	
AOOS	urn:ioos:station:aoos:204	WMO 46108	Lower Cook Inlet, AK - 204	Year-round real-time water level buoy near Homer, AK; Datawell Directional Buoy	59.5973	-151.8291	wave_buoy	04/13/15	Y	AOOS, CDIP	Yf	AOOS	nonprofit	AOOS, NERRS - Kachemak Bay, NOAA-Susitna Bay Lab	CDIP	sea_surface_wave_to_direction, sea_surface_wave_mean_period, sea_surface_wave_significant_height, sea_surface_dominant_wave_period, sea_water_temperature		KB: Changed from Yp to Yf
AOOS	urn:ioos:station:aoos:astrawl_seward		ASTRA GPS Water Level,	ASTRA GPS Receiver located near the Alaska Sea Life Center and the UAF pier (two separate locations, though nearby)	60.0994 (ASLC), 60.0983 (UAF)	-149.4391 (ASLC), '-149.2420 (UAF)	fixed	4/4/2017 - 07/11/20018	Y	AOOS, NWS	Yf	AOOS	nonprofit	ASTRA LLC for AOOS	AOOS and ASTRA	sea_surface_height_above_sea_level (Water Level MLLW)		
AOOS	urn:ioos:station:com.alyeska:aly_base_hr		Alyeska Resort Base	Alyeska Ski Resort weather	60.9694	-149.0966	Fixed	05/05/15	y	Alyeska Ski Resort	N	Alyeska Ski Resort	other	Alyeska Ski Resort	AOOS from 05/15/2015	air_temperature, relative_humidity, preciptation_increment	Cross checked and corrected	
AOOS	urn:ioos:station:com.alyeska:aly_mid_hr		Alyeska Resort, Mid Mountain	Alyeska Ski Resort weather	60.9724	-149.0819	Fixed	05/05/15	y	Alyeska Ski Resort	N	Alyeska Ski Resort	other	Alyeska Ski Resort	AOOS from 05/15/2016	air_temperature, relative_humidity, preciptation_increment, surface_snow_thickness	Cross checked and corrected	
AOOS	urn:ioos:station:com.alyeska:ALY_TOP_HR		Alyeska Resort, Top of Glacier Bowl Express	Alyeska Ski Resort weather	60.9628	-149.0707	Fixed	05/05/15	y	Alyeska Ski Resort	N	Alyeska Ski Resort	other	Alyeska Ski Resort	AOOS from 05/15/2017	air_temperature, precipitation_increment , winds_speed, wind_from_direction, wind_speed_of_gust	cross checked and correctied. cf says preciptation_amount, "Amount" means mass per unit area. "Precipitation" in the earth's atmosphere means precipitation of water in all phases. Axiom is using the non-cf name 'precipitation_increment' to describe precipitation values reported as a rate of accumulation measured as length over time, e.g. 'mm/hr'. What we call 'precipitation (accumulation)' maps to the cf-name 'lwe_thickness_of_precipitation_amount' doesn't contain a time component, though we create something like that for each time-step or bin of values we show in the portal.	
AOOS	urn:ioos:station:com.alyeska:maxsmtn		Alyeska Resort Max's Mountain	Alyeska Ski Resort weather	60.9483	-149.0871	Fixed	05/05/15	y	Alyeska Ski Resort	N	Alyeska Ski Resort	other	Alyeska Ski Resort	AOOS from 05/15/2018	air_temperature, relative_humidity, wind_speed, wind_from_direction, wind_speed_of_gust	Cross checked and corrected	
AOOS	urn:ioos:station:com.alyeska:summitsite		Alyeska Resort Summit	Alyeska Ski Resort weather	60.9568	-149.0611	Fixed	05/05/15	y	Alyeska Ski Resort	N	Alyeska Ski Resort	other	Alyeska Ski Resort	AOOS from 05/15/2019	air_temperature, relative_humidity, solar_radiation, wind_speed, wind_from_direction, wind_speed_of_gust	Cross checked and corrected	
AOOS	urn:ioos:station:edu.oregonstate:burkolator		Alutiiq Pride Shellfish Hatchery Burkolator	ALUTIIQ PRIDE SHELLFISH HATCHERY, SEWARD AK	60.0992	-149.4428	Fixed	07/05/05	Y	IOOS OTT, BIA, AOOS, NOAA-OAP	Yp	Alutiiq Pride Shellfish Hatchery	Industry	Alutiiq Pride SH, Hakai Institute	IPACOA	dissolved_carbon_dioxide_co2, pco2, omega_aragonite, sea_water_temperature, sea_water_practical_salinity, sea_water_ph_reported_on_total_scale, sea_water_alkalinity_expressed_as_mole_equivalent	Cross-checked and corrected to what we are reporting	
AOOS	urn:ioos:station:edu.uaf.ims:300234062655380	WMO 4801730	Ice Freeze-up Detection Buoy	Hannah Shoal ice detect, partial Real-Time Sensor	71.6055	-161.4589	moored_buoy	09/06/15	Y	IOOS, AOOS, NWS	Yp	UAF_COFS	Academic	UAF	AOOS	sea_water_temperature (1m, 8m,20m,30m,40m), sea_water_electrical_conductivity (8m,20m,30m,40m), air_temperature	SBE 37s at 1,8,20,30,40 m depths The data from the ice detection buoy is on the GTS under WMO ID 4801730 as of 09/22/2017	
AOOS	urn:ioos:station:gov.noaa.pmel:GAK_Seward		GAKOA-Gulf of Alaska Ocean Acidification Mooring	Resurrection Bay, Seward, Real-time OA parameters	59.85	-149.5	moored_buoy	05/19/11	Y	AOOS, NOAA	Yp	NOAA_PMEL	gov_federal	NOAA PMEL	NOAA	dissolved_carbon_dixoide_ppm, partial_pressure_of_carbon_dioxide_in_sea_water, sea_water_pH, sea_water_temperature, sea_water_salinity, barometric_pressure	Not totally sure who owns, operates and maintains this mooring...I think it is UAF_OARC, but I know PMEL is involved via Jessica Cross and Jeremy Mathis as part of OAP. The delineations between owner, operator, and matinainer is not clear in this spreadsheet, so it is either UAF_OARC or it is PMEL.	
AOOS	urn:ioos:station:gov.noaa.pmel:m2		Ocean Acidification Mooring M2	Bering Sea, Real-time OA parameters	56.87	-164.06	moored_buoy	07/03/05	Y	AOOS, NOAA	Yp	NOAA_PMEL	gov_federal	NOAA, PMEL	NOAA	dissolved_carbon_dixoide_ppm, partial_pressure_of_carbon_dioxide_in_sea_water , sea_water_pH, sea_water_temperature, sea_water_salinity, barometric_pressure	Not totally sure who owns, operates and maintains this mooring...I think it is UAF_OARC, but I know PMEL is involved via Jessica Cross and Jeremy Mathis as part of OAP. The delineations between owner, operator, and matinainer is not clear in this spreadsheet, so it is either UAF_OARC or it is PMEL.	
AOOS	urn:ioos:station:gov.noaa.water:BETA2		Kuskokwim River at Bethel	Bethel Brown Slough Bridge	60.793333	-161.745556	Fixed		Y	AOOS, AKDNR	Yp	AK DNR	gov_state	Alaska Department of Natural Resources	NWS, National River Forecast Center	height, water_surface_height_above_reference_datum	Data processed and accessed thru NOAA Water Resources Regions, National Weather Service; https://water.weather.gov/ahps2/hydrograph.php?gage=BETA2&wfo=pafc2	
AOOS	urn:ioos:station:gov.noaa.water:KZTA2		Kotzebue	Stevens Way Bridge	66.92682	-162.63506	Fixed		Y	AOOS, AKDNR	Yp	AK DNR	gov_state	Alaska Department of Natural Resources	NWS, National River Forecast Center	height, water_surface_height_above_reference_datum	Data processed and accessed thru NOAA Water Resources Regions, National Weather Service	
AOOS	urn:ioos:station:gov.noaa.water:PLTA2		Platinum	Goodnews Bay	59.047945	-161.818458	Fixed		Y	AOOS, AKDNR	Yp	AK DNR	gov_state	Alaska Department of Natural Resources	NWS, National River Forecast Center	height	No data reporting out since 2016. Data processed and accessed thru NOAA Water Resources Regions, National Weather Service	
AOOS	urn:ioos:station:gov.noaa.water:TNUA2		Tununak	Airstrip Road Bridge	60.57065	-165.23786	Fixed		Y	AOOS, AKDNR	Yp	AK DNR	gov_state	Alaska Department of Natural Resources	NWS, National River Forecast Center	height	Data processed and accessed thru NOAA Water Resources Regions, National Weather Service	
AOOS	urn:ioos:station:gov.noaa.water:UNAA2		Unalakleet	Unalakleet River Bridge	63.93899	-160.79083	Fixed		Y	AOOS, AKDNR	Yp	AK DNR	gov_state	Alaska Department of Natural Resources	NWS, National River Forecast Center	height	Data processed and accessed thru NOAA Water Resources Regions, National Weather Service	
AOOS	urn:ioos:station:gov.noaa.water:WALA2		Bering Sea at Wales	Kingkingin Road Bridge	65.609546	-168.091553	Fixed		Y	AOOS, AKDNR	Yp	AK DNR	gov_state	Alaska Department of Natural Resources	NWS, National River Forecast Center	height	No data reporting out since FEB 2016. Data processed and accessed thru NOAA Water Resources Regions, National Weather Service	
AOOS	urn:ioos:station:gov.usda.nrcs.wcc.snotel:1071		Esther Island, SNOTEL STATION	SNOTEL station	60.805	-148.085	Fixed	10/01/04	Y	AOOS, Oil Spill Recovery Institute (OSRI)	Yp	PWSSC	nonprofit	PWSSC-Prince William Sound Science Center	National Water and Climate Center (NRCS)	battery_voltage, air_temperature, solar_radiation, air_pressure, wind_speed, wind_speed_of_gust, wind_from_direction, lwe_thickness_of_precipitation_amount, surface_snow_thickness	Cross-checked and corrected to what we are reporting	
AOOS	urn:ioos:station:gov.usda.nrcs.wcc.snotel:1073		Mt Eyak, SNOTEL STATION	SNOTEL station	60.555	-145.745	Fixed	10/01/04	Y	AOOS, Oil Spill Recovery Institute (OSRI)	Yp	PWSSC	nonprofit	PWSSC-Prince William Sound Science Center	National Water and Climate Center (NRCS)	battery_voltage, air_temperature, solar_radiation, air_pressure, wind_speed, wind_speed_of_gust, wind_from_direction, lwe_thickness_of_precipitation_amount, surface_snow_thickness, snow_water_equivalent	Cross-checked and corrected to what we are reporting	
AOOS	urn:ioos:station:gov.usda.nrcs.wcc.snotel:1074		Nuchek, SNOTEL STATION (on McNeil River)	SNOTEL station	60.335	-146.665	Fixed	10/01/04	Y	AOOS, Oil Spill Recovery Institute (OSRI)	Yp	PWSSC	nonprofit	PWSSC-Prince William Sound Science Center	National Water and Climate Center (NRCS)	battery_voltage, air_temperature, solar_radiation, air_pressure, wind_speed, wind_speed_of_gust, wind_from_direction, lwe_thickness_of_precipitation_amount	Cross-checked and corrected to what we are reporting	
AOOS	urn:ioos:station:gov.usda.nrcs.wcc.snotel:1075		Port San Juan, SNOTEL STATION	SNOTEL station	60.055	-148.065	Fixed	10/01/04	Y	AOOS, Oil Spill Recovery Institute (OSRI)	Yp	PWSSC	nonprofit	PWSSC-Prince William Sound Science Center	National Water and Climate Center (NRCS)	battery_voltage, air_temperature, solar_radiation, air_pressure, wind_speed, wind_speed_of_gust, wind_from_direction, lwe_thickness_of_precipitation_amount	Cross-checked and corrected to what we are reporting	
AOOS	urn:ioos:station:gov.usda.nrcs.wcc.snotel:1076		Tatitlek, SNOTEL STATION	SNOTEL station	60.875	-146.675	Fixed	10/01/04	Y	AOOS, Oil Spill Recovery Institute (OSRI)	Yp	PWSSC	nonprofit	PWSSC-Prince William Sound Science Center	National Water and Climate Center (NRCS)	battery_voltage, air_temperature, solar_radiation, air_pressure, wind_speed, wind_speed_of_gust, wind_from_direction, lwe_thickness_of_precipitation_amount	Cross-checked and corrected to what we are reporting	
AOOS	urn:ioos:station:gov.usda.nrcs.wcc.snotel:1087		Seal Island, SNOTEL STATION	SNOTEL station	60.435	-147.395	Fixed	10/01/05	Y	AOOS, Oil Spill Recovery Institute (OSRI)	Yp	PWSSC	nonprofit	PWSSC-Prince William Sound Science Center	National Water and Climate Center (NRCS)	battery_voltage, air_temperature, air_pressure, wind_speed, wind_speed_of_gust, wind_from_direction, lwe_thickness_of_precipitation_amount, relative_humidity	Cross-checked and corrected to what we are reporting	
AOOS	urn:ioos:station:gov.usda.nrcs.wcc.snotel:1088		Strawberry Reef, SNOTEL STATION	SNOTEL station	60.235	-144.865	Fixed	10/01/05	Y	AOOS, Oil Spill Recovery Institute (OSRI)	Yp	PWSSC	nonprofit	PWSSC-Prince William Sound Science Center	National Water and Climate Center (NRCS)	battery_voltage, air_temperature, solar_radiation, air_pressure, wind_speed, wind_speed_of_gust, wind_from_direction, lwe_thickness_of_precipitation_amount	Cross-checked and corrected to what we are reporting	
AOOS	urn:ioos:station:gov.usda.nrcs.wcc.snotel:1095		Sugarloaf Mtn, SNOTEL STATION	SNOTEL station	61.085	-146.295	Fixed	10/01/06	Y	AOOS, Oil Spill Recovery Institute (OSRI)	Yp	PWSSC	nonprofit	PWSSC-Prince William Sound Science Center	National Water and Climate Center (NRCS)	battery_voltage, air_temperature, solar_radiation, air_pressure, wind_speed, wind_speed_of_gust, wind_from_direction, lwe_thickness_of_precipitation_amount, surface_snow_thickness	Cross-checked and corrected to what we are reporting	
AOOS	urn:ioos:station:org.gulfwatchalaska:GAK1		Oceanographic Station GAK1	Longterm non-realtime physcial parameters mooring since 1998; Resurrection Bay, Seward	59.845	-149.466667	moored_buoy	06/20/05	Y	UAF, Exxon Valdez Oil Spill Trustees Council, and multiple entities over the years (NSF NE Pacific GLOBEC, NPRB)	N	UAF_COFS	Academic	UAF COFS	UAF, AOOS	sea_water_temperature (30 m, 60 m, 100 m, 150 m, 200 m, 250 m), sea_water_electrical_conductivity (30 m, 60 m, 100 m, 150 m, 200 m, 250 m), sea_water_salinity (30 m, 60 m, 100 m, 150 m, 200 m, 250 m)	Subsurface mooring collecting CTD paramaters; http://www.ims.uaf.edu/gak1/; http://www.gulfwatchalaska.org/monitoring/environmental-drivers/gulf-of-alaska-mooring-gak1-monitoring/	
AOOS	urn:ioos:station:org.inletkeeper:anchor-river		Cook Inletkeeper, Anchor River	Anchor River at the Old Sterling Highway Bridge in Anchor Point, Cook Inlet	59.7724134	-151.8366555	Fixed	09/07/13	Y	Cook Inletkeeper, Kenai Peninsula Fish Habitat Partnership, Western Native Trout Initiative; Installation support: Kenai Chapter of Trout Unlimited, BeadedStream LLC	N	Cook Inletkeeper	nonprofit	Cook Inletkeeper	Cook Inletkeeper	air_temperature, sea_water_temperature, panel_temperature, battery_voltage	Since 2002, Cook Inletkeeper has been collecting continuous water temperature data below the confluence of the North and South Forks.	
AOOS	urn:ioos:station:org.inletkeeper:deshka-river		Cook Inletkeeper, Deshka River (Kroto Creek)	Deshka River (alias: Kroto Creek), Cook Inlet	61.76751	-150.33992	Fixed	09/09/13	Y	Cook Inletkeeper: Installation support from BeadedStream LLC, AK Fish and Game	N	Cook Inletkeeper	nonprofit	Cook Inletkeeper	Cook Inletkeeper	air_temperature, sea_water_temperature, panel_temperature, battery_voltage	Since 2008, Cook Inletkeeper has been collecting water temperature data on the lower Deshka River below the ADF&G weir.	
AOOS	urn:ioos:station:org.inletkeeper:russian-river		Cook Inletkeeper, Russian River	Russian River, 3 miles upstream on the Russian River Falls Trail below the lower lake.	60.45304	-149.98679	Fixed	10/14/16	Y	Cook Inletkeeper, Kenai Peninsula Fish Habitat Partnership	N	Cook Inletkeeper	nonprofit	Cook Inletkeeper	Cook Inletkeeper	air_temperature, sea_water_temperature, panel_temperature, battery_voltage	Since 2002, Cook Inletkeeper has been collecting continuous water temperature data in non-glacial streams across the Cook Inlet watershed, but not on Russian River.	
AOOS	urn:ioos:station:org.mxak:ADAK_PORT		Adak Port	WEATHER (no AIS)	51.869417	-176.6407	Fixed	05/05/15	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	NOTE: KB, I was in a rush due to gov shutdown, so I still will be cross-checking that ALL MXAK stations report ou same variables. Our SNOTELS vary, so I feel the need to check this against each station. Also note, not all MXAK stations are bein used by NDBC. I list the ones they use here.	
AOOS	urn:ioos:station:org.mxak:ANCHORAGE_PORT		Anchorage Port	AIS TRANSCEIVER WITH WEATHER	61.238746	-149.888778	Fixed	05/05/15	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction		
AOOS	urn:ioos:station:org.mxak:BARROW		Barrow	AIS TRANSCEIVER WITH WEATHER	71.314869	-156.72177	Fixed	05/05/15	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction		
AOOS	urn:ioos:station:org.mxak:CAPE_DECISION	CMAN CDXA2	Cape Decision	AIS STATION WITH WEATHER	56.001483	-134.136	Fixed	05/05/15	Y	MXAK	N	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction		
AOOS	urn:ioos:station:org.mxak:DEAD_HORSE		Deadhorse, Prudhoe Bay	AIS TRANSCEIVER WITH WEATHER	70.22235	-148.419267	Fixed	10/01/15	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction		
AOOS	urn:ioos:station:org.mxak:DUTCH_HARBOR_APL		Dutch Harbor APL	WEATHER (NO AIS)	53.883648	-166.531315	Fixed	05/05/15	Y	MXAK	N	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction		
AOOS	urn:ioos:station:org.mxak:DUTCH_HARBOR_PORT_OFFICE		Dutch Harbor - Port Office	WEATHER (NO AIS)	53.902729	-166.5284	Fixed	07/07/05	Y	MXAK	N	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction		
AOOS	urn:ioos:station:org.mxak:ELDRED_ROCK	CMAN ERXA2	Eldred Rock	AIS STATION WITH WEATHER	58.971348	-135.220808	Fixed	05/05/15	Y	MXAK	N	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction		
AOOS	urn:ioos:station:org.mxak:FIVE_FINGER_LIGHT		Five Finger Light	AIS TRANSCEIVER WITH WEATHER	57.27025	-133.6316	Fixed	07/02/15	Y	MXAK	N	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction		
AOOS	urn:ioos:station:org.mxak:GUARD_ISLAND	CMAN GIXA2	Guard Island	WEATHER (NO AIS)	55.446433	-131.8810333	Fixed	05/05/15	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction		
AOOS	urn:ioos:station:org.mxak:HOMER_SPIT	CMAN HMSA2	Homer Spit (Homer Port)	AIS TRANSCEIVER WITH WEATHER	59.60206	-151.417436	Fixed	05/05/15	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction		
AOOS	urn:ioos:station:org.mxak:ICY_BAY	Fixed ICYA2	Icy Bay	AIS STATION WITH WEATHER	59.92345	-141.358617	Fixed	05/05/15	Y	MXAK	N	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	NDBC, AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	Note: On NDBC Site, this is not referred to as a CMAN. Go to: https://www.ndbc.noaa.gov/to_station.shtml	
AOOS	urn:ioos:station:org.mxak:JUNEAU_AML	Fixed JMLA2	Juneau AML	AIS TRANSCEIVER WITH WEATHER	58.285547	-134.389863	Fixed	05/05/15	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	Note: On NDBC Site, this is not referred to as a CMAN. Go to: https://www.ndbc.noaa.gov/to_station.shtml	
AOOS	urn:ioos:station:org.mxak:KENAI		Kenai	AIS TRANSCEIVER WITH WEATHER	60.531856	-151.253022	Fixed	05/05/15	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction		
AOOS	urn:ioos:station:org.mxak:KETCHIKAN	CMAN KEXA2	Ketichikan Harbor	Weather	55.3516	-131.6839	Fixed	07/07/05	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction		
AOOS	urn:ioos:station:org.mxak:LITTLE_ISLAND	CMAN LIXA2	Little Island	WEATHER (NO AIS)	58.54002	-135.047064	Fixed	05/05/15	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction		
AOOS	urn:ioos:station:org.mxak:MARMION_ISLAND	Fixed MRNA2	Marmion Island	WEATHER (NO AIS)	58.1983999	-134.256767	Fixed	05/05/15	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	Note: On NDBC Site, this is not referred to as a CMAN. Go to: https://www.ndbc.noaa.gov/to_station.shtml	
AOOS	urn:ioos:station:org.mxak:MARY_ISLAND	Fixed MRYA2	Mary Island	AIS STATION WITH WEATHER	55.099116	-131.182097	fixed	05/05/15	Y	MXAK	N	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	NDBC, AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	Note: On NDBC Site, this is not referred to as a CMAN. Go to: https://www.ndbc.noaa.gov/to_station.shtml	
AOOS	urn:ioos:station:org.mxak:MENDENHALL_VALLEY	CMAN MVXA2	Mendenhall Valley	AIS STATION WITH WEATHER	58.3641	-134.605917	Fixed	05/05/15	Y	MXAK	N	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction		
AOOS	urn:ioos:station:org.mxak:MXAK_OFFICE	CMAN MXXA2	MXAK Office	WEATHER (NO AIS)	58.301433	-134.42585	Fixed	05/05/15	Y	MXAK	N	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction		
AOOS	urn:ioos:station:org.mxak:NAKED_ISLAND	CMAN NKXA2	Naked Island	AIS ATon with WEATHER	58.255308	-134.945049	Fixed	05/05/15	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction		
AOOS	urn:ioos:station:org.mxak:NIKISKI		Nikiski	AIS STATION WITH WEATHER	60.739666	-151.31045	Fixed	05/05/15	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction		
AOOS	urn:ioos:station:org.mxak:NIKOLSKI	Fxed NKLA2	Nikolski White Alice	AIS STATION WITH WEATHER	52.97215	-168.855417	Fixed	05/05/15	Y	MXAK	N	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	Note: On NDBC Site, this is not referred to as a CMAN. Go to: https://www.ndbc.noaa.gov/to_station.shtml	
AOOS	urn:ioos:station:org.mxak:PORTLAND_ISLAND	Fixed PTLA2	Portland Island	WEATHER (NO AIS)	58.3464	-134.752283	Fixed	05/14/15	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	NDBC, AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	Note: On NDBC Site, this is not referred to as a CMAN. Go to: https://www.ndbc.noaa.gov/to_station.shtml	
AOOS	urn:ioos:station:org.mxak:ROCKY_ISLAND	CMAN RIXA2	Rocky Island	WEATHER (NO AIS)	58.177057	-135.051541	Fixed	05/05/15	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction		
AOOS	urn:ioos:station:org.mxak:SCULL_ISLAND	CMAN SCXA2	Scull Island	WEATHER (NO AIS)	58.204728	-134.645772	Fixed	05/05/15	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction		

AOOS	urn:ioos:station:org.mxak:Tenakee_Springs	Fixed TKEA2	Tenakee Springs	AIS STATION WITH WEATHER	57.779208	-135.219228	Fixed	05/05/15	Y	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	NDBC, AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	Note: On NDBC Site, this is not referred to as a CMAN. Go to: https://www.ndbc.noaa.gov/to_station.shtml
AOOS	urn:ioos:station:org.mxak:WALES		Wales	AIS TRANSCEIVER WITH WEATHER	65.605	-168.0864	Fixed	01/23/09	Y	MXAK	N	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	
AOOS	NOTE: AOOS IS NOT SERVING THESE DATA		Bering Sea Mooring A1	High Latitude Dynamics Mooring (http://psc.apl.washington.edu/HLD/index.html)	65.7747	-168.5872	moored_buoy	06/12/05	Y	NSF and others over years	N	UW-APL	Academic	University of Washington, Applied Physics Laboratory (UW-APL)	UW-APL	water column parameters (multi-depth): sea_water_temperature (multiple depths), sea_water_salinity (multiple depths), sea_water_velocity (mulit depths), ice thickness and motion, nutrients, chlorophyll_fluorescence, transmissivity	AOOS is not serving these data
AOOS	NOTE: AOOS IS NOT SERVING THESE DATA		Bering Sea Mooring A2	High Latitude Dynamics Mooring (http://psc.apl.washington.edu/HLD/index.html)	66.293	-168.96483	moored_buoy	06/12/05	Y	NSF and others over years	N	UW-APL	Academic	University of Washington, Applied Physics Laboratory (UW-APL)	UW-APL	water column parameters (multi-depth): sea_water_temperature (multiple depths), sea_water_salinity (multiple depths), sea_water_velocity (mulit depths), ice thickness and motion, nutrients, chlorophyll_fluorescence, transmissivity	AOOS is not serving these data
AOOS	NOTE: AOOS IS NOT SERVING THESE DATA		Bering Sea Mooring A3	High Latitude Dynamics Mooring (http://psc.apl.washington.edu/HLD/index.html)	68.1662	-168.9747	moored_buoy	06/12/05	Y	NSF and others over years	N	UW-APL	Academic	University of Washington, Applied Physics Laboratory (UW-APL)	UW-APL	water column parameters (multi-depth): sea_water_temperature (multiple depths), sea_water_salinity (multiple depths), sea_water_velocity (mulit depths), ice thickness and motion, nutrients, chlorophyll_fluorescence, transmissivity	AOOS is not serving these data
AOOS	NOTE: AOOS IS NOT SERVING THESE DATA		Bering Sea Mooring A4	High Latitude Dynamics Mooring (http://psc.apl.washington.edu/HLD/index.html)	65.7455	-168.26383	moored_buoy	06/12/05	Y	NSF and others over years	N	UW-APL	Academic	University of Washington, Applied Physics Laboratory (UW-APL)	UW-APL	water column parameters (multi-depth): sea_water_temperature (multiple depths), sea_water_practical_salinity (multiple depths), sea_water_velocity (mulit depths), ice thickness and motion, nutrients, chlorophyll_fluorescence, transmissivity	AOOS is not serving these data
AOOS	NOTE: AOOS IS NOT SERVING THESE DATA		MARES Subsurface Beaufort Sea Mooring	Marine Arctic Ecosystem Study (MARES), NOPP	69.770577	-139.254758	moored_buoy	07/01/16	Y	BOEM	N	WHOI	Academic	Wods Hole Oceanographic Institution, WHOI	WHOI	sea_water_temperature, sea_water_electrical_conductivity, sea_water_practical_salinity, chlorophyll, dissolved_oxygen, pCO2, current_speed_and_direction	AOOS is not serving these data, not sure of water depths
AOOS			Stefansson Sound Mooring		70.38333	-147.83333	moored_buoy	07/01/16	Y	BOEM	N	University of Texas	Academic	University of Texas	University of Texas	sea_water_temperature, conductivity, depth, pH, dissolved_oxygen, pressure	AOOS is not serving these data, not sure of water depths
AOOS			Prince William Sound, CTD Surveys	EVOSTC Gulf Watch, Prince William Sound Science Center	59.975407 to 61.26107	lon -148.51602 to -145.94562	Ship	2009	Y	Exxon Valdez Oil Spill Trustees Council (EVOSTC), Gulf Watch Program	N	PWSSC	nonprofit	PWSSC-Prince William Sound Science Center	AOOS as part of EVOSTC GWA and HRM	water column parameters (multi-depth): sea_water_temperature, sea_water_electrcial_conductivity, sea_water_practical_salinity, sea_water_density, sea_water_pressure, water_depth, nitrate, phosphate, Chlorophyll_a, silicate, zooplankton	Data in AOOS 03/2013-*; Oceanographic conditions in Prince William Sound
AOOS			Prince William Sound, Conitinuous Plankton Recordrer (CPR)	EVOSTC Gulf Watch, with SAHFOS	59.975407 to 61.26108	lon -148.51602 to -145.94563	towed_underwater_vehicle	2000	Y	Exxon Valdez Oil Spill Trustees Council (EVOSTC), NPRB, Canada DFO, Sir Alister Hardy Foundation for Ocean Sciences	N	Sir Alister Hardy Foundation for Ocean Sciences, Sonia Batten, soba@sahfos.ac.uk	Academic	Sonia Batten, soba@sahfos.ac.uk	AOOS as part of EVOSTC GWA and HRM	water column parameters (multi-depth): sea_water_temperature, plankton (for full taxonomic information refer to WoRMS (World Register of Marine Species): http://www.marinespecies.org/)	Continuous Plankton Recorders aret towed vehicles
AOOS	urn:ioos:station:org.mxak:KAKTOVIK		Kaktovik	AIS STATION WITH WEATHER	70.127565	-143.615929	Fixed	08/01/18	Y	AOOS	Yf	Marine Exchange of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	
AOOS	urn:ioos:station:org.mxak:WAINWRIGHT		Wainwright	AIS STATION WITH WEATHER	70.636261	-160.033703	Fixed	08/01/18	Y	AOOS	Yf	Marine Exchange of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	
AOOS	urn:ioos:station:org.mxak:CAPTAINS_BAY		Dutch Harbor - Captains Bay	WEATHER (No AIS)	53.842909	-166.583242	FIXED	Dec-18	Y	AOOS	Yf	Marine Exchange of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	
AOOS	urn:ioos:station:scripps-institution-of-oceano:241	WMO 46265	Nome AK CDIP Wave and Current Buoy 241	Year-round real-time water level offshoreport of Nome, AK; Datawell Directional wave and surface current buoy	64.4723	-165.4743	Wave and surface current Buoy	07/16/18	Y	AOOS, CDIP, Port of Nome	Yp	AOOS	nonprofit	AOOS and Port of Nome	CDIP	sea_surface_wave_significant_height, sea_water_temperature, sea_surface_dominant_wave_period, sea_surface_wave_to_direction, sea_surface_wave_mean_period, direction_of_sea_water_velocity (0.75m), sea_water_speed (0.75m)	This buoy was not wholly paid for by AOOS...we cover shipping, OnM, and insurance....CDIP provided the buoy and manages the data. Buoy reports RT and is seasonal during iceout period. The data output on AOOS did NOT include current in 2018. That will be remedied next year when buoy redeployed. it DID display RT the waves data. We can ingest current data for historical record from CDIP. The current names here come from CDIP, which I will have to address when we show data. I realize this is not correct,, but we did not show these data in 2018 anyway.
AOOS	urn:ioos:station:org.mxak:KODIAK_GULL_ISLAND		Kodiak, Gull Island	WEATHER (NO AIS)	57.777316	-152.42522	Wave_buoy,	05/24/16	N	AOOS	Yf	Marine Exchnge of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	AOOS	dew_point_temperaure, air_temperature, air_pressure, relative_humidity, wind_speed_of_gust, wind_gust_from_direction, wind_speed, wind_from_direction	
AOOS	urn:ioos:station:org.hakai:Sitka		Sitka Burkolator	Sitka Tribe of Alaska Burke-O-Lator	57.0526	-135.3456	Fixed	06/27/17	N	BIA Climate Change Grant	N	Sitka Tribe of Alaska	Tribal	Sitka Tribe of Alaska, Hakai Institute	IPACOA	dissolved_carbon_dioxide_co2, pco2, omega_aragonite, sea_water_temperature, sea_water_practical_salinity, sea_water_ph_reported_on_total_scale, sea_water_alkalinity_expressed_as_mole_equivalent	
AOOS	urn:ioos:station:org.oceanalaska:ketchikan		Ketchikan Harbor	Ketchikan Harbor, Oceans Alaska Facility	55.3156	-131.5938	Fixed	08/29/16	N	IOOS OTT, NOAA-OAP, UAF-OARC	YP	Hakai Institute	nonprofit	Hakai Institute	IPACOA	dissolved_carbon_dioxide_co2, pco2, omega_aragonite, sea_water_temperature, sea_water_practical_salinity, sea_water_ph_reported_on_total_scale, sea_water_alkalinity_expressed_as_mole_equivalent	This station is currently offline....station page says we have data thru Septembr 2018, but it only shows data thru 2017. I am investigating if it worked in 2018.
AOOS	NOT REPORTING ON AOOS in 2018, but we will add it.	CMAN PAXA2	Point Arden, AK	Weather, not sure about AIS	58.159	-134.178	Fixed	???	Y	Marine Exchange of Alaska	N	Marine Exchange of Alaska	nonprofit	MXAK (Marine Exchange of Alaska)	NDBC	Not sure yet	Just found this on NDBC site...we are not reporting it.
CARICOOS	PR1	42085	Ponce Buoy		17.86335	-66.51031	moored_buoy	06/2009	Y		Yf	Neal Pettigrew	Academic	Department of Physical Oceanography, School of Marine Sciences, University of Maine	Department of Physical Oceanography, School of Marine Sciences, University of Maine	sea_water_velocity (2.5 - 16) m, direction_of_sea_water_velocity (2.5 -16) m, eastward_sea_water_velocity (2.5 - 16) m, northward_sea_water_velocity (2.5 - 16) m, sea_water_temperature, air_temperature (-3 m), barometric_pressure (-3 m), wind_gust_qc (-4 m), wind_speed (-4 m), wind_direction_qc (-4 m), wind_2_gust_qc (-4 m), wind_2_speed_qc (-4 m), wind_2_direction_qc (-4 m), significant_height_of_wind_and_swell_waves, maximum_height_of_wind_and_swell_waves, period, mean_wave_direction, mean_wave_direction_spread, dominant_wave_period_data_quality, sea_water_electrical_conductivity (1 m), sea_water_temperature (1 m), sea_water_salinity (1 m), sea_water_density (1 m)	
CARICOOS	PR2	41053	San Juan Buoy		18.47427	-66.09952	moored_buoy	07/2010	Y		Yf	Neal Pettigrew	Academic	Department of Physical Oceanography, School of Marine Sciences, University of Maine	Department of Physical Oceanography, School of Marine Sciences, University of Maine	sea_water_velocity (2.5 - 16) m, direction_of_sea_water_velocity (2.5 -16) m, eastward_sea_water_velocity (2.5 - 16) m, northward_sea_water_velocity (2.5 - 16) m, sea_water_temperature, air_temperature (-3 m), barometric_pressure (-3 m), wind_gust_qc (-4 m), wind_speed (-4 m), wind_direction_qc (-4 m), wind_2_gust_qc (-4 m), wind_2_speed_qc (-4 m), wind_2_direction_qc (-4 m), significant_height_of_wind_and_swell_waves, maximum_height_of_wind_and_swell_waves, period, mean_wave_direction, mean_wave_direction_spread, dominant_wave_period_data_quality, sea_water_electrical_conductivity (1 m), sea_water_temperature (1 m), sea_water_salinity (1 m), sea_water_density (1 m)	
CARICOOS	PR3	41056	Vieques Buoy		18.26108	-65.46367	moored_buoy	09/2013	Y		Yf	Neal Pettigrew	Academic	Department of Physical Oceanography, School of Marine Sciences, University of Maine	Department of Physical Oceanography, School of Marine Sciences, University of Maine	sea_water_velocity (2.5-16) m, direction_of_sea_water_velocity (2.5 - 16) m, eastward_sea_water_velocity (2.5 - 16) m, northward_sea_water_velocity (2.5 - 16) m, sea_water_temperature, air_temperature (-3 m), barometric_pressure (-3 m), wind_gust_qc (-4 m), wind_speed (-4 m), wind_direction_qc (-4 m), wind_2_gust_qc (-4 m), wind_2_speed_qc (-4 m), wind_2_direction_qc (-4 m), significant_height_of_wind_and_swell_waves, maximum_height_of_wind_and_swell_waves, period, mean_wave_direction, mean_wave_direction_spread, dominant_wave_period_data_quality, sea_water_electrical_conductivity (1 m), sea_water_temperature (1 m), sea_water_salinity (1 m), sea_water_density (1 m)	
CARICOOS	VI1	41052	St. John Buoy		18.25106	-64.77331	moored_buoy	04/2011	Y		Yf	Neal Pettigrew	Academic	Department of Physical Oceanography, School of Marine Sciences, University of Maine	Department of Physical Oceanography, School of Marine Sciences, University of Maine	sea_water_velocity (2.5 - 22) m, direction_of_sea_water_velocity (2.5 - 22) m, eastward_sea_water_velocity (2.5 - 22) m, northward_sea_water_velocity (2.5 - 22) m, air_temperature (-3 m), barometric_pressure (-3 m), wind_gust_qc (-4 m), wind_speed (-4 m), wind_direction_qc (-4 m), wind_2_gust_qc (-4 m), wind_2_speed_qc (-4 m), wind_2_direction_qc (-4 m), significant_height_of_wind_and_swell_waves , maximum_height_of_wind_and_swell_waves , period , mean_wave_direction , mean_wave_direction_spread, dominant_wave_period_data_quality, sea_water_electrical_conductivity (1 m), sea_water_temperature (1 m), sea_water_salinity (1 m), sea_water_density (1 m)	
CARICOOS	VI2	41051	North of St. Thomas		18.47610	-65.15680	moored_buoy	08/2017	O		Yp	Paul Jobsis	Academic	University of the Virgin Islands	Department of Physical Oceanography, School of Marine Sciences, University of Maine	sea_water_velocity (2.5 - 22) m, direction_of_sea_water_velocity (2.5 - 22) m, eastward_sea_water_velocity (2.5 - 22) m, northward_sea_water_velocity (2.5 - 22) m, air_temperature (-3 m), relative_humidity (-3 m), barometric_pressure (-2 m), wind_gust_qc (-3 m), wind_speed (-3 m), wind_direction_qc (-3 m) significant_height_of_wind_and_swell_waves (-1 m), maximum_height_of_wind_and_swell_waves (-1 m), period (-1 m), mean_wave_direction (-1 m), mean_wave_direction_spread (-1 m), dominant_wave_period_data_quality (-1 m), sea_water_electrical_conductivity (1 m), sea_water_temperature (1 m), sea_water_salinity (1 m), sea_water_density (1 m), dissolved_oxygen, data_quality (1 m), chlorophyll_concentration_in_sea_water (1 m), turbidity_of_sea_water (1 m)	Damaged by Hurricane Irma
CARICOOS	181p1	4100115	Rincon Waverider Buoy		18.37783	-67.27835	moored_buoy	05/2011	O		Yf	CARICOOS	Academic	CARICOOS	Coastal Data Information Program (CDIP)	sea_surface_wave_significant_height, sea_surface_wave_period_at_variance_spectral_density_maximum, sea_surface_wave_mean_period_from_variance_spectral_density_first_frequency_moment, sea_surface_wave_from_direction, sea_surface_wave_zero_upcrossing_period, wave_frequency, sea_surface_wave_variance_spectral_density, sea_surface_wave_from_direction, sea_surface_temperature, platform_orientation, sea_floor_depth_below_sea_surface	Got loose after Hurricane Maria
CARICOOS	XYAB	N/A	Yabucoa Mesonet		18.05245	-65.82809	fixed	12/2009	O		Yf	Weatherflow	Industry	Weatherflow	Weatherflow	wind_speed (10 m), wind_speed_of_gust (10 m), wind_from_direction (10 m), air_temperature (10 m), air_pressure (10 m), relative_humidity (10 m)	Damaged by Hurricane Maria
CARICOOS	XWGO	N/A	Crown Mountain - USVI		18.35537	-64.96693	fixed	07/2009	O		Yf	Weatherflow	Industry	Weatherflow	Weatherflow	wind_speed (10 m), wind_speed_of_gust (10 m), wind_from_direction (10 m), air_temperature (10 m), air_pressure (10 m), relative_humidity (10 m)	Damaged by Hurricane Maria
CARICOOS	XSAV	N/A	Savana Island - USVI		18.33737	-65.08300	fixed	12/2009	Y		Yf	Weatherflow	Industry	Weatherflow	Weatherflow	wind_speed (10 m), wind_speed_of_gust (10 m), wind_from_direction (10 m), air_temperature (10 m), air_pressure (10 m), relative_humidity (10 m)	
CARICOOS	XRUP	N/A	Ruperts Rock		18.32817	-64.92661	fixed	04/2015	O		Yf	Weatherflow	Industry	Weatherflow	Weatherflow	wind_speed (10 m), wind_speed_of_gust (10 m), wind_from_direction (10 m), air_temperature (10 m), air_pressure (10 m), relative_humidity (10 m)	Damaged by Hurricane Maria
CARICOOS	XREY	N/A	Marina Puerto del Rey		18.28938	-65.63200	fixed	12/2009	O		Yf	Weatherflow	Industry	Weatherflow	Weatherflow	wind_speed (10 m), wind_speed_of_gust (10 m), wind_from_direction (10 m), air_temperature (10 m), air_pressure (10 m), relative_humidity (10 m)	Damaged by Hurricane Maria
CARICOOS	XMRS	N/A	Las Mareas		17.92859	-66.15970	fixed	12/2009	O		Yf	Weatherflow	Industry	Weatherflow	Weatherflow	wind_speed (10 m), wind_speed_of_gust (10 m), wind_from_direction (10 m), air_temperature (10 m), air_pressure (10 m), relative_humidity (10 m)	Damaged by Hurricane Maria
CARICOOS	XJUA	N/A	San Juan NavAid		18.45512	-66.12846	fixed	12/2009	Y		Yf	Weatherflow	Industry	Weatherflow	Weatherflow	wind_speed (10 m), wind_speed_of_gust (10 m), wind_from_direction (10 m), air_temperature (10 m), air_pressure (10 m), relative_humidity (10 m)	
CARICOOS	XGUR	N/A	Gurabo		18.25623	-65.99167	fixed	12/2009	Y		Yf	Weatherflow	Industry	Weatherflow	Weatherflow	wind_speed (10 m), wind_speed_of_gust (10 m), wind_from_direction (10 m), air_temperature (10 m), air_pressure (10 m), relative_humidity (10 m)	
CARICOOS	XCUL	N/A	Culebrita Island		18.31370	-65.22742	fixed	01/2016	Y		Yf	Weatherflow	Industry	Weatherflow	Weatherflow	wind_speed (10 m), wind_speed_of_gust (10 m), wind_from_direction (10 m), air_temperature (10 m), air_pressure (10 m), relative_humidity (10 m)	
CARICOOS	XCRX	N/A	Sandy Point NWR - USVI		17.67771	-64.89989	fixed	12/2009	Y		Yf	Weatherflow	Industry	Weatherflow	Weatherflow	wind_speed (10 m), wind_speed_of_gust (10 m), wind_from_direction (10 m), air_temperature (10 m), air_pressure (10 m), relative_humidity (10 m)	
CARICOOS	XCDP	N/A	Club Deportivo del Oeste Cabo Rojo		18.09995	-67.18887	fixed	12/2009	Y		Yf	Weatherflow	Industry	Weatherflow	Weatherflow	wind_speed (10 m), wind_speed_of_gust (10 m), wind_from_direction (10 m), air_temperature (10 m), air_pressure (10 m), relative_humidity (10 m)	
CARICOOS	XBUK	N/A	Buck Island - USVI		18.27823	-64.89260	fixed	07/2009	O		Yf	Weatherflow	Industry	Weatherflow	Weatherflow	wind_speed (10 m), wind_speed_of_gust (10 m), wind_from_direction (10 m), air_temperature (10 m), air_pressure (10 m), relative_humidity (10 m)	Damaged by Hurricane Maria
CARICOOS	XBRO	N/A	Two Brothers - USVI		18.34291	-64.81730	fixed	07/2009	O		Yf	Weatherflow	Industry	Weatherflow	Weatherflow	wind_speed (10 m), wind_speed_of_gust (10 m), wind_from_direction (10 m), air_temperature (10 m), air_pressure (10 m), relative_humidity (10 m)	Damaged by Hurricane Maria
CARICOOS	XAGU	N/A	Aguadilla Jetty		18.43295	-67.15663	fixed	12/2009	Y		Yf	Weatherflow	Industry	Weatherflow	Weatherflow	wind_speed (10 m), wind_speed_of_gust (10 m), wind_from_direction (10 m), air_temperature (10 m), air_pressure (10 m), relative_humidity (10 m)	
CARICOOS	PUNTAS	PTRP4	Rincon		18.36669	-67.25141	fixed	11/2012	O		Yf	CARICOOS	Academic	CARICOOS	NDBC	wind_speed (15 m), wind_speed_of_gust (15 m), wind_from_direction (15 m), air_temperature (15 m), air_pressure (15 m), relative_humidity (15 m)	Damaged by Hurricane Maria
CARICOOS	MAGUEYES	IMGP4	Isla Magueyes		17.96944	-67.04417	fixed	10/2015	O		Yf	CARICOOS	Academic	CARICOOS	NDBC	wind_speed (10 m), wind_speed_of_gust (10 m), wind_from_direction (10 m), air_temperature (10 m), air_pressure (10 m), relative_humidity (10 m)	Damaged by Hurricane Maria
CeNCOOS	Trinidad	TDPC1	Trinidad Pier	Trinidad shore station	41.06000	-124.15000	fixed	12/31/08	y	HSU/CENCOOS	Yp	HSU	Academic	HSU	HSU/CeNCOOS	sea_water_temperature(4.6m), sea_water_salinity(4.6m), mass_concentration_of_oxygen_in_sea_water(4.6m), sea_water_ph_measured_on_total_scale(4.6m), mass_concentration_of_chlorophyll_in_sea_water(4.6), sea_water_turbidity, sea_water_pressure(4.6m)	
CeNCOOS	Humboldt	HBXC1(old site ERKC1)	Humboldt Bay: Chevron Dock	Chevron Dock Pier Station	40.78000	-124.20000	fixed	2003	Y	HSU/CeNCOOS	Yp	HSU	Academic	HSU	HSU/CeNCOOS	sea_water_temperature(2m), sea_water_salinity(2m), mass_concentration_of_oxygen_in_sea_water(2m), sea_water_ph_measured_on_total_scale(2m), mass_concentration_of_chlorophyll_in_sea_water(2m), sea_water_turbidity(2m), sea_water_pressure(2m)	
CeNCOOS	Indian Island		Humboldt Bay: Indian Ilsand	Indian Island station	40.81000	-124.15000	fixed	2015	y	HSU/CENCOOS	Yp	HSU	Tribal	HSU	Wiyot/HSU/CeNCOOS	sea_water_temperature(2.4m), sea_water_salinity(2.4m), mass_concentration_of_oxygen_in_sea_water(2.4m), sea_water_ph_measured_on_total_scale(2.4m), mass_concentration_of_chlorophyll_in_sea_water(2.4m), sea_water_turbidity(2.4m), sea_water_pressure(2.4m)	
CeNCOOS	Bodega	BDXC1	Bodega	HorseshowCove BML Seawater Intake station	38.32000	-123.07000	fixed	2003	Y	UC Davis/CeNCOOS	yp	UC Davis (BML)	Academic	UC Davis (BML)	BML	sea_water_temperature(2.9m), sea_water_salinity(2.9m), mass_concentration_of chlorophyll_in_sea_water(2.9m), sea_water_pressure(2.9m)	
CeNCOOS	Hog Island		Hog Island	Burkolator at Hog Island Oyster Company	38.16000	-122.89000	fixed	5/31/14	y	UC Davis/Hog Island Oyster Company	Yp	UC Davis	Industry	UC Davis	UC Davis	sea_water_temperature(2.9m), sea_water_salinity(2.9m), mass_concentration_of chlorophyll_in_sea_water(2.9m), sea_water_pressure(2.9m)	
CeNCOOS	Carquinez	CQU1	Carquinez	Carquinez at Cal Maritime	38.07000	-122.23000	fixed	2/21/08	y	SFSU/CeNCOOS	Yp	SFSU	Academic	SFSU	SFSU	sea_water_temperature(2.7m), sea_water_salinity(2.7m), mass_concentration_of_oxygen_in_sea_water(2.7m), sea_water_ph_measured_on_total_scale(2.7m), mass_concentration_of_chlorophyll_in_sea_water(2.7m), sea_water_turbidity(2.7m), sea_water_pressure(2.7m)	
CeNCOOS	Tiburon	TIBC1	Tiburon	Tiburon Pier	37.89000	-122.45000	fixed	11/1/02	y	SFSU/CeNCOOS	yp	SFSU	Academic	SFSU	SFSU	sea_water_temperature(1.9m), sea_water_salinity(1.9m), mass_concentration_of_oxygen_in_sea_water(1.9m), sea_water_ph_measured_on_total_scale(1.9m), mass_concentration_of_chlorophyll_in_sea_water(1.9m), sea_water_turbidity(1.9m), sea_water_pressure(1.9m)	
CeNCOOS	Fort Point	FPXC1	Fort Point	Fort Point	37.81000	-122.47000	fixed	2/28/09	y	UC Davis/CeNCOOS	yp	UC Davis (BML)	Academic	UC Davis (BML)	BML	sea_water_temperature(3.5m), sea_water_salinity(3.5m), mass_concentration_of chlorophyll_in_sea_water(3.5m), sea_water_pressure(3.5m)	
CeNCOOS	Exploratorium		Exploratorium	Exploratorium	37.80000	-122.39700	fixed	NA	y	Exploratorium	n	Exploratorium	nonprofit	Exploratorium	Exploritorium	sea_water_temperature, sea_water_salinity, sea_water_pressure, mass_concentration_of_oxygen_in_sea_water, mass_concentration_of_chlorophyll_in_sea_water, sea_water_turbidity, sea_water_ph_measured_on_total_scale, dissolved_carbon_dioxide, air_temperature, air_pressure, relative_humidity, wind_speed, wind_from_direction, diffuse_downwelling_shortwave_flux_in_air	
CeNCOOS	Santa Cruz Wharf		Santa Cruz Wharf	Santa Cruz Wharf	36.96000	-122.02000	fixed	11/11/11	O	UCSC	yp	UCSC	Academic	UCSC	CeNCOOS/UCSC	sea_water_temperature(1m), sea_water_salinity(1m), mass_concentration_of_oxygen_in_sea_water(1m), sea_water_ph_measured_on_total_scale(1m), mass_concentration_of_chlorophyll_in_sea_water(1m), sea_water_turbidity(1m), sea_water_pressure(1m)	
CeNCOOS	Moss Landing Marine Lab	MLSC1	Moss Landing	Moss Landing Seawater Intake	36.80000	-121.79000	fixed	9/3/10	y	SJSU (MLML)	yp	SJSU (MLML)	Academic	SJSU(MLML)	MLML	sea_water_temperature(17m), sea_water_salinity(17m), sea_water_ph_measured_on_total_scale(17m), mass_concentration_of_oxygen_in_sea_water(17m), mass_concentration_of_chlorophyll_in_sea_water(17m)	
CeNCOOS	M1	46092	M1	M1	36.75800	-122.02900	moored_buoy	1991	y	MBARI	n	MBARI	nonprofit	MBARI	MBARI	sea_water_temperature(1m,10m,20m,40m,60m,80m,100m,150m,200m,250m,,300m), sea_water_salinity(1m,10m,20m,40m,60m,80m,100m,150m,200m,250m,300m),sea_water_ph_measured _on_total_scale(1m), mass_concentration_of_chlorophyll_in_sea_water(1m), partial_pressure_of_carbon_dioxide_in_sea_water(1m), mass_concentration_of_oxygen_in_sea_water(1m,50m,225m), wind_speed(-2m), wind_from_direction(-2m), air_temperature(-2m), air_pressure(-2m), relative_humidity(-2m), diffuse_downwelling_shorewave_flux_in_air(-2m), downwelling_longwave_flux_in_air(-2m)	

CeNCOOS	Monterey Wharf	MYXC1		Monterey Wharf	Monterey: Municipal Wharf II	36.61000	-121.89000	fixed		5/4/15	y		SJSU (MLML)	yp	SJSU (MLML)	Academic	SJSU (MLML)	SJSU (MLML)	sea_water_temperature(2m), sea_water_salinity, sea_water_pressure(2m), sea_water_ph_measured_on_total_scale(2m), mass_concentration_of_chlorophyll_in_sea_water(2m), mass_concentration_of_oxygen_in_sea_water(2m), sea_water_turbidity(2m)	
CeNCOOS	Monterey Bay Aquarium			Monterey Bay Aquarium	Monterey Bay Aquarium Seawater Intake	36.61800	-121.90150	fixed		1987	y		MBA	n	MBA	nonprofit	MBA	MBA	sea_water_temperature(16.8m), sea_water_salinity(16.8m), sea_water_ph_measured_on_total_scale(16.8m), fractional_saturation_of_oxygen_in_sea_water(16.8m)	
CeNCOOS	Morro Bay	MBXC1		Morro Bay	Morro Bay: T-Pier	35.37000	-120.86000	fixed		1/1/07	y		Cal Poly/CeNCOOS	yp	Cal Poly	Academic	Cal Poly	Cal Poly	sea_water_turbidity(2m), sea_water_temperature(2m), sea_water_pressure(2m), sea_water_salinity(2m), mass_concentration_of_oxygen_in_sea_water(2m), mass_concentration_of_chlorophyll_in_sea_water(2m), wind_speed(-5.5m), wind_from_direction(-5.5m), air_temperature(-5.5m), air_pressure(-5.5m), relative_humidity(-5.5m), lwe_thickness_of_precipitation_amount(-5.5m), solar_radiation(-5.5m), visibility_in_air(-5.5m)	Met Station located at 35.3338 N, 120.847 W
CeNCOOS	San Luis Pier	CPXC1		San Luis Bay	San Luis Bay: Cal Poly Pier	35.17000	-122.89000	fixed		5/1/05	y		Cal Poly/CeNCOOS	Yp	Cal Poly	Academic	Cal Poly	Cal Poly	sea_water_temperature(1m,1.5m,2m,2.5m,3m,3.5m,4m,4.5m,6m,6.5m,7m,7.5m,8m,8.5m,9m), sea_water_pressure, sea_water_salinity(1m,1.5m,2m,2.5m,3m,3.5m,4m,4.5m,6m,6.5m,7m,7.5m,8m,8.5m,9m), mass_concentration_of_chlorophyll_in_sea_water(1m,1.5m,2m,2.5m,3m,3.5m,4m,4.5m,6m,6.5m,7m,7.5m,8m,8.5m,9m), sea_water_turbidity(1m,1.5m,2m,2.5m,3m,3.5m,4m,4.5m,6m,6.5m,7m,7.5m,8m,8.5m,9m), bioluminescence(1m,1.5m,2m,2.5m,3m,3.5m,4m,4.5m,6m,6.5m,7m,7.5m,8m,8.5m,9m), wind_speed(-15.5m), wind_from_direction(-15.5m), air_temperature(-15.5m), air_pressure(-15.5m), relative_humidity(-15.5m), lwe_thickness_of_precipitation_amount(-15.5m), solar_radiation(-15.5m), visibility_in_air(-15.5m)	
CeNCOOS	Tomales Bay			Tomales Bay	Tomales Bay buoy	38.19000	-122.93000	moored_buoy		6/3/13	y?		UC Davis	n	UC Davis BML	Academic	UC Davis (BML)	UC Davis (BML)		
CeNCOOS	OA1			Hopkins Marine Station	OA1 buoy	36.97250	-122.15690	moored buoy		6/25/13	y		MBARI	n	MBARI	nonprofit	MBARI	MBARI	wind_speed(-1m),wind_from_direction(-1m),air_temperature(-1m),relative_humidity(-1m),air_pressure(-1m),sea_water_temperature(sfc),sea_water_salinity(sfc),mass_concentration_of_oxygen_in_sea_water(sfc),sea_water_ph_measured_on_total_scale(sfc),dissolved_carbon_dioxide(sfc).	
CeNCOOS	OA2			Terrace Point	OA2 buoy	37.10900	-122.34600	moored buoy		5/1/13	y		MBARI	n	MBARI	nonprofit	MBARI	MBARI	wind_speed(-1m),wind_from_direction(-1m),air_temperature(-1m),relative_humidity(-1m),air_pressure(-1m),sea_water_temperature(sfc),sea_water_salinity(sfc),mass_concentration_of_oxygen_in_sea_water(sfc),sea_water_ph_measured_on_total_scale(sfc),dissolved_carbon_dioxide(sfc).	
CeNCOOS	LO1			Elkhorn Slough	LOBO	36.81000	-121.77000	moored buoy			?		MBARI	n	MBARI	nonprofit	MBARI	MBARI	sea_water_temperature(sfc), sea_water_salinity(sfc), mass_concentration_of_oxygen_in_sea_water(sfc), eastward_sea_water_velocity(sfc), northward_sea_water_velocity(sfc), solar_radiation(1m)	
CeNCOOS	BOB			Bay Ocean Buoy	BOB	36.86860	-122.37800	moored buoy		Mar-18	y		RTC/SFSU	yp	RTC/SFSU	academic	RTC/SFSU	RTC/SFSU	sea_water_temperature(sfc), sea_water_salinity(sfc), sea_water_ph_measured_on_total_scale(sfc), dissolved_carbon_dioxide(sfc)	
GCOOS	ioos:station:TCOON:076			076: SALT05 (Nueces River, Texas	url: http://lighthouse.tamucc.edu/overview/076	27.89183	-97.61045	fixed	<5 yr		Y		Unknown	Yp	Texas Coastal Ocean Observation Network	academic	Texas Coastal Ocean Observation Network	Jonathan Scott Duff(Scott.Duff@tamucc.edu)	sea_water_temperature ,sea_water_practical_salinity	
GCOOS	ioos:station:TCOON:042			042: Nueces Delta 2: Nueces Delt	url: http://lighthouse.tamucc.edu/overview/042	27.88880	-97.56960	fixed	<5 yr		Y		Unknown	Yp	Texas Coastal Ocean Observation Network	academic	Texas Coastal Ocean Observation Network	Jonathan Scott Duff(Scott.Duff@tamucc.edu)	sea_water_temperature ,sea_water_practical_salinity	
GCOOS	ioos:station:TCOON:043			043: Nueces Delta 3: Nueces Delt	url: http://lighthouse.tamucc.edu/overview/043	27.88378	-97.53320	fixed	<5 yr		Y		Unknown	Yp	Texas Coastal Ocean Observation Network	academic	Texas Coastal Ocean Observation Network	Jonathan Scott Duff(Scott.Duff@tamucc.edu)	sea_water_temperature ,sea_water_practical_salinity	
GCOOS	ioos:station:TCOON:079			079: SALT08: SALT08	url: http://lighthouse.tamucc.edu/overview/076	27.87078	-97.51770	fixed	<5 yr		Y		Unknown	Yp	Texas Coastal Ocean Observation Network	academic	Texas Coastal Ocean Observation Network	Jonathan Scott Duff(Scott.Duff@tamucc.edu)	sea_water_temperature ,sea_water_practical_salinity	
GCOOS	ioos:station:TCOON:074			074: SALT03 (Nueces Bay, Texas):	url: http://lighthouse.tamucc.edu/overview/074	27.85155	-97.48203	fixed	<5 yr		Y		Unknown	Yp	Texas Coastal Ocean Observation Network	academic	Texas Coastal Ocean Observation Network	Jonathan Scott Duff(Scott.Duff@tamucc.edu)	sea_water_temperature ,sea_water_practical_salinity ,mass_concentration_of_oxygen_in_sea_water	
GCOOS	ioos:station:TCOON:003			003: Rincon del San Jose (87778	url: http://lighthouse.tamucc.edu/overview/003	26.80150	-97.47060	tide_station	<5 yr		Y		Unknown	Yp	Texas Coastal Ocean Observation Network	academic	Texas Coastal Ocean Observation Network	Jonathan Scott Duff(Scott.Duff@tamucc.edu)	sea_surface_height_above_sea_level ,sea_water_temperature ,wind_speed, wind_to_direction,wind_speed_of_gust ,air_pressure ,air_temperature	
GCOOS	ioos:station:TCOON:072			072: SALT01 (Nueces Bay, Texas):	url: http://lighthouse.tamucc.edu/overview/072	27.83919	-97.44397	fixed	<5 yr		Y		Unknown	Yp	Texas Coastal Ocean Observation Network	academic	Texas Coastal Ocean Observation Network	Jonathan Scott Duff(Scott.Duff@tamucc.edu)	sea_water_temperature ,sea_water_practical_salinity ,mass_concentration_of_oxygen_in_sea_water	
GCOOS	ioos:station:TCOON:170			170: National Park Service - Baffi	url: http://lighthouse.tamucc.edu/overview/170	27.29702	-97.40491	fixed	<5 yr		Y		Unknown	Yp	Texas Coastal Ocean Observation Network	gov_federal	Texas Coastal Ocean Observation Network	Jonathan Scott Duff(Scott.Duff@tamucc.edu)	sea_water_temperature ,sea_water_practical_salinity ,mass_concentration_of_oxygen_in_sea_water	
GCOOS	ioos:station:TCOON:068			068: Baffin Bay (87766041): Baffi	url: http://lighthouse.tamucc.edu/overview/068	27.29700	-97.40490	tide_station	<5 yr		Y		Unknown	Yp	Texas Coastal Ocean Observation Network	academic	Texas Coastal Ocean Observation Network	Jonathan Scott Duff(Scott.Duff@tamucc.edu)	sea_surface_height_above_sea_level ,sea_water_temperature ,wind_speed, wind_to_direction,wind_speed_of_gust ,air_pressure ,air_temperature	
GCOOS	ioos:station:TCOON:013			013: S. Bird Island (87761391): S	url: http://lighthouse.tamucc.edu/overview/013	27.48470	-97.31810	tide_station	<5 yr		Y		Unknown	Yp	Texas Coastal Ocean Observation Network	academic	Texas Coastal Ocean Observation Network	Jonathan Scott Duff(Scott.Duff@tamucc.edu)	sea_surface_height_above_sea_level ,sea_water_temperature ,wind_speed, wind_to_direction,wind_speed_of_gust ,air_pressure ,air_temperature	
GCOOS	ioos:station:TCOON:171			171: National Park Service - Bird I	url: http://lighthouse.tamucc.edu/overview/171	27.48470	-97.31810	fixed	<5 yr		Y		Unknown	Yp	Texas Coastal Ocean Observation Network	gov_federal	Texas Coastal Ocean Observation Network	Jonathan Scott Duff(Scott.Duff@tamucc.edu)	sea_water_temperature ,sea_water_practical_salinity ,mass_concentration_of_oxygen_in_sea_water	
GCOOS	ioos:station:TCOON:005			005: Packery Channel (87757921	url: http://lighthouse.tamucc.edu/overview/005	27.63460	-97.23700	tide_station	<5 yr		Y		Unknown	Yp	Texas Coastal Ocean Observation Network	academic	Texas Coastal Ocean Observation Network	Jonathan Scott Duff(Scott.Duff@tamucc.edu)	sea_surface_height_above_sea_level,sea_water_temperature ,wind_speed, wind_to_direction,wind_speed_of_gust ,air_pressure ,air_temperature	
GCOOS	ioos:station:TCOON:006			006: Ingleside (87752831): Port I	url: http://lighthouse.tamucc.edu/overview/006	27.82170	-97.20400	tide_station	<5 yr		U		Unknown	Yp	Texas Coastal Ocean Observation Network	academic	Texas Coastal Ocean Observation Network	Jonathan Scott Duff(Scott.Duff@tamucc.edu)	sea_surface_height_above_sea_level,sea_water_temperature ,wind_speed, wind_to_direction,wind_speed_of_gust ,air_pressure ,air_temperature	
GCOOS	ioos:station:TCOON:147			147: MANERR Station 3 (Copano	url: http://lighthouse.tamucc.edu/overview/147	28.08405	-97.20094	fixed	<5 yr		U		Unknown	Yp	Texas Coastal Ocean Observation Network	gov_federal	Texas Coastal Ocean Observation Network	Jonathan Scott Duff(Scott.Duff@tamucc.edu)	sea_water_temperature ,sea_water_practical_salinity ,mass_concentration_of_oxygen_in_sea_water	
GCOOS	ioos:station:TCOON:009			009: Port Aransas (87752371): P	url: http://lighthouse.tamucc.edu/overview/009	27.83980	-97.07270	tide_station	<5 yr		Y		Unknown	Yp	Texas Coastal Ocean Observation Network	academic	Texas Coastal Ocean Observation Network	Jonathan Scott Duff(Scott.Duff@tamucc.edu)	sea_surface_height_above_sea_level,sea_water_temperature ,wind_speed, wind_to_direction,wind_speed_of_gust ,air_pressure ,air_temperature	
GCOOS	ioos:station:wmo:42044		42044	TABS J: PS-1126	url: http://tabs.gerg.tamu.edu/Tglo/ven.php?buoy=J	26.19140	-97.05070	moored_buoy	<5 yr		Y		Unknown	N	Texas Automated Buoy System	academic	Texas Automated Buoy System	Lee Woody(woody@gerg.tamu.edu)	sea_water_temperature ,wind_speed, wind_to_direction,wind_speed_of_gust ,sea_water_speed, upward_sea_water_velocity, direction_of_sea_water_velocity ,air_pressure ,air_temperature ,relative_humidity	
GCOOS	ioos:station:TCOON:149			149: MANERR Station 5 (Port Ara	url: http://lighthouse.tamucc.edu/overview/149	27.83826	-97.05029	fixed	<5 yr		U		Unknown	Yp	Texas Coastal Ocean Observation Network	gov_federal	Texas Coastal Ocean Observation Network	Jonathan Scott Duff(Scott.Duff@tamucc.edu)	sea_water_temperature ,sea_water_practical_salinity ,mass_concentration_of_oxygen_in_sea_water	
GCOOS	ioos:station:TCOON:146			146: MANERR Station 2 (Copano	url: http://lighthouse.tamucc.edu/overview/146	28.13235	-97.03445	fixed	<5 yr		U		Unknown	Yp	Texas Coastal Ocean Observation Network	gov_federal	Texas Coastal Ocean Observation Network	Jonathan Scott Duff(Scott.Duff@tamucc.edu)	sea_water_temperature ,wind_speed, wind_to_direction,wind_speed_of_gust ,sea_water_practical_salinity ,air_pressure ,air_temperature ,mass_concentration_of_oxygen_in_sea_water ,relative_humidity	
GCOOS	ioos:station:TCOON:148			148: MANERR Station 4 (Aransas I	url: http://lighthouse.tamucc.edu/overview/148	27.97985	-97.02879	fixed	<5 yr		U		Unknown	Yp	Texas Coastal Ocean Observation Network	gov_federal	Texas Coastal Ocean Observation Network	Jonathan Scott Duff(Scott.Duff@tamucc.edu)	sea_water_temperature ,sea_water_practical_salinity ,mass_concentration_of_oxygen_in_sea_water	
GCOOS	ioos:station:wmo:42048		42048	TABS D: TABS D	url: http://tabs.gerg.tamu.edu/Tglo/ven.php?buoy=D	27.93960	-96.84290	moored_buoy	<5 yr		Y		Unknown	N	Texas Automated Buoy System	academic	Texas Automated Buoy System	Lee Woody(woody@gerg.tamu.edu)	sea_water_temperature ,sea_water_speed, upward_sea_water_velocity, direction_of_sea_water_velocity	
GCOOS	ioos:station:TCOON:127			127: Bahia Grande Water Quality	url: http://lighthouse.tamucc.edu/overview/127	28.25976	-96.77369	fixed	<5 yr		Y		Unknown	Yp	Texas Coastal Ocean Observation Network	academic	Texas Coastal Ocean Observation Network	Jonathan Scott Duff(Scott.Duff@tamucc.edu)	sea_water_temperature ,sea_water_speed, upward_sea_water_velocity, direction_of_sea_water_velocity ,sea_water_practical_salinity ,mass_concentration_of_oxygen_in_sea_water	
GCOOS	ioos:station:TCOON:031			031: Seadrift (87730371): Seadri	url: http://lighthouse.tamucc.edu/overview/031	28.40730	-96.71220	tide_station	<5 yr		Y		Unknown	Yp	Texas Coastal Ocean Observation Network	academic	Texas Coastal Ocean Observation Network	Jonathan Scott Duff(Scott.Duff@tamucc.edu)	sea_surface_height_above_sea_level,sea_water_temperature ,wind_speed, wind_to_direction,wind_speed_of_gust ,air_pressure ,air_temperature	
GCOOS	ioos:station:wmo:42045		42045	TABS K: PI-745	url: http://tabs.gerg.tamu.edu/Tglo/ven.php?buoy=K	26.21680	-96.49980	moored_buoy	<5 yr		Y		Unknown	N	Texas Automated Buoy System	academic	Texas Automated Buoy System	Lee Woody(woody@gerg.tamu.edu)	sea_water_temperature ,wind_speed, wind_to_direction,wind_speed_of_gust,sea_water_speed, upward_sea_water_velocity, direction_of_sea_water_velocity ,air_pressure,air_temperature,relative_humidity	
GCOOS	ioos:station:TCOON:057			057: Port O'Connor (87737011):	url: http://lighthouse.tamucc.edu/overview/057	28.44600	-96.39610	tide_station	<5 yr		Y		Unknown	Yp	Texas Coastal Ocean Observation Network	academic	Texas Coastal Ocean Observation Network	Jonathan Scott Duff(Scott.Duff@tamucc.edu)	sea_surface_height_above_sea_level,sea_water_temperature ,wind_speed, wind_to_direction,wind_speed_of_gust ,air_pressure ,air_temperature	
GCOOS	ioos:station:wmo:42049		42049	TABS W: TABS W	url: http://tabs.gerg.tamu.edu/Tglo/ven.php?buoy=W	28.35070	-96.00580	moored_buoy	<5 yr		Y		Unknown	N	Texas Automated Buoy System	academic	Texas Automated Buoy System	Lee Woody(woody@gerg.tamu.edu)	sea_water_temperature ,sea_water_speed, upward_sea_water_velocity, direction_of_sea_water_velocity	
GCOOS	ioos:station:wmo:42043		42043	TABS B: GA-252	url: http://tabs.gerg.tamu.edu/Tglo/met.php?buoy=B	28.98180	-94.91860	moored_buoy	<5 yr		Y		Unknown	N	Texas Automated Buoy System	academic	Texas Automated Buoy System	Lee Woody(woody@gerg.tamu.edu)	sea_water_temperature ,wind_speed, wind_to_direction,wind_speed_of_gust,sea_water_speed, upward_sea_water_velocity, direction_of_sea_water_velocity ,air_pressure,air_temperature,relative_humidity	
GCOOS	ioos:station:TCOON:518			518: Rollover Pass (87709711): R	url: http://lighthouse.tamucc.edu/overview/518	29.51500	-94.51330	tide_station	<5 yr		Y		Unknown	Yp	Texas Coastal Ocean Observation Network	academic	Texas Coastal Ocean Observation Network	Jonathan Scott Duff(Scott.Duff@tamucc.edu)	sea_surface_height_above_sea_level,sea_water_temperature ,wind_speed, wind_to_direction,wind_speed_of_gust ,air_pressure ,air_temperature	
GCOOS	ioos:station:wmo:42050		42050	TABS F: TABS F	url: http://tabs.gerg.tamu.edu/Tglo/ven.php?buoy=F	28.84250	-94.24330	moored_buoy	<5 yr		Y		Unknown	N	Texas Automated Buoy System	academic	Texas Automated Buoy System	Lee Woody(woody@gerg.tamu.edu)	sea_water_temperature ,sea_water_speed, upward_sea_water_velocity, direction_of_sea_water_velocity	
GCOOS	ioos:station:wmo:42046		42046	TABS N: HI-A595	url: http://tabs.gerg.tamu.edu/Tglo/ven.php?buoy=N	27.89030	-94.03670	moored_buoy	<5 yr		O		Unknown	N	Texas Automated Buoy System	academic	Texas Automated Buoy System	Lee Woody(woody@gerg.tamu.edu)	sea_water_temperature ,wind_speed, wind_to_direction,wind_speed_of_gust,sea_water_speed, upward_sea_water_velocity, direction_of_sea_water_velocity ,air_pressure,air_temperature,relative_humidity	
GCOOS	ioos:station:TCOON:524			524: Port Arthur (87704751): Po	url: http://lighthouse.tamucc.edu/overview/524	29.86720	-93.93100	tide_station	<5 yr		Y		Unknown	Yp	Texas Coastal Ocean Observation Network	academic	Texas Coastal Ocean Observation Network	Jonathan Scott Duff(Scott.Duff@tamucc.edu)	sea_surface_height_above_sea_level,sea_water_temperature ,wind_speed, wind_to_direction,wind_speed_of_gust ,air_pressure ,air_temperature	
GCOOS	ioos:station:wmo:42051		42051	TABS R: TABS R	url: http://tabs.gerg.tamu.edu/Tglo/ven.php?buoy=R	29.63500	-93.64170	moored_buoy	<5 yr		Y		Unknown	N	Texas Automated Buoy System	academic	Texas Automated Buoy System	Lee Woody(woody@gerg.tamu.edu)	sea_water_temperature ,sea_water_speed, upward_sea_water_velocity, direction_of_sea_water_velocity	
GCOOS	ioos:station:wmo:42047		42047	TABS V: HI-A389	url: http://tabs.gerg.tamu.edu/Tglo/ven.php?buoy=V	27.89660	-93.59730	moored_buoy	<5 yr		Y		Unknown	N	Texas Automated Buoy System	academic	Texas Automated Buoy System	Lee Woody(woody@gerg.tamu.edu)	sea_water_temperature ,wind_speed, wind_to_direction,wind_speed_of_gust,sea_water_speed, upward_sea_water_velocity, direction_of_sea_water_velocity ,air_pressure,air_temperature,relative_humidity	
GCOOS	ioos:station:wmo:42361		42361	42361 - Auger - Garden Banks 42	url: http://www.ndbc.noaa.gov/station_page.php?station=42361	27.55000	-92.49000	offshore_tower		2011	Y		Unknown	N	Oil and Gas Industry Participating Platforms	industry	Oil and Gas Industry Participating Platforms		wind_speed, wind_to_direction,wind_speed_of_gust,sea_water_speed, upward_sea_water_velocity, direction_of_sea_water_velocity ,air_pressure,air_temperature	
GCOOS	ioos:station:WAVCIS:CSI03			CSI03: Marsh Island, LA	url: http://www.wavcis.lsu.edu	29.44120	-92.06130	offshore_tower	<5 yr		Y		Unknown	Yp	Wave-Current-Surge Information System for Coastal Louisi	academic	Wave-Current-Surge Information System for Coastal Louisiana	Yixin (Peter) Luo(yluo2@lsu.edu)	sea_surface_height_above_sea_level,sea_water_temperature (10.0),waves,wind_speed, wind_to_direction,wind_speed_of_gust,air_pressure,air_temperature,relative_humidity	
GCOOS	ioos:station:WAVCIS:CSI15			CSI15: Ship Shoal blocks 114A	url: http://wavcis.csi.lsu.edu/	28.83320	-90.83200	offshore_tower	<5 yr		U		Unknown	Yp	Wave-Current-Surge Information System for Coastal Louisi	academic	Wave-Current-Surge Information System for Coastal Louisiana	Yixin (Peter) Luo(yluo2@lsu.edu)		
GCOOS	ioos:station:LUMCON:104			104: MissRiver-Audobon	url: http://weatherstations.lumcon.edu	29.55260	-90.80700	fixed	<5 yr		O		Unknown	N	Louisiana Universities Marine Consortium	nonprofit	Louisiana Universities Marine Consortium	Alexander Ren(aren@lumcon.edu)	sea_water_practical_salinity	
GCOOS	ioos:station:LUMCON:105			105: Tambour Bay, LA	url: http://weatherstations.lumcon.edu	29.18737	-90.66542	offshore_tower	<5 yr		O		Unknown	N	Louisiana Universities Marine Consortium	nonprofit	Louisiana Universities Marine Consortium	Alexander Ren(aren@lumcon.edu)	sea_surface_height_above_sea_level ,wind_speed, wind_to_direction,wind_speed_of_gust ,air_temperature,relative_humidity	
GCOOS	ioos:station:LUMCON:101			101: LUMCON Marine Center, LA	url: http://weatherstations.lumcon.edu	29.25333	-90.66333	fixed	<5 yr		O		Unknown	N	Louisiana Universities Marine Consortium	nonprofit	Louisiana Universities Marine Consortium	Alexander Ren(aren@lumcon.edu)	sea_water_temperature ,wind_speed, wind_to_direction,wind_speed_of_gust ,sea_water_practical_salinity,air_pressure,air_temperature,mass_concentration_of_oxygen_in_sea_water ,relative_humidity	
GCOOS	ioos:station:wmo:42362		42362	42362 - Brutus - Green Canyon 1	url: http://ndbc.noaa.gov/station_page.php?station=42362	27.79500	-90.64800	offshore_tower		2010	U		Unknown	N	Oil and Gas Industry Participating Platforms	industry	Oil and Gas Industry Participating Platforms		sea_water_speed, upward_sea_water_velocity, direction_of_sea_water_velocity (79.49)	
GCOOS	ioos:station:LUMCON:102			102: Terrebonne Bay, LA	url: http://weatherstations.lumcon.edu	29.18700	-90.60930	offshore_tower	<5 yr		O		Unknown	N	Louisiana Universities Marine Consortium	nonprofit	Louisiana Universities Marine Consortium	Alexander Ren(aren@lumcon.edu)	sea_water_temperature ,wind_speed, wind_to_direction,wind_speed_of_gust ,sea_water_practical_salinity ,air_temperature ,relative_humidity	
GCOOS	ioos:station:WAVCIS:CSI05			CSI05: Isle Dernieres, LA	url: http://www.wavcis.lsu.edu	29.05330	-90.53330	offshore_tower	<5 yr		U		Unknown	Yp	Wave-Current-Surge Information System for Coastal Louisi	academic	Wave-Current-Surge Information System for Coastal Louisiana	Yixin (Peter) Luo(yluo2@lsu.edu)	sea_surface_height_above_sea_level,sea_water_temperature (10.0),waves,wind_speed, wind_to_direction,wind_speed_of_gust,air_pressure,air_temperature,relative_humidity	
GCOOS	ioos:station:WAVCIS:CSI06			CSI06: South Timbalier Block 52,	url: http://www.wavcis.lsu.edu	28.86670	-90.48330	offshore_tower	<5 yr		Y		Unknown	Yp	Wave-Current-Surge Information System for Coastal Louisi	academic	Wave-Current-Surge Information System for Coastal Louisiana	Yixin (Peter) Luo(yluo2@lsu.edu)	sea_surface_height_above_sea_level,sea_water_temperature (100.0),waves,wind_speed, wind_to_direction,wind_speed_of_gust,air_pressure,air_temperature,relative_humidity	
GCOOS	ioos:station:LUMCON:103			103: Western Lake Ponchartrain,	url: http://weatherstations.lumcon.edu	30.18894	-90.16831	offshore_tower	<5 yr		O		Unknown	N	Louisiana Universities Marine Consortium	nonprofit	Louisiana Universities Marine Consortium	Alexander Ren(aren@lumcon.edu)	sea_surface_height_above_sea_level ,sea_water_temperature ,wind_speed, wind_to_direction,wind_speed_of_gust ,sea_water_practical_salinity,air_pressure,air_temperature,relative_humidity	
GCOOS	ioos:station:WAVCIS:CSI09			CSI09: Grand Isle Blocks	url: http://wavcis.csi.lsu.edu/	29.10150	-89.97820	offshore_tower	<5 yr		U		Unknown	Yp	Wave-Current-Surge Information System for Coastal Louisi	academic	Wave-Current-Surge Information System for Coastal Louisiana	Yixin (Peter) Luo(yluo2@lsu.edu)	sea_surface_height_above_sea_level,sea_water_temperature ,waves,wind_speed, wind_to_direction,wind_speed_of_gust ,air_pressure ,air_temperature ,relative_humidity	
GCOOS	ioos:station:wmo:42363		42363	42363 - Mars - Mississippi Canyon	url: http://www.ndbc.noaa.gov/station_page.php?station=42363	28.16000	-89.22000	offshore_tower		2013	U		Unknown	N	Oil and Gas Industry Participating Platforms	industry	Oil and Gas Industry Participating Platforms		sea_water_speed, upward_sea_water_velocity, direction_of_sea_water_velocity	
GCOOS	ioos:station:wmo:42365		42365	42365 - Ursa - Mississippi Canyon	url: http://ndbc.noaa.gov/station_page.php?station=42365	28.20000	-89.12000	offshore_tower	<5 yr		U		Unknown	N	Oil and Gas Industry Participating Platforms	industry	Oil and Gas Industry Participating Platforms		sea_water_speed, upward_sea_water_velocity, direction_of_sea_water_velocity (60.11)	
GCOOS	ioos:station:WAVCIS:CSI16			CSI16: Chevron MP41M platform	url: http://wavcis.csi.lsu.edu/	29.40120	-89.03550	offshore_tower	<5 yr		U		Unknown	Yp	Wave-Current-Surge Information System for Coastal Louisi	academic	Wave-Current-Surge Information System for Coastal Louisiana	Yixin (Peter) Luo(yluo2@lsu.edu)		
GCOOS	ioos:station:wmo:42067		42067	USM3M02: 42067 - USM3M02	url: http://www.cengoos.org/current_conditions.shtml	30.04300	-88.64900	moored_buoy	<5 yr		U		Unknown	N	Central Gulf Ocean Observing System	academic	Central Gulf Ocean Observing System	Jamie Davis(j.davis@usm.edu)	sea_water_temperature,waves ,wind_speed, wind_to_direction,wind_speed_of_gust,wind_speed, wind_to_direction,wind_speed_of_gust,sea_water_speed, upward_sea_water_velocity, direction_of_sea_water_velocity (4.31),sea_water_speed, upward_sea_water_velocity, direction_of_sea_water_velocity,sea_water_practical_salinity,air_pressure,air_temperature,relative_humidity	
GCOOS	ioos:station:DISL:KATA			KATA: Katrina Cut, AL	url: http://www.mymobilebay.com/stationdata/StationInfo.asp?jday=8	30.25830	-88.21310	fixed	<5 yr		Y		Unknown	Yp	Dauphin Island Sea Laboratory	academic	Dauphin Island Sea Laboratory	Lei Hu(lhu@disl.org)	sea_surface_height_above_sea_level ,sea_water_temperature ,wind_speed, wind_to_direction,wind_speed_of_gust ,sea_water_practical_salinity ,air_pressure ,air_temperature ,mass_concentration_of_oxygen_in_sea_water ,relative_humidity	
GCOOS	ioos:station:DISL:CATA			CATA: Cedar Point, AL	url: http://www.mymobilebay.com/stationdata/StationInfo.asp?jday=8	30.30850	-88.13950	fixed	<5 yr		Y		Unknown	Yp	Dauphin Island Sea Laboratory	academic	Dauphin Island Sea Laboratory	Lei Hu(lhu@disl.org)	sea_surface_height_above_sea_level ,sea_water_temperature ,wind_speed, wind_to_direction,wind_speed_of_gust ,sea_water_practical_salinity ,air_pressure ,air_temperature ,mass_concentration_of_oxygen_in_sea_water ,relative_humidity	
GCOOS	ioos:station:wmo:42364		42364	42364 - Ram-Powell - Viosca Kno	url: http://www.ndbc.noaa.gov/station_page.php?station=42364	29.06000	-88.09000	offshore_tower		2013	Y		Unknown	N	Oil and Gas Industry Participating Platforms	industry	Oil and Gas Industry Participating Platforms		wind_speed, wind_to_direction,wind_speed_of_gust,sea_water_speed, upward_sea_water_velocity, direction_of_sea_water_velocity ,air_pressure,air_temperature	
GCOOS	ioos:station:DISL:DISL			DISL: Dauphin Island, AL	url: http://www.mymobilebay.com/stationdata/StationInfo.asp?jday=8	30.25130	-88.07780	fixed	<5 yr		Y		Unknown	Yp	Dauphin Island Sea Laboratory	academic	Dauphin Island Sea Laboratory	Lei Hu(lhu@disl.org)	sea_surface_height_above_sea_level,sea_water_temperature,wind_speed, wind_to_direction,wind_speed_of_gust,sea_water_practical_salinity,air_pressure,air_temperature ,mass_concentration_of_oxygen_in_sea_water	
GCOOS	ioos:station:DISL:MBLA			MBLA: Middle Bay Light, AL	url: http://www.mymobilebay.com/stationdata/StationInfomiddlebay.	30.43670	-88.01170	offshore_tower	<5 yr		Y		Unknown	Yp	Dauphin Island Sea Laboratory	academic	Dauphin Island Sea Laboratory	Lei Hu(lhu@disl.org)	sea_surface_height_above_sea_level ,sea_water_temperature,wind_speed, wind_to_direction,wind_speed_of_gust,sea_water_practical_salinity,air_pressure,air_temperature,mass_concentration_of_oxygen_in_sea_water,relative_humidity	
GCOOS	ioos:station:DISL:MHPA			MHPA: Meaher Park, AL	url: http://www.mymobilebay.com/stationdata/StationInfo.asp?jday=8	30.66710	-87.93650	fixed	<5 yr		Y		Unknown	Yp	Dauphin Island Sea Laboratory	academic	Dauphin Island Sea Laboratory	Lei Hu(lhu@disl.org)	sea_surface_height_above_sea_level,sea_water_temperature,wind_speed, wind_to_direction,wind_speed_of_gust,sea_water_practical_salinity,air_pressure,air_temperature,mass_concentration_of_oxygen_in_sea_water	
GCOOS	ioos:station:DISL:BSCA			BSCA: Station Bon Secour, LA	url: http://www.mymobilebay.com/stationdata/StationInfo.asp?jday=8	30.32880	-87.82930	offshore_tower	<5 yr		Y		Unknown	Yp	Dauphin Island Sea Laboratory	academic	Dauphin Island Sea Laboratory	Lei Hu(lhu@disl.org)	sea_surface_height_above_sea_level ,sea_water_temperature ,wind_speed, wind_to_direction,wind_speed_of_gust ,sea_water_practical_salinity ,air_pressure ,air_temperature ,mass_concentration_of_oxygen_in_sea_water ,relative_humidity	
GCOOS	ioos:station:DISL:PPTA			PPTA: Perdido Pass, AL	url: http://www.mymobilebay.com/stationdata/StationInfo.asp?jday=8	30.27910	-87.55610	fixed	<5 yr		Y		Unknown	Yp	Dauphin Island Sea Laboratory	academic	Dauphin Island Sea Laboratory	Lei Hu(lhu@disl.org)	sea_surface_height_above_sea_level ,sea_water_temperature ,wind_speed, wind_to_direction,wind_speed_of_gust ,sea_water_practical_salinity ,air_pressure ,air_temperature ,mass_concentration_of_oxygen_in_sea_water ,relative_humidity	
GCOOS	ioos:station:USF.COMPS:SHP			SHP: Shell Point, FL	url: http://comps.marine.usf.edu/index?view=station&id=EGK	30.06000	-84.29100	fixed	<5 yr		Y		Unknown	N	Coastal Ocean Monitoring and Prediction System	academic	Coastal Ocean Monitoring and Prediction System	Mark E. Luther(mluther@usf.edu)	sea_surface_height_above_sea_level,wind_speed, wind_to_direction,wind_speed_of_gust,air_pressure,air_temperature,relative_humidity	
GCOOS	ioos:station:USF.COMPS:C12		42022	C12: West Florida Central Buoy	url: http://comps.marine.usf.edu/index?view=station&id=C12	27.49800	-83.72200	moored_buoy	<5 yr		Y		Unknown	N	Coastal Ocean Monitoring and Prediction System	academic	Coastal Ocean Monitoring and Prediction System	Mark E. Luther(mluther@usf.edu)	wind_speed, wind_to_direction,wind_speed_of_gust,sea_water_speed, upward_sea_water_velocity, direction_of_sea_water_velocity,sea_water_practical_salinity,air_pressure,air_temperature,relative_humidity	
GCOOS	ioos:station:USF.COMPS:C13		42023	C13: West Florida South Buoy	url: http://comps.marine.usf.edu/index?view=station&id=C13	26.06300	-83.07300	moored_buoy	<5 yr		U		Unknown	N	Coastal Ocean Monitoring and Prediction System	academic	Coastal Ocean Monitoring and Prediction System	Mark E. Luther(mluther@usf.edu)	air_pressure,air_temperature,relative_humidity	
GCOOS	ioos:station:USF.COMPS:C10		42013	C10: Navy-2	url: http://comps.marine.usf.edu/index?view=station&id=C10	27.16900	-82.92600	moored_buoy	<5 yr		Y		Unknown	N	Coastal Ocean Monitoring and Prediction System	academic	Coastal Ocean Monitoring and Prediction System	Mark E. Luther(mluther@usf.edu)	sea_water_temperature,wind_speed, wind_to_direction,wind_speed_of_gust,sea_water_speed, upward_sea_water_velocity, direction_of_sea_water_velocity,sea_water_practical_salinity,air_pressure,air_temperature,relative_humidity	
GCOOS	ioos:station:USF.COMPS:FHP			FHP: Fred Howard Park, FL	url: http://comps.marine.usf.edu/index?view=station&id=EGK	28.15300	-82.80100	fixed	<5 yr		Y		Unknown	N	Coastal Ocean Monitoring and Prediction System	academic	Coastal Ocean Monitoring and Prediction System	Mark E. Luther(mluther@usf.edu)	sea_surface_height_above_sea_level,sea_water_temperature ,wind_speed, wind_to_direction,wind_speed_of_gust,sea_water_practical_salinity,air_pressure,air_temperature,relative_humidity	
GCOOS	ioos:station:USF.COMPS:ANC			ANC: Anclote Gulf Park, FL	url: http://comps.marine.usf.edu/index?view=station&id=ANC	28.19300	-82.78900	fixed	<5 yr		U		Unknown	N	Coastal Ocean Monitoring and Prediction System	academic	Coastal Ocean Monitoring and Prediction System	Mark E. Luther(mluther@usf.edu)	sea_surface_height_above_sea_level,sea_water_temperature ,wind_speed, wind_to_direction,wind_speed_of_gust,sea_water_practical_salinity,air_pressure,air_temperature	
GCOOS	ioos:station:USF.COMPS:TAR			TAS: Tarpon Springs, FL	url: http://comps.marine.usf.edu/index?view=station&id=EGK	28.15600	-82.75800	fixed	<5 yr		U		Unknown	N	Coastal Ocean Monitoring and Prediction System	academic	Coastal Ocean Monitoring and Prediction System	Mark E. Luther(mluther@usf.edu)	sea_surface_height_above_sea_level,wind_speed, wind_to_direction,wind_speed_of_gust,air_pressure,air_temperature,relative_humidity	
GCOOS	ioos:station:USF.COMPS:EGK			EGK: Egmont Key, FL	url: http://comps.marine.usf.edu/index?view=station&id=EGK	27.60100	-82.75100	fixed	<5 yr		U		Unknown	N	Coastal Ocean Monitoring and Prediction System	academic	Coastal Ocean Monitoring and Prediction System	Mark E. Luther(mluther@usf.edu)	sea_surface_height_above_sea_level,sea_water_temperature ,wind_speed, wind_to_direction,wind_speed_of_gust,sea_water_practical_salinity,air_pressure,air_temperature,relative_humidity	
GCOOS	ioos:station:USF.COMPS:ANM			ANM: Anna Maria, FL	url: http://comps.marine.usf.edu/index?view=station&id=ANM	27.54000	-82.74000	fixed	<5 yr		U		Unknown	N	Coastal Ocean Monitoring and Prediction System	academic	Coastal Ocean Monitoring and Prediction System	Mark E. Luther(mluther@usf.edu)	sea_surface_height_above_sea_level,wind_speed, wind_to_direction,wind_speed_of_gust,air_pressure,air_temperature	
GCOOS	ioos:station:USF.COMPS:ARP	ARPF1		APK: Aripeka, FL	url: http://comps.marine.usf.edu/index?view=station&id=APK	28.43300	-82.66700	fixed	<5 yr		Y		Unknown	N	Coastal Ocean Monitoring and Prediction System	academic	Coastal Ocean Monitoring and Prediction System	Mark E. Luther(mluther@usf.edu)	sea_surface_height_above_sea_level,wind_speed, wind_to_direction,wind_speed_of_gust,air_pressure,air_temperature,relative_humidity	
GCOOS	ioos:station:USF.COMPS:CAM			CPK: Campbell Park, FL	url: http://comps.marine.usf.edu/index?view=station&id=CPK	27.76500	-82.64900	fixed	<5 yr		U		Unknown	N	Coastal Ocean Monitoring and Prediction System	academic	Coastal Ocean Monitoring and Prediction System	Mark E. Luther(mluther@usf.edu)	wind_speed, wind_to_direction,wind_speed_of_gust,sea_water_practical_salinity,air_pressure,air_temperature,relative_humidity	
GCOOS	ioos:station:USF.COMPS:BGC			BCP: Big Carlos Pass, FL	url: http://comps.marine.usf.edu/index?view=station&id=BCP	26.40400	-81.88100	fixed	<5 yr		U		Unknown	N	Coastal Ocean Monitoring and Prediction System	academic	Coastal Ocean Monitoring and Prediction System	Mark E. Luther(mluther@usf.edu)	sea_surface_height_above_sea_level,wind_speed, wind_to_direction,wind_speed_of_gust,air_pressure,air_temperature,relative_humidity	
GCOOS	ioos:station:USF.COMPS:NFB			NFB: Northwest Florida Bay, FL	url: http://comps.marine.usf.edu/index?view=station&id=EGK	25.08400	-81.09600	fixed	<5 yr		U		Unknown	N	Coastal Ocean Monitoring and Prediction System	academic	Coastal Ocean Monitoring and Prediction System	Mark E. Luther(mluther@usf.edu)	sea_water_temperature ,wind_speed, wind_to_direction,wind_speed_of_gust,sea_water_practical_salinity,air_pressure,air_temperature,relative_humidity	
GLOS			45027	Station 45027 - McQuade Harbor Nearshore, MN	LLO1-Duluth Buoy (45027)	46.86000	-91.93000	moored_buoy		5/23/11		Y	University of Minnesota-Duluth	Yp	University of Minnesota-Duluth	academic	University of Minnesota-Duluth		Wind from Direction, Wind Speed, Air Temperature, Dew Point, Wind Gust, Air Pressure, Water Temperature at Surface, WaterTemperature @ 0 ft	
GLOS			45028	Station 45028 - Western Lake Superior	LLO2-Duluth Buoy (45028)	46.81000	-91.84000	moored_buoy		5/23/11		Y	University of Minnesota-Duluth	Yp	University of Minnesota-Duluth	academic	University of Minnesota-Duluth		Wind from Direction, Significant Wave Period, Wind Speed, Significant Wave Height, Air Temperature, Dew Point, Wind Gust, Air Pressure, Water Temperature at Surface, WaterTemperature @ 0 ft	
GLOS				Keweenaw Waterway Buoy Thermistor Chain Data - North	Keweenaw Waterway Buoy Thermistor Chain Data - North	47.21000	-88.62000	moored_buoy		10/10/09		Y	Michigan Tech University	Yp	Michigan Tech University	academic	Michigan Tech University		WaterTemperature @ 0 ft	
GLOS			45023	Station 45023 - North Entry Buoy, North Keweenaw Peninsula, MI	North Entry MTU Buoy (45023)	47.27000	-88.60700	moored_buoy		7/8/10		Y	Michigan Tech University	Yp	Michigan Tech University	academic	Michigan Tech University		Wind from Direction, Significant Wave Period, Wind Speed, Significant Wave Height, Air Temperature, Dew Point, Wind Gust, Air Pressure, Water Temperature at Surface, WaterTemperature @ 0 ft	
GLOS				Keweenaw Waterway Buoy Thermistor Chain Data - South	Keweenaw Waterway Buoy Thermistor Chain Data - South	46.98000	-88.43000	moored_buoy		10/10/09		Y	Michigan Tech University	Yp	Michigan Tech University	academic	Michigan Tech University		WaterTemperature @ 0 ft	
GLOS			45025	Station 45025 - South Entry Buoy, South Keweenaw Peninsula, MI	South Entry Buoy MTU1 (45025)	46.96900	-88.39800	moored_buoy		6/3/11		Y	Michigan Tech University	Yp	Michigan Tech University	academic	Michigan Tech University		Wind from Direction, Significant Wave Period, Wind Speed, Significant Wave Height, Air Temperature, Dew Point, Wind Gust, Air Pressure, Water Temperature at Surface, WaterTemperature @ 0 ft	
GLOS			45013	Station 45013 - Atwater Park, WI	Milwaukee Buoy ATW20 (45013)	43.10000	-87.85000	moored_buoy		8/12/11		Y	University of Wisconsin-Milwaukee	Yp	University of Wisconsin-Milwaukee	academic	University of Wisconsin-Milwaukee		Wind from Direction, Significant Wave Period, Wind Speed, Significant Wave Height, Air Temperature, Wind Gust, Air Pressure, Water Temperature at Surface, Relative Humidity, WaterTemperature @ 0 ft	
GLOS			45014	Station 45014 - GB17 - South Green Bay, WI	Green Bay Buoy GB17 (45014)	44.80000	-87.76000	moored_buoy		8/12/11		Y	University of Wisconsin-Milwaukee	Yp	University of Wisconsin-Milwaukee	academic	University of Wisconsin-Milwaukee		WindDirection, Significant Wave Period, WindSpeed, Significant Wave Height, AirTemperature, Wind Gust, Air Pressure, WaterTemperature, Relative Humidity, WaterTemperature (3 ft, 7 ft, 10 ft, 13 ft, 16 ft, 20 ft, 23 ft, 26 ft, 30 ft, 33 ft, 36 ft, 39 ft, 43 ft)	
GLOS			45174	Station 45174 - Wilmette, IL	Wilmette Weather Buoy (45174)	42.13500	-87.65500	moored_buoy		8/4/15		Y	Illinois-Indiana Sea Grant, Purdue University	N	Illinois-Indiana Sea Grant, Purdue University	nonprofit	Illinois-Indiana Sea Grant, Purdue University, LimnoTech		Wind from Direction, Significant Wave Period, Wind Speed, Significant Wave Height, Air Temperature, Dew Point, Wind Gust, Air Pressure, Water Temperature at Surface	
GLOS			FSTI2	Station FSTI2 - Foster Ave., Chicago, IL	Station FSTI2 - Foster Ave., Chicago, IL	41.97600	-87.64800	fixed	>5 yr			Y	Chicago Park District	N	Chicago Park District	gov_municipal	Chicago Park District	Chicago Park District	Wind Direction, Wind Speed, Air Temperature, Wind Chill, Wind Speed (10m, 20m)	
GLOS			OKSI2	Station OKSI2 - Oak St., Chicago, IL	Station OKSI2 - Oak St., Chicago, IL	41.91200	-87.62400	fixed	>5 yr			Y	Chicago Park District	N	Chicago Park District	gov_municipal	Chicago Park District	Chicago Park District	Wind Direction, Wind Speed, Air Temperature, Wind Chill, Wind Speed (10m, 20m)	
GLOS			JAKI2	Station JAKI2 - 63rd St., Chicago, IL	Station JAKI2 - 63rd St., Chicago, IL	41.78100	-87.57300	fixed	>5 yr			Y	Chicago Park District	N	Chicago Park District	gov_municipal	Chicago Park District	Chicago Park District	Wind Direction, Wind Speed, Air Temperature, Wind Chill, Wind Speed (10m, 20m)	
GLOS			GRIM4	Station GRIM4 - Granite Island, MI	Lake Superior Evaporation and Meteorological Data from Granite Island (GRIM4)	46.72100	-87.41200	tower		10/6/10		Y	Environment Canada, University of Colorado	N	Environment Canada, University of Colorado, LimnoTech	gov_federal, nonprofit, industry	Environment Canada, University of Colorado, LimnoTech		WindDirection, WindSpeed, AirTemperature, Dew Point, Wind Gust, Air Pressure	

GLOS		45171	Station 45171 - Granite Island Buoy, Granite Island, MI	Granite Island Buoy (45171)	46.72400	-87.41100	moored_buoy	6/27/15	Y	Northern Michigan University	N	Northern Michigan University	academic	Northern Michigan University		WindDirection, Significant Wave Period, WindSpeed, SignificantWaveHeight, Air Temperature, Air Pressure, Water Temperature
GLOS		45179	Station 45179 - Stannard Rock Buoy	Stannard Rock Buoy (45179)	47.19500	-87.22400	moored_buoy	8/29/17	Y	Superior Watershed Partnership	Yp	Lentic Environmental Services	industry	Lentic Environmental Services		WindDirection, WindSpeed, AirTemperature, Dew Point, Wind Gust, Air Pressure
GLOS		45170	Station 45170 - Michigan City Buoy, IN	Illinois-Indiana Sea Grant Buoy (45170)	41.75500	-86.96800	moored_buoy	6/9/11	Y	Illinois-Indiana Sea Grant, Purdue University	N	Illinois-Indiana Sea Grant, Purdue University	nonprofit	Illinois-Indiana Sea Grant, Purdue University		Wind from Direction, Significant Wave Period, Wind Speed, Significant Wave Height, Air Temperature, Dew Point, Wind Gust, Water Temperature at Surface, WaterTemperature @ 0 ft
GLOS		45026	Station 45026 - Cook Nuclear Plant Buoy, Stevensville, MI	Cook Plant Buoy (45026)	41.98300	-86.61700	moored_buoy	6/9/11	Y	American Electric Power	N	LimnoTech	industry	LimnoTech		Wind from Direction, Significant Wave Period, Wind Speed, Significant Wave Height, Air Temperature, Dew Point, Wind Gust, Air Pressure, Water Temperature at Surface, WaterTemperature @ 0 ft
GLOS		45173	Station 45173 - Munising Buoy, Munising, MI	Munising Buoy (45173)	46.57300	-86.57100	moored_buoy	6/27/15	Y	Northern Michigan University	N	Northern Michigan University	academic	Northern Michigan University		Wind from Direction, Significant Wave Period, Wind Speed, Significant Wave Height, Air Temperature, Air Pressure, Water Temperature at Surface
GLOS		45024	Station 45024 - Ludington Buoy, MI	Ludington Buoy (45024)	43.97700	-86.55900	moored_buoy	8/4/09	Y	University of Michigan CIGLR	Yp	University of Michigan CIGLR	academic	University of Michigan CIGLR		WindDirection, Significant Wave Period, WindSpeed, Significant Wave Height, AirTemperature, Dew Point, Wind Gust, Air Pressure, WaterTemperature, WaterTemperature (10 ft, 19 ft, 28 ft, 36 ft, 45 ft, 54 ft, 63 ft, 72 ft)
GLOS		45168	Station 45168 - South Haven Buoy, MI	South Haven Buoy (45168)	42.39700	-86.33100	moored_buoy	8/4/09	Y	LimnoTech	N	LimnoTech	industry	LimnoTech		Wind from Direction, Significant Wave Period, Wind Speed, Significant Wave Height, Air Temperature, Dew Point, Wind Gust, Air Pressure, Water Temperature at Surface, WaterTemperature @ 0 ft
GLOS	GVSU1		Muskegon Lake Buoy	Muskegon Lake Buoy (GVSU1)	43.24000	-86.28000	moored_buoy	6/9/11	Y	Grand Valley State University	N	Grand Valley State University	academic	Grand Valley State University		Wind from Direction, Wind Speed, Air Temperature, Wind Gust, Air Pressure, Water Temperature at Surface, Relative Humidity, WaterTemperature @ 0 ft
GLOS		45029	Station 45029 - Holland Buoy, MI	Port Sheldon (Holland) Buoy (45029)	42.90000	-86.27200	moored_buoy	8/4/09	Y	LimnoTech	N	LimnoTech	industry	LimnoTech		Wind from Direction, Significant Wave Period, Wind Speed, Significant Wave Height, Air Temperature, Dew Point, Wind Gust, Air Pressure, Water Temperature at Surface, WaterTemperature @ 0 ft
GLOS		45172	Station 45172 - Grand Marais Buoy, Grand Marais, MI	Grand Marais Buoy (45172)	46.74200	-85.95800	moored_buoy	6/27/15	Y	Northern Michigan University	N	Northern Michigan University	academic	Northern Michigan University		Wind from Direction, Significant Wave Period, Wind Speed, Significant Wave Height, Air Temperature, Air Pressure, Water Temperature at Surface
GLOS		45020	Station 45020 - Grand Traverse Bay South Buoy, MI	Grand Traverse Bay South Buoy (45020	44.78900	-85.60400	moored_buoy	8/4/09	Y	Northwestern Michigan College	N	Northwestern Michigan College	academic	Northwestern Michigan College		Wind from Direction, Significant Wave Period, Wind Speed, Significant Wave Height, Air Temperature, Dew Point, Wind Gust, Air Pressure, Water Temperature at Surface, WaterTemperature @ 0 ft
GLOS		WSLM4	Station WSLM4 - White Shoal Light, MI	Lake Michigan Evaporation and Meteorological Data from White Shoal (WSLM4)	45.84200	-85.13500	tower	2/22/16	Y	University of Colorado, LimnoTech, Environment Canada	Yp	University of Colorado, LimnoTech, Environment Canada	gov_federal, nonprofit, industry	University of Colorado, LimnoTech, Environment Canada		Wind from Direction, Wind Speed, Air Temperature, Dew Point, Air Pressure, Water Temperature at Surface
GLOS		45022	Station 45022 - Little Traverse Bay, MI	Little Traverse Bay Buoy U-GLOS 004 (45022)	45.40300	-85.08800	moored_buoy	7/29/09	Y	University of Michigan CIGLR	Yp	University of Michigan CIGLR	academic	University of Michigan CIGLR		Wind from Direction, Significant Wave Period, Wind Speed, Significant Wave Height, Air Temperature, Dew Point, Wind Gust, Air Pressure, Water Temperature at Surface, WaterTemperature @ 0 ft
GLOS		45175	Station 45175 - Mackinac Straits West, Mackinaw City, MI	Mackinac Straits Buoy (45175)	45.82500	-84.77200	moored_buoy	8/28/15	Y	Enbridge	N	Michigan Tech University	academic	Michigan Tech University		Wind from Direction, Significant Wave Period, Wind Speed, Significant Wave Height, Air Temperature, Dew Point, Wind Gust, Air Pressure, Water Temperature at Surface, WaterTemperature @ 0 ft
GLOS	UMBIO		UM Bio Station Buoy (UMBIO)	UM Bio Station Buoy (UMBIO)	45.57000	-84.67000	moored_buoy	8/18/10	Y	University of Michigan CIGLR	Yp	University of Michigan CIGLR	academic	University of Michigan CIGLR		Wind from Direction, Wind Speed, Air Temperature, Dew Point, Wind Gust, Air Pressure, Water Temperature at Surface, WaterTemperature @ 0 ft
GLOS	UTLCP		Little Cedar Point Buoy (utlcp)	Little Cedar Point Buoy (utlcp)	41.72000	-83.37000	moored_buoy	5/1/15	Y	University of Toledo	N	University of Toledo	academic	University of Toledo	LimnoTech	Wind from Direction, Significant Wave Period, Wind Speed, ysi_chlorophyll, ysi_blue_green_algae, Air Temperature, Air Pressure, Water Temperature at Surface, ysi_turbidity, ph, water_conductivity, dissolved_oxygen_saturation, dissolved_oxygen
GLOS	TOLCRIB		City of Toledo Water Intake Crib (tolcrib)	City of Toledo Water Intake Crib (tolcrib)	41.68000	-83.31000	moored_buoy	5/1/15	Y	City of Toledo	N	City of Toledo	gov_municipal	LimnoTech		ysi_chlorophyll, ysi_blue_green_algae, Water Temperature at Surface, ysi_turbidity, ph, water_conductivity
GLOS	TOLLSPS		Toledo Low Service Pump Station (tollsps)	Toledo Low Service Pump Station (tollsps)	41.68000	-83.31000	fixed	5/1/15	Y	City of Toledo	N	City of Toledo	gov_municipal	LimnoTech		ysi_chlorophyll, ysi_blue_green_algae, WaterTemperature, ysi_turbidity, ph, water_conductivity, dissolved_oxygen_saturation, dissolved_oxygen
GLOS	LEASH		Ashtabula Water Intake (leash)	Ashtabula Water Intake (leash)	41.67000	-83.29000	fixed	11/19/15	Y	Aqua America	N	Aqua America	industry	LimnoTech		ysi_chlorophyll, ysi_blue_green_algae, WaterTemperature, ysi_turbidity, ph, water_conductivity, dissolved_oxygen_saturation, dissolved_oxygen
GLOS	LEORGN		City of Oregon OH Pump Station (leorgn)	City of Oregon OH Pump Station (leorgn)	41.67000	-83.29000	fixed	5/1/15	Y	City of Oregon, OH	N	City of Oregon, OH	gov_municipal	LimnoTech		ysi_chlorophyll, ysi_blue_green_algae, WaterTemperature, ysi_turbidity, ph, water_conductivity
GLOS		45165	Station 45165 - Toledo Water Intake Buoy, Oregon, OH	Toledo Water Intake Crib Buoy (45165)	41.70200	-83.26100	moored_buoy	8/4/09	Y	City of Toledo	N	LimnoTech	industry	LimnoTech		Wind from Direction, Significant Wave Period, Wind Speed, Significant Wave Height, ysi_chlorophyll, ysi_blue_green_algae, Air Temperature, Dew Point, Wind Gust, Air Pressure, Water Temperature at surface, ysi_turbidity, ph, water_conductivity, dissolved_oxygen, dissolved_oxygen_saturation
GLOS	LEOC		Ottawa County Pump Station (leoc)	Ottawa County Pump Station (leoc)	41.51000	-82.94000	fixed	5/1/15	Y	Ottawa County Regional Water Treatment Plant	N	Ottawa County Regional Water Treatment Plant	gov_municipal	LimnoTech		ysi_chlorophyll, ysi_blue_green_algae, WaterTemperature, ph, water_conductivity, dissolved_oxygen_saturation, dissolved_oxygen
GLOS	OSUGI		Gibraltar Island Buoy (osugi)	Gibraltar Island Buoy (osugi)	41.66000	-82.82000	moored_buoy	5/1/15	Y	Ohio State University Stone Laboratory	N	Ohio State University Stone Laboratory	academic	LimnoTech		Wind from Direction, Air Pressure, Air Temperature, Water Temperature at Surface, Wind Speed, Relative Humidity, Significant Wave Period, ysi_turbidity, water_conductivity, dissolved_oxygen, dissolved_oxygen_saturation, ysi_chlorophyll, ysi_blue_green_algae, ph, WaterTemperature @ 0 ft
GLOS	BGUSD2		Sandusky Bay buoy (bgsusd2)	Sandusky Bay buoy (bgsusd2)	41.49600	-82.75000	moored_buoy	6/27/17	Y	Bowling Green State University	N	Bowling Green State University	academic	Bowling Green State University	LimnoTech	Wind from Direction, Wind Speed, Air Temperature, Air Pressure, ysi_chlorophyll, ysi_blue_green_algae, Water Temperature at Surface, ysi_turbidity, ph, water_conductivity, dissolved_oxygen_saturation, dissolved_oxygen
GLOS	LEMRBHD		Marblehead Pump Station (lemrbhd)	Marblehead Pump Station (lemrbhd)	41.54000	-82.73000	fixed	5/1/15	Y	Village of Marblehead	N	Village of Marblehead	academic	LimnoTech		ysi_chlorophyll, ysi_blue_green_algae, WaterTemperature, ph, water_conductivity
GLOS	BGSDB		Sandusky Bayside Water Intake (bgsdb)	Sandusky Bayside Water Intake (bgsdb)	41.46000	-82.67000	fixed	5/1/15	Y	Bowling Green State University	N	Bowling Green State University	academic	Bowling Green State University	LimnoTech	Significant Wave Period, ysi_chlorophyll, ysi_blue_green_algae, WaterTemperature, ysi_turbidity, ph, water_conductivity, dissolved_oxygen_saturation, dissolved_oxygen
GLOS	BGSUSD		Sandusky Bay Buoy (bgsusd)	Sandusky Bay Buoy (bgsusd)	41.46000	-82.65000	moored_buoy	5/1/15	Y	Bowling Green State University	N	Bowling Green State University	academic	Bowling Green State University	LimnoTech	Wind from Direction, Air Pressure, Air Temperature, Water Temperature at Surface, Wind Speed, Significant Wave Period, ysi_chlorophyll, ysi_blue_green_algae, ysi_turbidity, ph, water_conductivity, dissolved_oxygen_saturation, dissolved_oxygen
GLOS	LEELYRIA		Elyria Pump Station (leelyria)	Elyria Pump Station (leelyria)	41.45000	-82.22000	fixed	5/1/15	Y	City of Elyria	N	City of Elyria	gov_municipal	LimnoTech		ysi_chlorophyll, ysi_blue_green_algae, WaterTemperature, ysi_turbidity, ph, water_conductivity
GLOS		45169	Station 45169 - Lakewood Buoy, OH	Cleveland Wind Buoy (45169)	41.61500	-81.82100	moored_buoy	6/27/15	Y	Icebreaker Windpower	N	LimnoTech	industry	LimnoTech		WindDirection, Significant Wave Period, WindSpeed, SignificantWaveHeight, Air Temperature, Dew Point, Wind Gust, Air Pressure, WaterTemperature, water_conductivity, dissolved_oxygen_saturation, dissolved_oxygen
GLOS		45176	Station 45176 - Cleveland Intake Crib Buoy, OH	Cleveland Crib Buoy (45176)	41.55000	-81.76500	moored_buoy	6/7/16	Y	GLOS, City of Cleveland	N	LimnoTech	industry	LimnoTech		WindDirection, Significant Wave Period, WindSpeed, SignificantWaveHeight, ysi_chlorophyll, ysi_blue_green_algae, AirTemperature, Dew Point, Wind Gust, Air Pressure, WaterTemperature, water_conductivity, WaterTemperature (5 ft, 10 ft, 15 ft, 20 ft, 25 ft, 30 ft, 35 ft, 37 ft, 39 ft, 41 ft, 43 ft, 45 ft, 47 ft, 49 ft, 51 ft)
GLOS	45176b		Cleveland Crib Bottom Sonde (45176b)	Cleveland Crib Bottom Sonde (45176b)	41.55000	-81.76500	fixed	6/7/16	Y	GLOS, City of Cleveland	N	LimnoTech	industry	LimnoTech		ysi_chlorophyll, ysi_blue_green_algae, water_conductivity, dissolved_oxygen_saturation, dissolved_oxygen
GLOS		45164	Station 45164 - Cleveland Buoy, OH	Cleveland RECON Buoy (45164)	41.73200	-81.69400	moored_buoy	6/9/11	Y	GLOS, City of Cleveland	N	LimnoTech	nonprofit, industry	LimnoTech		Significant Wave Height, Wind from Direction, Water Temperature at Surface, Air Temperature, Air Pressure, Significant Wave Period, dissolved_oxygen_saturation, Wind Gust, Wind Speed, dissolved_oxygen, water_conductivity, WaterTemperature @ 0 ft
GLOS	LEMENTOR		Mentor Wet Well (lementor)	Mentor Wet Well (lementor)	41.72100	-81.36300	fixed	11/19/15	Y	Aqua America	N	Aqua America	industry	LimnoTech		ysi_chlorophyll, ysi_blue_green_algae, WaterTemperature, ysi_turbidity, ph, water_conductivity, dissolved_oxygen_saturation, dissolved_oxygen
GLOS	LEAVON		Avon Lake Pump Station (leavon)	Avon Lake Pump Station (leavon)	41.52000	-81.01000	fixed	5/1/15	Y	Avon Lake Regional Water	N	Avon Lake Regional Water	gov_municipal	LimnoTech		ysi_chlorophyll, ysi_blue_green_algae, WaterTemperature, ph, water_conductivity, dissolved_oxygen_saturation, dissolved_oxygen
GLOS		45167	Station 45167 - Erie Nearshore Buoy, Erie, PA	Erie buoy RSC-A (45167)	42.18600	-80.13700	moored_buoy	6/9/11	Y	Regional Science Consortium	N	Regional Science Consortium	nonprofit	Regional Science Consortium		Significant Wave Height, Wind from Direction, Water Temperature at Surface, Air Temperature, Air Pressure, Significant Wave Period, dissolved_oxygen_saturation, Wind Gust, Wind Speed, ysi_turbidity, dissolved_oxygen, ph, WaterTemperature @ 0 ft
GLOS	ESF1		Oswego buoy (ESF1)	Oswego buoy (ESF1)	43.49000	-79.52000	moored_buoy	8/4/09	Y	State University of New York College of Environmental Science and Forestry (SUNY-ESF)	Yf	State University of New York College of Environmental Science and Forestry (SUNY-ESF)	academic	State University of New York College of Environmental Science and Forestry (SUNY-ESF)		Wind from Direction, Significant Wave Period, Wind Speed, Significant Wave Height, Air Temperature, Air Pressure, Water Temperature at Surface, Relative Humidity, WaterTemperature @ 0 ft
GLOS	ESF3		Dunkirk Buoy (ESF3)	Dunkirk Buoy (ESF3)	42.56000	-79.43000	moored_buoy	8/4/09	Y	State University of New York College of Environmental Science and Forestry (SUNY-ESF)	Yf	State University of New York College of Environmental Science and Forestry (SUNY-ESF)	academic	State University of New York College of Environmental Science and Forestry (SUNY-ESF)		Wind from Direction, Significant Wave Period, Wind Speed, Significant Wave Height, Air Temperature, Air Pressure, Water Temperature at Surface, Relative Humidity, WaterTemperature @ 0 ft
GLOS	ESF5		Sodus Bay Center buoy (ESF5)	Sodus Bay Center buoy (ESF5)	43.25000	-76.96000	moored_buoy	8/4/09	Y	State University of New York College of Environmental Science and Forestry (SUNY-ESF)	N	State University of New York College of Environmental Science and Forestry (SUNY-ESF)	academic	State University of New York College of Environmental Science and Forestry (SUNY-ESF)		Wind from Direction, Wind Speed, Air Temperature, Wind Gust, Air Pressure, Water Temperature at Surface, Relative Humidity, WaterTemperature @ 0 ft
GLOS	ESF4		Sodus Bay Weather Station (ESF4)	Sodus Bay Weather Station (ESF4)	43.26000	-76.95000	fixed	8/4/09	Y	State University of New York College of Environmental Science and Forestry (SUNY-ESF)	N	State University of New York College of Environmental Science and Forestry (SUNY-ESF)	academic	State University of New York College of Environmental Science and Forestry (SUNY-ESF)		WindDirection, WindSpeed, AirTemperature, Relative Humidity
GLOS	ESF2		Sodus Bay South buoy (ESF2)	Sodus Bay South buoy (ESF2)	43.23000	-76.94000	moored_buoy	8/4/09	Y	State University of New York College of Environmental Science and Forestry (SUNY-ESF)	N	State University of New York College of Environmental Science and Forestry (SUNY-ESF)	academic	State University of New York College of Environmental Science and Forestry (SUNY-ESF)		Wind from Direction, Wind Speed, Air Temperature, Wind Gust, Air Pressure, Water Temperature at Surface, Relative Humidity, WaterTemperature @ 0 ft
GLOS	ESF7		Oneida Lake Weather Station (ESF7)	Oneida Lake Weather Station (ESF7)	43.18000	-75.93000	fixed	8/4/09	Y	State University of New York College of Environmental Science and Forestry (SUNY-ESF)	N	State University of New York College of Environmental Science and Forestry (SUNY-ESF)	academic	State University of New York College of Environmental Science and Forestry (SUNY-ESF)		WindDirection, WindSpeed, AirTemperature, Air Pressure, Relative Humidity
MARACOOS	Iron_Pot_Landing	N/A: No WMO numbers	Iron_Pot_Landing - Maryland DNR Station	Maryland Department of Natural Resources water quality station	38.79600	-76.72080	fixed	2003	Y	Maryland DNR	N	Maryland DNR	gov_state	Maryland DNR	RPS-ASA	Fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, sea_water_ph_reported_on_total_scale, sea_water_practical_salinity, sea_water_temperature, sea_water_turbidity
MARACOOS	Jug_Bay	N/A: No WMO numbers	Jug_Bay - Maryland DNR Station	Maryland Department of Natural Resources water quality station	38.78130	-76.71370	fixed	2003	Y	Maryland DNR	N	Maryland DNR	gov_state	Maryland DNR	RPS-ASA	Fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, sea_water_ph_reported_on_total_scale, sea_water_practical_salinity, sea_water_temperature, sea_water_turbidity
MARACOOS	Mataponi	N/A: No WMO numbers	Mataponi - Maryland DNR Station	Maryland Department of Natural Resources water quality station	38.74330	-76.70740	fixed	2003	Y	Maryland DNR	N	Maryland DNR	gov_state	Maryland DNR	RPS-ASA	Fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, sea_water_ph_reported_on_total_scale, sea_water_practical_salinity, sea_water_temperature, sea_water_turbidity
MARACOOS	Aquarium_West	N/A: No WMO numbers	Aquarium_West - Maryland DNR Station	Maryland Department of Natural Resources water quality station	39.28540	-76.60880	fixed	2016	Y	Maryland DNR	N	Maryland DNR	gov_state	Maryland DNR	RPS-ASA	Fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, sea_water_ph_reported_on_total_scale, sea_water_practical_salinity, sea_water_temperature, sea_water_turbidity
MARACOOS	Aquarium_East	N/A: No WMO numbers	Aquarium_East - Maryland DNR Station	Maryland Department of Natural Resources water quality station	39.28550	-76.60800	fixed	2016	Y	Maryland DNR	N	Maryland DNR	gov_state	Maryland DNR	RPS-ASA	Fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, sea_water_ph_reported_on_total_scale, sea_water_practical_salinity, sea_water_temperature, sea_water_turbidity
MARACOOS	Pleasure_Island	N/A: No WMO numbers	Pleasure_Island - Maryland DNR Station	Maryland Department of Natural Resources water quality station	39.22820	-76.40060	fixed	2015	Y	Maryland DNR	N	Maryland DNR	gov_state	Maryland DNR	RPS-ASA	Fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, sea_water_ph_reported_on_total_scale, sea_water_practical_salinity, sea_water_temperature, sea_water_turbidity
MARACOOS	Sandy_Pt_South_Beach	N/A: No WMO numbers	Sandy_Pt_South_Beach - Maryland DNR Station	Maryland Department of Natural Resources water quality station	39.00750	-76.40030	fixed	2004	Y	Maryland DNR	N	Maryland DNR	gov_state	Maryland DNR	RPS-ASA	Fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, sea_water_ph_reported_on_total_scale, sea_water_practical_salinity, sea_water_temperature, sea_water_turbidity
MARACOOS	Tinghman_Island	N/A: No WMO numbers	Tinghman_Island - Maryland DNR Station	Maryland Department of Natural Resources water quality station	38.70370	-76.34530	fixed	2017	Y	Maryland DNR	N	Maryland DNR	gov_state	Maryland DNR	RPS-ASA	Fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, sea_water_ph_reported_on_total_scale, sea_water_practical_salinity, sea_water_temperature, sea_water_turbidity
MARACOOS	Taylors_Island	N/A: No WMO numbers	Taylors Island - Maryland DNR Station	Maryland Department of Natural Resources water quality station	38.44180	-76.30290	fixed	2017	Y	Maryland DNR	N	Maryland DNR	gov_state	Maryland DNR	RPS-ASA	Fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, sea_water_ph_reported_on_total_scale, sea_water_practical_salinity, sea_water_temperature, sea_water_turbidity
MARACOOS	Otter_Point_Creek	N/A: No WMO numbers	Otter_Point_Creek - Maryland DNR Station	Maryland Department of Natural Resources water quality station	39.45080	-76.27460	fixed	2003	Y	Maryland DNR	N	Maryland DNR	gov_state	Maryland DNR	RPS-ASA	Fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, sea_water_ph_reported_on_total_scale, sea_water_practical_salinity, sea_water_temperature, sea_water_turbidity
MARACOOS	Tolchester	N/A: No WMO numbers	Tolchester - Maryland DNR Station	Maryland Department of Natural Resources water quality station	39.21350	-76.24620	fixed	2015	Y	Maryland DNR	N	Maryland DNR	gov_state	Maryland DNR	RPS-ASA	Fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, sea_water_ph_reported_on_total_scale, sea_water_practical_salinity, sea_water_temperature, sea_water_turbidity
MARACOOS	Camp_Tockwogh	N/A: No WMO numbers	Camp_Tockwogh - Maryland DNR Station	Maryland Department of Natural Resources water quality station	39.35390	-76.12960	fixed	2015	Y	Maryland DNR	N	Maryland DNR	gov_state	Maryland DNR	RPS-ASA	Fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, sea_water_ph_reported_on_total_scale, sea_water_practical_salinity, sea_water_temperature, sea_water_turbidity
MARACOOS	Budds_Landing	N/A: No WMO numbers	Budds_Landing - Maryland DNR Station	Maryland Department of Natural Resources water quality station	39.37230	-75.83990	fixed	2007	Y	Maryland DNR	N	Maryland DNR	gov_state	Maryland DNR	RPS-ASA	Fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, sea_water_ph_reported_on_total_scale, sea_water_practical_salinity, sea_water_temperature, sea_water_turbidity
MARACOOS	Little_Monie_Creek	N/A: No WMO numbers	Little Monie Creek - Maryland DNR Station	Maryland Department of Natural Resources water quality station	38.20860	-75.80460	fixed	2006	Y	Maryland DNR	N	Maryland DNR	gov_state	Maryland DNR	RPS-ASA	Fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, sea_water_ph_reported_on_total_scale, sea_water_practical_salinity, sea_water_temperature, sea_water_turbidity
MARACOOS	UD 3.7M GEO DISH	N/A: No WMO numbers	UDel Geostationary Satellite ground Station	Geostationary Satellite Ground Station	39.67700	-75.75400	fixed_satellite	2013	Y	MARACOOS, Udelaware	Yp	Univ. Delaware	ACADEMIC	Univ. Delaware	RPS-ASA	All Standard GOES products
MARACOOS	UD 2.4M POLAR DISH	N/A: No WMO numbers	UDel Dual X/L Band Satellite ground Station	X/L-band Satellite Ground Station	39.67700	-75.75400	fixed_satellite	2010	Y	MARACOOS, Udelaware	Yp	Univ. Delaware	ACADEMIC	Univ. Delaware	RPS-ASA	Satellite Imagery from AVHRR, MODIS, VIIRS (SST, Ocean Color, etc)
MARACOOS	Public_Landing	N/A: No WMO numbers	Public Landing - Maryland DNR Station	Maryland Department of Natural Resources water quality station	38.14830	-75.28620	fixed	2005	Y	Maryland DNR	N	Maryland DNR	gov_state	Maryland DNR	RPS-ASA	Fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, sea_water_ph_reported_on_total_scale, sea_water_practical_salinity, sea_water_temperature, sea_water_turbidity
MARACOOS	Newport_Creek	N/A: No WMO numbers	Newport Creek- Maryland DNR Station	Maryland Department of Natural Resources water quality station	38.26740	-75.19810	fixed	2006	Y	Maryland DNR	N	Maryland DNR	gov_state	Maryland DNR	RPS-ASA	Fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, sea_water_ph_reported_on_total_scale, sea_water_practical_salinity, sea_water_temperature, sea_water_turbidity
MARACOOS	Bishopville_Prong	N/A: No WMO numbers	Bishopville Prong - Maryland DNR Station	Maryland Department of Natural Resources water quality station	38.42400	-75.18860	fixed	2003	Y	Maryland DNR	N	Maryland DNR	gov_state	Maryland DNR	RPS-ASA	Fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, sea_water_ph_reported_on_total_scale, sea_water_practical_salinity, sea_water_temperature, sea_water_turbidity
MARACOOS	Greys_Creek	N/A: No WMO numbers	Greys Creek - Maryland DNR Station	Maryland Department of Natural Resources water quality station	38.44900	-75.13250	fixed	2008	Y	Maryland DNR	N	Maryland DNR	gov_state	Maryland DNR	RPS-ASA	Fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, sea_water_ph_reported_on_total_scale, sea_water_practical_salinity, sea_water_temperature, sea_water_turbidity
MARACOOS	RU X/L-band	N/A: No WMO numbers	Rutgers Dual X/L Band Satellite ground Station	X/L-band Satellite Ground Station	40.47950	-74.43670	fixed_satellite	2003	Y	MARACOOS, Rutgers	Yp	Rutgers	ACADEMIC	Rutgers	RPS-ASA	Satellite Imagery from AVHRR, MODIS, VIIRS (SST, Ocean Color, etc)
MARACOOS	Pier_26	N/A: No WMO numbers	Pier 26 Weather/Hydro Station - HRECOS	Hudson River Environmental Conditions Observing System hydrologic and weather station	40.72154	-74.01560	fixed	2016	Y	Hudson River Environmental Conditions Observing System	N	Hudson River Environmental Conditions Observing System	nonprofit	Hudson River Environmental Conditions Observing System	RPS-ASA	air_pressure, air_temperature, dew_point_temperature, dissolved_oxygen_saturation, precipitation_amount, dissolved_oxygen, relative_humidity, sea_water_electrical_conductivity, sea_water_practical_salinity, sea_water_ph_reported_on_total_scale, sea_water_temperature, sea_water_turbidity, wind_from_direction, wind_speed
MARACOOS	Pier_84	N/A: No WMO numbers	Pier_84 Hydro/weather Station - HRECOS	Hudson River Environmental Conditions Observing System hydrologic and weather station	40.76463	-74.00319	fixed	2012	Y	Hudson River Environmental Conditions Observing System	N	Hudson River Environmental Conditions Observing System	nonprofit	Hudson River Environmental Conditions Observing System	RPS-ASA	air_pressure, air_temperature, dew_point_temperature, dissolved_oxygen_saturation, precipitation_amount, dissolved_oxygen, relative_humidity, sea_water_electrical_conductivity, sea_water_practical_salinity, sea_water_ph_reported_on_total_scale, sea_water_temperature, sea_water_turbidity, wind_from_direction, wind_speed
MARACOOS	Mowhawk R. Lock 8 weather	N/A: No WMO numbers	Port of Albany hydro/weather station - HRECOS	Hudson River Environmental Conditions Observing System hydrologic and weather station	42.83020	-73.99250	fixed	2012	Y	Hudson River Environmental Conditions Observing System	N	Hudson River Environmental Conditions Observing System	nonprofit	Hudson River Environmental Conditions Observing System	RPS-ASA	air_pressure, air_temperature, dew_point_temperature, relative_humidity, wind_from_direction, wind_direction_standard_deviation, wind_gust, wind_speed, surface_upwelling_photosynthetic_photon_flux_in_air, precipitation_amount, surface_upwelling_photosynthetic_photon_flux_in_air
MARACOOS	Mowhawk R. Lock 8 hydro	N/A: No WMO numbers	Mowhawk R. Lock 8 Hydrologic station - HRECOS	Hudson River Environmental Conditions Observing System hydrologic and weather station	42.82810	-73.99040	fixed	2012	Y	Hudson River Environmental Conditions Observing System	N	Hudson River Environmental Conditions Observing System	nonprofit	Hudson River Environmental Conditions Observing System	RPS-ASA	dissolved_oxygen_saturation, dissolved_oxygen, sea_water_electrical_conductivity, sea_water_practical_salinity, sea_water_ph_reported_on_total_scale, sea_water_temperature, sea_water_turbidity, water_level_observed
MARACOOS	West Point	N/A: No WMO numbers	West Point USGS hydrologic Station	Hudson River Environmental Conditions Observing System hydrologic and weather station	41.38610	-73.95500	fixed	2016	Y	USGS	N	USGS	nonprofit	Hudson River Environmental Conditions Observing System	RPS-ASA	dissolved_oxygen_saturation, dissolved_oxygen, sea_water_electrical_conductivity, sea_water_practical_salinity, sea_water_ph_reported_on_total_scale, sea_water_temperature, sea_water_turbidity,
MARACOOS	Norrie Point	N/A: No WMO numbers	Norrie Point hydro/weather station - HRECOS	Hudson River Environmental Conditions Observing System hydrologic and weather station	41.83188	-73.94161	fixed	2008	Y	Hudson River Environmental Conditions Observing System	N	Hudson River Environmental Conditions Observing System	nonprofit	Hudson River Environmental Conditions Observing System	RPS-ASA	air_pressure, air_temperature, dew_point_temperature, dissolved_oxygen_saturation, precipitation_amount, dissolved_oxygen, relative_humidity, mass_concentration_of_chlorophyll_a_in_sea_water, sea_water_electrical_conductivity, sea_water_practical_salinity, sea_water_ph_reported_on_total_scale, sea_water_temperature, sea_water_turbidity, surface_upwelling_photosynthetic_photon_flux_in_air
MARACOOS	Mowhawk R. Rexford Bridge	N/A: No WMO numbers	Mowhawk R. Rexford Bridge hydrologic station - HRECOS	Hudson River Environmental Conditions Observing System hydrologic and weather station	42.85100	-73.88700	fixed	2014	Y	Hudson River Environmental Conditions Observing System	N	Hudson River Environmental Conditions Observing System	nonprofit	Hudson River Environmental Conditions Observing System	RPS-ASA	dissolved_oxygen_saturation, dissolved_oxygen, sea_water_electrical_conductivity, sea_water_practical_salinity, sea_water_ph_reported_on_total_scale, sea_water_temperature, sea_water_turbidity, water_level_observed
MARACOOS	Schodak Island Weather	N/A: No WMO numbers	Schodak Island weather station - HRECOS	Hudson River Environmental Conditions Observing System hydrologic and weather station	42.50120	-73.78038	fixed	2013	Y	Hudson River Environmental Conditions Observing System	N	Hudson River Environmental Conditions Observing System	nonprofit	Hudson River Environmental Conditions Observing System	RPS-ASA	air_pressure, air_temperature, dew_point_temperature, relative_humidity, wind_from_direction, wind_direction_standard_deviation, wind_gust, wind_speed, surface_upwelling_photosynthetic_photon_flux_in_air, precipitation_amount, surface_upwelling_photosynthetic_photon_flux_in_air
MARACOOS	Schodak Island Hydro	N/A: No WMO numbers	Schodak Island hydrologic station - HRECOS	Hudson River Environmental Conditions Observing System hydrologic and weather station	42.49960	-73.77680	fixed	2008	Y	Hudson River Environmental Conditions Observing System	N	Hudson River Environmental Conditions Observing System	nonprofit	Hudson River Environmental Conditions Observing System	RPS-ASA	dissolved_oxygen_saturation, dissolved_oxygen, sea_water_electrical_conductivity, sea_water_practical_salinity, sea_water_ph_reported_on_total_scale, sea_water_temperature, sea_water_turbidity, water_level_observed
MARACOOS	Port of Albany	N/A: No WMO numbers	Port of Albany hydro/weather station - HRECOS	Hudson River Environmental Conditions Observing System hydrologic and weather station	42.61954	-73.75890	fixed	2011	Y	Hudson River Environmental Conditions Observing System	N	Hudson River Environmental Conditions Observing System	nonprofit	Hudson River Environmental Conditions Observing System	RPS-ASA	air_pressure, air_temperature, dew_point_temperature, dissolved_oxygen_saturation, precipitation_amount, dissolved_oxygen, relative_humidity, sea_water_electrical_conductivity, sea_water_practical_salinity, sea_water_ph_reported_on_total_scale, sea_water_temperature, sea_water_turbidity, wind_from_direction, wind_speed, surface_upwelling_photosynthetic_photon_flux_in_air
MARACOOS	Piermont Pier	N/A: No WMO numbers	Piermont Pier weather/hydro Station - HRECOS	Hudson River Environmental Conditions Observing System hydrologic and weather station	41.04300	-73.89600	fixed	2008	Y	Hudson River Environmental Conditions Observing System	N	Hudson River Environmental Conditions Observing System	nonprofit	Hudson River Environmental Conditions Observing System	RPS-ASA	air_pressure, air_temperature, dew_point_temperature, dissolved_oxygen_saturation, precipitation_amount, dissolved_oxygen, relative_humidity, sea_water_electrical_conductivity, sea_water_practical_salinity, sea_water_ph_reported_on_total_scale, sea_water_temperature, sea_water_turbidity, wind_from_direction, wind_speed

MARACOOS	Pump Station	N/A: No WMO numbers	Pump Station (Marist/County/USGS) - HRECOS	Hudson River Environmental Conditions Observing System hydrologic and weather station	41.72060	-73.93880	fixed	2012	Y	Hudson River Environmental Conditions Observing System	N	Hudson River Environmental Conditions Observing System	nonprofit	Hudson River Environmental Conditions Observing System	RPS-ASA	dissolved_oxygen_saturation, dissolved_oxygen, sea_water_electrical_conductivity, sea_water_practical_salinity, sea_water_ph_reported_on_total_scale, sea_water_temperature, sea_water_turbidity, water_level_observed	
MARACOOS	Masonville_Cove_Pier	N/A: No WMO numbers	Masonville_Cove_Pier - Maryland DNR Station	Maryland Department of Natural Resources water quality station	39.24470	-76.59720	fixed	2013	Y	Maryland DNR	N	Maryland DNR	gov_state	Maryland DNR	RPS-ASA	Fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, sea_water_ph_reported_on_total_scale, sea_water_practical_salinity, sea_water_temperature, sea_water_turbidity	
NANOOS	urn:ioos:station:nanoos:hakai_quadra1	N/A	(Hakai Institute) Quadra Island Field Station at Hyacinthe Bay		50.11600	-125.22200	fixed	<5 yr	Y		N	Hakai Institute	academic	Hakai Institute		sea_water_temperature (-1.0m), sea_water_salinity (-1.0m), sea_water_ph_reported_on_total_scale (-1.0m), dissolved_inorganic_carbon (-1.0m), Omega_aragonite (-1.0m), surface_partial_pressure_of_carbon_dioxide_in_sea_water (-1.0m), total_alkalinity (-1.0m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:apl_chaba	46119	(APL-UW) Cha'ba UW/NANOOS Moored Buoy near La Push		47.96340	-124.95790	moored_buoy	07/2010	O		Yp	UW	academic	UW		air_temperature (2.7m), surface_air_pressure (2.7m), relative_humidity (2.7m), dew_point_temperature (2.7m), net_downward_shortwave_flux_in_air (2.7m), wind_speed (3.5m), surface_partial_pressure_of_carbon_dioxide_in_air (3m), sea_water_temperature (-1m, -1.2m), sea_water_salinity (-1m, -1.2m), sea_water_pressure (-1.2m), mass_concentration_of_chlorophyll_in_sea_water (-1m, -1.2m), sea_water_turbidity (-1m, -1.2m), mass_concentration_of_oxygen_in_sea_water (-1m, -1.2m), sea_water_ph_reported_on_total_scale (-1m, -1.2m), surface_partial_pressure_of_carbon_dioxide_in_sea_water (-1m)	
NANOOS	urn:ioos:station:nanoos:apl_nemo	N/A	(APL-UW) UW/NANOOS NEMO Subsurface profiler near La Push		47.97400	-124.95500	moored_buoy	08/2011	O		Yp	UW	academic	UW		sea_water_temperature (-17m), sea_water_salinity (-17m), sea_water_pressure (-17m), (0m), H1_MBpseudonaustr (0m), H1_MBpseudonfrd (0m), H2_MBalexand (0m), H2_MBheterosig (0m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:fbo_fannybay1	N/A	(FannyBayOysters) Fanny Bay Oysters, Baynes Sound		49.47160	-124.79270	fixed	02/2017	Y		N	FannyBayOysters	industry	FannyBayOysters		sea_water_temperature (-6m), sea_water_salinity (-6m), sea_water_ph_reported_on_total_scale (-6m), dissolved_inorganic_carbon (-6m), Omega_aragonite (-6m), surface_partial_pressure_of_carbon_dioxide_in_sea_water (-6m), total_alkalinity (-6m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:osu_cb06	46128	(OSU) CB-06, 6NM W of Coos Bay		43.29500	-124.53670	moored_buoy	06/2017	O		Yp	OSU	academic	OSU		surface_air_pressure (2.1m), net_downward_shortwave_flux_in_air (2.1m), wind_speed (2.7m), surface_partial_pressure_of_carbon_dioxide_in_air (3m), sea_water_temperature (-1m, -1.5m), sea_water_salinity (-1m, -1.5m), surface_partial_pressure_of_carbon_dioxide_in_sea_water (-1m)	
NANOOS	urn:ioos:station:nanoos:cmop_ogi02	46096	(CMOP) SATURN-02		46.17350	-124.12720	moored_buoy	>5 yr	O		Yp	CMOP	academic	CMOP		air_temperature (3m), surface_air_pressure (3m), wind_from_direction (3m), wind_speed (3m), wind_speed_of_gust (3m), sea_water_temperature (-1m), sea_water_salinity (-1m, -6m, -11m, -16m, -21m, -35m), mass_concentration_of_chlorophyll_in_sea_water (-1m, -6m, -11m, -16m, -21m, -35m), H3_Turbidity (-1m, -6m, -11m, -16m, -21m, -35m), cdom (-1m, -6m, -11m, -16m, -21m, -35m), mass_concentration_of_oxygen_in_sea_water (-1m, -6m, -11m, -16m, -21m, -35m), fractional_saturation_of_oxygen_in_sea_water (-1m, -6m, -11m, -16m, -21m, -35m), mole_concentration_of_nitrate_in_sea_water (-1m, -6m, -11m, -16m, -21m, -35m)	
NANOOS	urn:ioos:station:nanoos:hmsc_newport	N/A	(HMSC) Hatfield Marine Sci. Ctr. monitoring site, Newport		44.62440	-124.04310	fixed	>5 yr	O		N	HMSC	nonprofit	HMSC		sea_water_temperature (VARIABLE), sea_water_salinity (VARIABLE), depth (VARIABLE), mass_concentration_of_chlorophyll_in_sea_water (VARIABLE), sea_water_turbidity (VARIABLE), mass_concentration_of_oxygen_in_sea_water (VARIABLE), fractional_saturation_of_oxygen_in_sea_water (VARIABLE), sea_water_ph_reported_on_total_scale (VARIABLE)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:cmop_jetta	JTAW1	(CMOP) Jetty A		46.26710	-124.03170	fixed	>5 yr	O		Yp	CMOP	academic	CMOP		sea_water_temperature (-6.4m), sea_water_salinity (-6.4m)	
NANOOS	urn:ioos:station:nanoos:psi_nahcotta	N/A	(PSI) PCSGA - Nahcotta Port hatchery mooring, Willapa Bay		46.50070	-124.03040	fixed	>5 yr	O		N	PSI	nonprofit	PSI		sea_water_temperature (-0.3m), sea_water_salinity (-0.3m), mass_concentration_of_oxygen_in_sea_water (-0.3m), fractional_saturation_of_oxygen_in_sea_water (-0.3m), sea_water_ph_reported_on_total_scale (-0.3m, -0.6m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:cmop_saturn07	N/A	(CMOP) SATURN-07		46.28670	-124.01620	moored_buoy	>5 yr	O		Yp	CMOP	academic	CMOP		sea_water_temperature (-1.0m), sea_water_salinity (-1.0m), sea_water_pressure (-1.0m), mass_concentration_of_chlorophyll_in_sea_water (-1.0m), H3_Turbidity (-1.0m), cdom (-1.0m), mass_concentration_of_oxygen_in_sea_water (-1.0m), fractional_saturation_of_oxygen_in_sea_water (-1.0m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:cmop_dsdma	DMNO3	(CMOP) Desdemona Sands Light		46.22570	-123.95510	fixed	>5 yr	O		Yp	CMOP	academic	CMOP		air_temperature (10.0m), surface_air_pressure (10.0m), relative_humidity (10.0m), wind_from_direction (10.0m), wind_speed (10.0m), wind_speed_of_gust (10.0m), sea_water_temperature (-7.3m), sea_water_salinity (-7.3m), surface_downwelling_photosynthetic_radiative_flux_in_air (10.0m)	
NANOOS	urn:ioos:station:nanoos:psi_baycenter	N/A	(PSI) PCSGA - Bay Center Port mooring, Willapa Bay		46.62900	-123.95160	fixed	>5 yr	Y		N	PSI	nonprofit	PSI		sea_water_temperature (-0.3m), sea_water_salinity (-0.3m), mass_concentration_of_oxygen_in_sea_water (-0.3m), fractional_saturation_of_oxygen_in_sea_water (-0.3m), sea_water_ph_reported_on_total_scale (-0.3m), dissolved_inorganic_carbon (-0.3m), Omega_aragonite (-0.3m), surface_partial_pressure_of_carbon_dioxide_in_sea_water (-0.3m), total_alkalinity (-0.3m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:cmop_saturn03	SETO3	(CMOP) SATURN-03		46.19970	-123.94000	fixed	>5 yr	Y		Yp	CMOP	academic	CMOP		sea_water_temperature (-2.4m, -8.2m, -13.0m), sea_water_salinity (-2.4m, -8.2m, -13.0m), H1_FluorescMin (-2.4m, -8.2m, -13.0m), quantum_yield_of_fluourescence (-2.4m, -8.2m, -13.0m), mass_concentration_of_chlorophyll_in_sea_water (-2.4m, -8.2m, -13.0m), sea_water_turbidity (-2.4m, -8.2m, -13.0m), cdom (-2.4m, -8.2m, -13.0m), H1_PhrthrnFluoresc (-2.4m, -8.2m, -13.0m), mass_concentration_of_oxygen_in_sea_water (-2.4m, -8.2m, -13.0m), fractional_saturation_of_oxygen_in_sea_water (-2.4m, -8.2m, -13.0m), mole_concentration_of_nitrate_in_sea_water (-2.4m, -8.2m, -13.0m), sea_water_ph_reported_on_total_scale (-2.4m, -8.2m, -13.0m)	
NANOOS	urn:ioos:station:nanoos:wcsh_whiskey1	N/A	(WhiskeyCrShelfish) PCSGA - Whiskey Creek Shellfish Hatchery, Netarts Bay		45.42140	-123.93620	fixed	>5 yr	Y		N	WhiskeyCrShelfish	industry	WhiskeyCrShelfish		sea_water_temperature (-4m), sea_water_salinity (-4m), sea_water_ph_reported_on_total_scale (-4m), dissolved_inorganic_carbon (-4m), Omega_aragonite (-4m), surface_partial_pressure_of_carbon_dioxide_in_sea_water (-4m), total_alkalinity (-4m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:cmop_saturn01	N/A	(CMOP) SATURN-01		46.23500	-123.87190	fixed	>5 yr	O		Yp	CMOP	academic	CMOP		sea_water_temperature (0.0m), sea_water_salinity (0.0m), mass_concentration_of_chlorophyll_in_sea_water (0.0m), sea_water_turbidity (0.0m), cdom (0.0m), mole_concentration_of_nitrate_in_sea_water (0.0m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:cmop_saturn09	N/A	(CMOP) SATURN-09		46.17650	-123.86930	fixed	09/2014	O		Yp	CMOP	academic	CMOP		sea_water_temperature (-0.5m), sea_water_salinity (-0.5m), cdom (-0.5m), mass_concentration_of_oxygen_in_sea_water (-0.5m), fractional_saturation_of_oxygen_in_sea_water (-0.5m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:cmop_coaof	N/A	(CMOP) Waste water outfall (City of Astoria)		46.20470	-123.77400	fixed	>5 yr	O		Yp	CMOP	academic	CMOP		sea_water_temperature (-2.1m), sea_water_salinity (-2.1m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:cmop_grays	GPTW1	(CMOP) Grays Point (USCG day mark green 13)		46.27310	-123.76690	fixed	>5 yr	O		Yp	CMOP	academic	CMOP		sea_water_temperature (-1.6m), sea_water_salinity (-1.6m), sea_water_pressure (-1.6m)	
NANOOS	urn:ioos:station:nanoos:cmop_mottb	SEFO3	(CMOP) SATURN-04		46.20360	-123.75860	fixed	>5 yr	Y		Yp	CMOP	academic	CMOP		sea_water_temperature (-0.3m, -8.6m), sea_water_salinity (-0.3m, -8.6m)	
NANOOS	urn:ioos:station:nanoos:cmop_saturn05	SRFW1	(CMOP) SATURN River Station 05 (LOBO Station)		46.18450	-123.18740	fixed	>5 yr	O		Yp	CMOP	academic	CMOP		sea_water_temperature (-2.5m), sea_water_salinity (-2.5m), sea_water_pressure (-2.5m), mass_concentration_of_chlorophyll_in_sea_water (-2.5m), sea_water_turbidity (-2.5m), cdom (-2.5m), mass_concentration_of_oxygen_in_sea_water (-2.5m), fractional_saturation_of_oxygen_in_sea_water (-2.5m), mole_concentration_of_nitrate_in_sea_water (-2.5m)	
NANOOS	urn:ioos:station:nanoos:wadoh_hoodcanal5	N/A	(WADOH) Hood Canal 5 site, S shore of Hood Canal near Hoodsport		47.42060	-123.13020	fixed	2015	O		N	WADOH	gov_state	WADOH		air_temperature (2m), sea_water_temperature (-1m), sea_water_salinity (-1m), sea_water_electrical_conductivity (-1m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:orca_hoodsport	46124	(ORCA-UW) Profiling Buoy at Hoodsport - Hood Canal		47.42180	-123.11260	moored_buoy	>5 yr	Y		Yp	UW	academic	UW		sea_water_temperature (PROFILE: -3m, -20m, -85m), sea_water_salinity (PROFILE: -3m, -20m, -85m), sea_water_sigma_t (PROFILE: -3m, -20m, -85m), mass_concentration_of_chlorophyll_in_sea_water (PROFILE: -3m, -20m, -85m), mass_concentration_of_oxygen_in_sea_water (PROFILE: -3m, -20m, -85m), fractional_saturation_of_oxygen_in_sea_water (PROFILE: -3m, -20m, -85m)	
NANOOS	urn:ioos:station:nanoos:wadoh_oakland	N/A	(WADOH) Oakland Bay site, Rafts by Chapman Cove		47.23010	-123.04980	moored_buoy	2015	O		N	WADOH	gov_state	WADOH		air_temperature (2m), sea_water_temperature (-1m), sea_water_salinity (-1m), sea_water_electrical_conductivity (-1m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:wadoh_hoodcanal7	N/A	(WADOH) Hood Canal 7 site, N shore of Hood Canal near Tahuya		47.36120	-123.02470	fixed	2015	O		N	WADOH	gov_state	WADOH		air_temperature (2m), sea_water_temperature (-1m), sea_water_salinity (-1m), sea_water_electrical_conductivity (-1m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:wadoh_skookum1	N/A	(WADOH) Skookum Inlet site, N shore near Deer Harbor		47.15480	-123.02040	moored_buoy	2015	O		N	WADOH	gov_state	WADOH		air_temperature (2m), sea_water_temperature (-1m), sea_water_salinity (-1m), sea_water_electrical_conductivity (-1m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:wadoh_tottens	N/A	(WADOH) Totten Inlet site, S end in Oyster Bay		47.12820	-123.01860	fixed	2015	O		N	WADOH	gov_state	WADOH		air_temperature (2m), sea_water_temperature (-1m), sea_water_salinity (-1m), sea_water_electrical_conductivity (-1m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:wadoh_hammersley1	N/A	(WADOH) Hammersley Inlet site, S shore near Skookum Point		47.20420	-123.01790	fixed	2015	O		N	WADOH	gov_state	WADOH		air_temperature (2m), sea_water_temperature (-1m), sea_water_salinity (-1m), sea_water_electrical_conductivity (-1m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:orca_twanoh	46123	(ORCA-UW) Profiling Buoy at Twanoh - Hood Canal		47.37500	-123.00830	moored_buoy	>5 yr	Y		Yp	UW	academic	UW		surface_partial_pressure_of_carbon_dioxide_in_air (2m), sea_water_temperature (PROFILE: -3m, -20m, -25m), sea_water_salinity (PROFILE: -3m, -20m, -25m), sea_water_sigma_t (PROFILE: -3m, -20m, -25m), mass_concentration_of_chlorophyll_in_sea_water (PROFILE: -3m, -20m, -25m), mass_concentration_of_oxygen_in_sea_water (PROFILE: -3m, -20m, -25m), fractional_saturation_of_oxygen_in_sea_water (PROFILE: -3m, -20m, -25m), sea_water_ph_reported_on_total_scale (-1m), surface_partial_pressure_of_carbon_dioxide_in_sea_water (-0.1m)	
NANOOS	urn:ioos:station:nanoos:fhl_friharbor1	N/A	(FHL-UW) UW Friday Harbor Laboratories Cantilever Pt		48.54610	-123.00770	fixed	>5 yr	O		N	UW	academic	UW		air_temperature (3m), relative_humidity (3m), rainfall_rate (3m), net_downward_shortwave_flux_in_air (3m), wind_from_direction (4m), wind_speed (4m), sea_water_temperature (-1.7m), sea_water_salinity (-1.7m), surface_downwelling_photosynthetic_radiative_flux_in_air (3m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:wadoh_totten	N/A	(WADOH) Totten Inlet site, N end near Gallagher Cove		47.14760	-122.97520	fixed	2015	O		N	WADOH	gov_state	WADOH		air_temperature (2m), sea_water_temperature (-1m), sea_water_salinity (-1m), sea_water_electrical_conductivity (-1m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:wadoh_hoodcanal8	N/A	(WADOH) Hood Canal 8 site, S shore of Hood Canal near Twanoh		47.37890	-122.97010	fixed	2015	O		N	WADOH	gov_state	WADOH		air_temperature (2m), sea_water_temperature (-1m), sea_water_salinity (-1m), sea_water_electrical_conductivity (-1m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:wadoh_eld	N/A	(WADOH) Eld Inlet site, W shore near Frye Cove Park		47.12460	-122.96220	fixed	2015	O		N	WADOH	gov_state	WADOH		air_temperature (2m), sea_water_temperature (-1m), sea_water_salinity (-1m), sea_water_electrical_conductivity (-1m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:wadoh_pickering	N/A	(WADOH) Pickering Passage site, E shore near Graham Point		47.25580	-122.92810	fixed	2015	O		N	WADOH	gov_state	WADOH		air_temperature (2m), sea_water_temperature (-1m), sea_water_salinity (-1m), sea_water_electrical_conductivity (-1m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:wadoh_peale	N/A	(WADOH) Peale Passage site, W shore near Seafarm Cove		47.20060	-122.90360	fixed	2015	O		N	WADOH	gov_state	WADOH		air_temperature (2m), sea_water_temperature (-1m), sea_water_salinity (-1m), sea_water_electrical_conductivity (-1m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:wadoh_hoodcanal9	N/A	(WADOH) Hood Canal 9 site, N shore of Hood Canal near Belfair		47.42080	-122.90210	fixed	2015	O		N	WADOH	gov_state	WADOH		air_temperature (2m), sea_water_temperature (-1m), sea_water_salinity (-1m), sea_water_electrical_conductivity (-1m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:pcs_quilcene	N/A	(PennCoveShellfish) Penn Cove Shellfish, Quilcene - Hood Canal		47.78740	-122.85270	fixed	<5 yr	Y		N	PennCoveShellfish	industry	PennCoveShellfish		sea_water_temperature (-1m, -7m), sea_water_salinity (-1m, -7m), mass_concentration_of_chlorophyll_in_sea_water (-1m, -7m), mass_concentration_of_oxygen_in_sea_water (-1m, -7m), fractional_saturation_of_oxygen_in_sea_water (-1m, -7m), sea_water_ph_reported_on_total_scale (-1m, -7m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:wadoh_henderson	N/A	(WADOH) Henderson Inlet site, S end		47.11470	-122.83080	fixed	2015	O		N	WADOH	gov_state	WADOH		air_temperature (2m), sea_water_temperature (-1m), sea_water_salinity (-1m), sea_water_electrical_conductivity (-1m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:taf_dabobbay	N/A	(TaylorShellfish) PCSGA - Taylor Shellfish Hatchery intakes, Dabob Bay		47.81990	-122.82150	fixed	>5 yr	Y		N	TaylorShellfish	industry	TaylorShellfish		sea_water_temperature (-4.5m), sea_water_salinity (-4.5m), fractional_saturation_of_oxygen_in_sea_water (-4.5m), sea_water_ph_reported_on_total_scale (-4.5m), dissolved_inorganic_carbon (-4.5m), Omega_aragonite (-4.5m), surface_partial_pressure_of_carbon_dioxide_in_sea_water (-4.5m), total_alkalinity (-4.5m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:orca_dabobbay	46122	(ORCA-UW) Profiling Buoy at Dabob Bay - Hood Canal		47.80340	-122.80290	moored_buoy	06/2010	Y		Yp	UW	academic	UW		surface_partial_pressure_of_carbon_dioxide_in_air (2m), sea_water_temperature (-2m, -20m, -95m), sea_water_salinity (-2m, -20m, -95m), sea_water_sigma_t (-2m, -20m, -95m), mass_concentration_of_oxygen_in_sea_water (-2m, -20m, -95m), fractional_saturation_of_oxygen_in_sea_water (-2m, -20m, -95m), surface_partial_pressure_of_carbon_dioxide_in_sea_water (-0.1m)	
NANOOS	urn:ioos:station:nanoos:apl_npb2carr	46121	(APL-UW) LSG NPB-2 Profiling Buoy at Carr Inlet		47.28000	-122.73000	moored_buoy	>5 yr	Y		Yp	UW	academic	UW		air_temperature (2m), surface_air_pressure (2m), relative_humidity (2m), dew_point_temperature (2m), wind_from_direction (2m), wind_speed (2m), wind_speed_of_gust (2m), sea_water_temperature (PROFILE: -3m, -20m, -35m), sea_water_salinity (PROFILE: -3m, -20m, -35m), sea_water_sigma_t (PROFILE: -3m, -20m, -35m), surface_downwelling_photosynthetic_radiative_flux_in_air (2m), mass_concentration_of_chlorophyll_in_sea_water (PROFILE: -3m, -20m, -35m), mass_concentration_of_oxygen_in_sea_water (PROFILE: -3m, -20m, -35m), fractional_saturation_of_oxygen_in_sea_water (PROFILE: -3m, -20m, -35m), sea_water_ph_reported_on_total_scale (-1m)	
NANOOS	urn:ioos:station:nanoos:pcs_penncove1	N/A	(PennCoveShellfish) Penn Cove Shellfish, Coupeville - Whidbey Island		48.21910	-122.70480	fixed	<5 yr	Y		N	PennCoveShellfish	industry	PennCoveShellfish		sea_water_temperature (-1m, -5m, -7m), sea_water_salinity (-1m, -5m, -7m), mass_concentration_of_chlorophyll_in_sea_water (-1m, -7m), mass_concentration_of_oxygen_in_sea_water (-1m, -5m, -7m), fractional_saturation_of_oxygen_in_sea_water (-1m, -5m, -7m), sea_water_ph_reported_on_total_scale (-1m, -5m, -7m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:wadoh_hendrsnbay1	N/A	(WADOH) Henderson Bay site, W shore		47.36120	-122.69660	fixed	2015	O		N	WADOH	gov_state	WADOH		air_temperature (2m), sea_water_temperature (-1m), sea_water_salinity (-1m), sea_water_electrical_conductivity (-1m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:wadoh_hoodcanal1	N/A	(WADOH) Hood Canal 1 site, W shore of Hood Canal near Case Shoal		47.84900	-122.68370	fixed	2015	Y		N	WADOH	gov_state	WADOH		air_temperature (2m), sea_water_temperature (-1m), sea_water_salinity (-1m), sea_water_electrical_conductivity (-1m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:cmop_saturn06	PRTO3	(CMOP) SATURN River Station 06 (USGS Station)		45.51860	-122.66670	river_level_station	>5 yr	Y		Yp	CMOP	academic	CMOP		sea_water_temperature (-0.5m), depth (-0.5m), sea_water_speed (-0.5m), river_discharge (-0.5m), mass_concentration_of_chlorophyll_in_sea_water (-0.5m), turbidity (-0.5m), mass_concentration_of_oxygen_in_sea_water (-0.5m), fractional_saturation_of_oxygen_in_sea_water (-0.5m), sea_water_ph_reported_on_total_scale (-0.5m)	
NANOOS	urn:ioos:station:nanoos:wadoh_burley	N/A	(WADOH) Burley Lagoon site, N end of Henderson Bay		47.38360	-122.63740	fixed	2015	O		N	WADOH	gov_state	WADOH		air_temperature (2m), sea_water_temperature (-1m), sea_water_salinity (-1m), sea_water_electrical_conductivity (-1m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:orca_hansville	46125	(ORCA-UW) Profiling Buoy at Hansville - Hood Canal		47.90730	-122.62700	moored_buoy	>5 yr	Y		Yp	UW	academic	UW		air_temperature (2m), surface_air_pressure (2m), relative_humidity (2m), dew_point_temperature (2m), wind_from_direction (2m), wind_speed (2m), wind_speed_of_gust (2m), sea_water_temperature (PROFILE: -3m, -20m, -85m), sea_water_salinity (PROFILE: -3m, -20m, -85m), sea_water_sigma_t (PROFILE: -3m, -20m, -85m), mass_concentration_of_chlorophyll_in_sea_water (PROFILE: -3m, -20m, -85m), mass_concentration_of_oxygen_in_sea_water (PROFILE: -3m, -20m, -85m), fractional_saturation_of_oxygen_in_sea_water (PROFILE: -3m, -20m, -85m)	
NANOOS	urn:ioos:station:nanoos:nwic_bellinghambay	46118	(NWIC) Se'lhaem Bellingham Bay buoy		48.72370	-122.57650	moored_buoy	02/2016	O		Yp	NWIC	academic	NWIC		air_temperature (2m), surface_air_pressure (2m), relative_humidity (2m), dew_point_temperature (2m), wind_from_direction (2.97m), wind_speed (2.97m), wind_speed_of_gust (2.97m), sea_water_temperature (-0.5m, -18m), sea_water_salinity (-0.5m, -18m), sea_water_pressure (-0.5m, -18m), mass_concentration_of_chlorophyll_in_sea_water (-0.5m), sea_water_turbidity (-0.5m), cdom (-0.5m), mass_concentration_of_oxygen_in_sea_water (-0.5m, -18m), fractional_saturation_of_oxygen_in_sea_water (-0.5m, -18m), sea_water_ph_reported_on_total_scale (-0.5m, -18m)	
NANOOS	urn:ioos:station:nanoos:wadoh_portgamble1	N/A	(WADOH) Port Gamble site, E shore		47.84540	-122.57400	fixed	2015	O		N	WADOH	gov_state	WADOH		air_temperature (2m), sea_water_temperature (-1m), sea_water_salinity (-1m), sea_water_electrical_conductivity (-1m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:wadoh_samish	N/A	(WADOH) Samish Bay site, mid bay		48.59650	-122.48640	fixed	2015	O		N	WADOH	gov_state	WADOH		air_temperature (2m), sea_water_temperature (-1m), sea_water_salinity (-1m), sea_water_electrical_conductivity (-1m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:kc_ycqmh01	N/A	(King County) Yacht Club Mooring - Inner Quartermaster Harbor, Vashon Island		47.39420	-122.46350	fixed	>5 yr	Y		N	King County	gov_municipal	King County		sea_water_temperature (VARIABLE), sea_water_salinity (VARIABLE), depth (VARIABLE), mass_concentration_of_chlorophyll_in_sea_water (VARIABLE), mass_concentration_of_oxygen_in_sea_water (VARIABLE), fractional_saturation_of_oxygen_in_sea_water (VARIABLE), sea_water_ph_reported_on_total_scale (VARIABLE)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:kc_nsaj02	N/A	(King County) Dockton Park Pier Mooring - Inner Quartermaster Harbor, Vashon Island		47.37280	-122.45340	fixed	>5 yr	Y		N	King County	gov_municipal	King County		air_temperature (7.6m), surface_air_pressure (7.6m), relative_humidity (7.6m), precipitation_accumulated (7.6m), wind_from_direction (7.6m), wind_speed (7.6m), sea_water_temperature (VARIABLE), sea_water_salinity (VARIABLE), depth (VARIABLE), surface_downwelling_photosynthetic_radiative_flux_in_air (7.6m), mass_concentration_of_chlorophyll_in_sea_water (VARIABLE), sea_water_turbidity (VARIABLE), mass_concentration_of_oxygen_in_sea_water (VARIABLE), fractional_saturation_of_oxygen_in_sea_water (VARIABLE), sea_water_ph_reported_on_total_scale (VARIABLE)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:stti_portsusan	N/A	(StillaguamishTribe) Port Susan buoy, Stillaguamish Tribe		48.17500	-122.42000	moored_buoy	>5 yr	O		N	StillaguamishTribe	tribal	StillaguamishTribe		sea_water_temperature (-1.2m), sea_water_salinity (-1.2m), mass_concentration_of_chlorophyll_in_sea_water (-1.2m), H5_Turbidity (-1.2m), mass_concentration_of_oxygen_in_sea_water (-1.2m), fractional_saturation_of_oxygen_in_sea_water (-1.2m), sea_water_ph_reported_on_total_scale (-1.2m), H1_RedoxPot (-1.2m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoos:kc_ptwilliams	N/A	(King County) Point Williams buoy, South Seattle		47.53720	-122.40610	moored_buoy	07/2013	Y		N	King County	gov_municipal	King County		sea_water_temperature (-1m), sea_water_salinity (-1m), mass_concentration_of_chlorophyll_in_sea_water (-1m), sea_water_turbidity (-1m), mass_concentration_of_oxygen_in_sea_water (-1m), fractional_saturation_of_oxygen_in_sea_water (-1m), mole_concentration_of_nitrate_in_sea_water (-1m), sea_water_ph_reported_on_total_scale (-1m)	NANOOS does not push this data to NDBC.

NANOOS	urn:ioos:station:nanoocsgl_nplstphwells	46120	[MPL-USE]:LSG MPB-1 Profiling Buoy at Pt. Wells	47.7612D	-122.39720	moored_buoy	07/2009		Y		Yp	UW		academic	UW							air_temperature (2m), surface_air_pressure (2m), relative_humidity (2m), dew_point_temperature (2m), wind_from_direction (2m), wind_speed (2m), wind_speed_of_gust (2m), sea_water_temperature (PROFILE - 1m, -10m, -20m), sea_water_salinity (PROFILE - 1m, -10m, -20m), sea_water_sigma_t (PROFILE - 1m, -10m, -20m), surface_downwelling_photosynthetic_radiative_flux_in_air (2m), mass_concentration_of_chlorophyll_in_sea_water (PROFILE - 1m, -10m, -20m), mass_concentration_of_oxygen_in_sea_water (PROFILE - 1m, -10m, -20m), fractional_saturation_of_oxygen_in_sea_water (PROFILE - 1m, -10m, -20m), sea_water_temperature (0.8m), sea_water_salinity (0.8m), sea_water_pressure (0.8m), mass_concentration_of_chlorophyll_in_sea_water (0.8m), sea_water_turbidity (0.8m), cdom (0.8m), mass_concentration_of_oxygen_in_sea_water (0.8m), fractional_saturation_of_oxygen_in_sea_water (0.8m), mole_concentration_of_nitrate_in_sea_water (0.8m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoocsoy_saturn08	N/A	[CMOP]:SATURN-08 (LCRD Station)	45.5770D	-122.37900	moored_buoy	09/2013		O		Yp	CMOP		academic	CMOP							air_temperature (7.4m), surface_air_pressure (7.4m), relative_humidity (7.4m), precipitation_accumulated (7.4m), wind_from_direction (7.4m), wind_speed (7.4m), sea_water_temperature (-1m, -10m), sea_water_salinity (-1m, -10m), surface_downwelling_photosynthetic_radiative_flux_in_air (7.4m), mass_concentration_of_chlorophyll_in_sea_water (-1m, -10m), sea_water_turbidity (-1m, -10m), mass_concentration_of_oxygen_in_sea_water (-1m, -10m), fractional_saturation_of_oxygen_in_sea_water (-1m, -10m), sea_water_ph_reported_on_total_scale (-1m, -10m), surface_partial_pressure_of_carbon_dioxide_in_sea_water (-10m)	NANOOS does not push this data to NDBC.
NANOOS	urn:ioos:station:nanoocsk_seapyo	N/A	[King County]:Seattle Aquarium Mooring - Elliott Bay	47.6080D	-122.34180	fixed	> 5 yr		Y		N	King County		gov_municipal	King County							wind_speed, wind_to_direction, barometric_pressure, air_temperature, relative_humidity, sea_water_temperature, sea_water_salinity, mole_concentration_of_dissolved_molecular_oxygen_in_sea_water, sea_water_speed	NANOOS does not push this data to NDBC.
NERACOOS	UCONN	44022	Execution Rocks	Moored buoy.	40.9800D	-73.7300D	moored_buoy	09/2004	Y	NERACOOS	Yp	University of Connecticut		academic	University of Connecticut	University of Connecticut, Gulf of Maine Research Institute						wind_speed, wind_to_direction, barometric_pressure, air_temperature, relative_humidity, sea_water_temperature, sea_water_salinity, mole_concentration_of_dissolved_molecular_oxygen_in_sea_water, sea_water_speed	
NERACOOS	UCONN	44040	Western Long Island Sound	Moored buoy.	40.9900D	-73.1800D	moored_buoy	08/2001	Y	NERACOOS	Yp	University of Connecticut		academic	University of Connecticut	University of Connecticut, Gulf of Maine Research Institute						wind_speed, wind_to_direction, barometric_pressure, air_temperature, relative_humidity, sea_water_temperature, sea_water_salinity, mole_concentration_of_dissolved_molecular_oxygen_in_sea_water, sea_water_speed, downwelling_photosynthetic_radiance_in_sea_water, sea_surface_wave_significant_height, sea_surface_swell_wave_mean_period	
NERACOOS	UCONN	44039	Central Long Island Sound	Moored buoy.	41.1300D	-72.6500D	moored_buoy	02/2002	Y	NERACOOS	Yp	University of Connecticut		academic	University of Connecticut	University of Connecticut, Gulf of Maine Research Institute						wind_speed, wind_to_direction, barometric_pressure, air_temperature, relative_humidity, sea_water_temperature, sea_water_salinity, mole_concentration_of_dissolved_molecular_oxygen_in_sea_water, sea_water_speed, downwelling_photosynthetic_radiance_in_sea_water, sea_surface_wave_significant_height, sea_surface_swell_wave_mean_period, sea_water_to_direction	
NERACOOS	URI/GSO	N/A	GSO Dock	NBPSMN station	41.6920D	-71.4190D	fixed	6/1/2017 report to NERACOOS(1993 historical)	Y	NERACOOS (partial) URI/GSO (partial)	Yp	URI/GSO		gov_state	URI/GSO	RIDEM						sea_water_temperature, sea_water_salinity, mole_concentration_of_dissolved_molecular_oxygen_in_sea_water, sea_water_ph_reported_on_total_scale, mass_concentration_of_chlorophyll_in_sea_water, mole_concentration_of_nitrate_in_sea_water	Fixed station on dock
NERACOOS	UNH	COOA GREAT_BAY - Great Bay, NH	Great Bay Buoy	Moored buoy.	43.0700D	-70.8600D	moored_buoy	04/2005	Y	NERACOOS	Yf	University of New Hampshire		academic	University of New Hampshire	University of New Hampshire, Gulf of Maine Research Institute						sea_water_temperature, sea_water_salinity, mole_concentration_of_dissolved_molecular_oxygen_in_sea_water, sea_water_ph_reported_on_total_scale, mass_concentration_of_chlorophyll_in_sea_water, mole_concentration_of_nitrate_in_sea_water,fractional_saturation_of_oxygen_in_sea_water,mole_concentration_of_phosphate_in_sea_water, wind_speed,wind_to_direction, wind_speed_of_gust, air_temperature, air_pressure, solar_irradiance, sea_water_turbidity, concentration_of_colored_dissolved_organic_matter_in_sea_water_expressed_as_equivalent_mass_fraction_of_quinine_sulfate_dihydrate, mole_concentration_of_ammonium_in_sea_water, partial_pressure_of_carbon_dioxide_in_sea_water	
NERACOOS	Charybdis	N/A	Hampton, NH	Tide Station	42.9040D	-70.8200D	tide_station	<5 yr	Y	NERACOOS	Yf	Charybdis Group LLC.		industry	Charybdis Group LLC.	Charybdis Group LLC., Gulf of Maine Research Institute						sea_water_temperature, river_level	In the process of making information publically available.
NERACOOS	Charybdis	N/A	Scituate, MA	Tide Station	42.1900D	-70.7100D	tide_station	<5 yr	Y	NERACOOS	Yf	Charybdis Group LLC.		industry	Charybdis Group LLC.	Charybdis Group LLC., Gulf of Maine Research Institute						sea_water_temperature, river_level	In the process of making information publically available.
NERACOOS	UNH	COOA CML - UNH Coastal Marine Lab Field Station	Coastal Marine Lab	Coastal monitoring station.	43.0700D	-70.7000D	fixed	03/2010	Y	NERACOOS, NOAA ORP	Yp	University of New Hampshire		academic	University of New Hampshire	University of New Hampshire, Gulf of Maine Research Institute						sea_water_temperature, sea_water_salinity, mole_concentration_of_dissolved_molecular_oxygen_in_sea_water, mass_concentration_of_chlorophyll_a_in_sea_water, downwelling_photosynthetic_radiance_in_sea_water, wind_speed, wind_to_direction, wind_speed_of_gust, air_temperature, air_pressure	
NERACOOS	Charybdis	N/A	Gloucester, MA	Tide Station	42.6000D	-70.6600D	tide_station	<5 yr	Y	NERACOOS	Yf	Charybdis Group LLC.		industry	Charybdis Group LLC.	Charybdis Group LLC., Gulf of Maine Research Institute						sea_water_temperature, river_level	In the process of making information publically available.
NERACOOS	Unaine:A01	44029	Massachusetts Bay	50 of Gloucester	42.5200D	-70.5600D	moored_buoy	08/2001	Y	NERACOOS, MWRA	Yp	University of Maine		academic	University of Maine	University of Maine, Gulf of Maine Research Institute						air_temperature, wind_speed, wind_from_direction, wind_speed_of_gust, air_pressure, visibility_in_air, sea_surface_wave_significant_height, sea_surface_wave_period_at_variance_spectral_density_maximum, sea_water_temperature(+1 m, 2 m, 20 m, 50 m), sea_water_to_direction (2 m, 10 m, 14 m, 18 m, 22 m, 26 m, 30 m, 34 m, 38 m, 42 m, 46 m, 50 m, 54 m, 58 m), sea_water_speed (2 m, 10 m, 14 m, 18 m, 22 m, 26 m, 30 m, 34 m, 38 m, 42 m, 46 m, 50 m, 54 m, 58 m), sea_water_salinity (1 m, 20 m, 50 m), sea_water_density (1 m, 20 m, 50 m), sea_water_turbidity (3 m), mass_concentration_of_chlorophyll_in_sea_water (3 m), mole_concentration_of_dissolved_molecular_oxygen_in_sea_water (3 m), mole_concentration_of_dissolved_molecular_oxygen_in_sea_water_at_saturation (3 m)	
NERACOOS	UNH	COOA CO2 - Appledore Island	Appledore Island - CO2 Buoy	Moored buoy.	43.0200D	-70.3400D	moored_buoy	04/2006	Y	NERACOOS, NOAA ORP	Yp	University of New Hampshire		academic	University of New Hampshire	University of New Hampshire, Gulf of Maine Research Institute						wind_speed, wind_to_direction, wind_speed_of_gust, air_temperature, air_pressure, sea_water_temperature, sea_water_salinity, dissolved oxygen, sea_water_turbidity, mass_concentration_of_chlorophyll_in_sea_water, surface_partial_pressure_of_carbon_dioxide_in_sea_water	
NERACOOS	Unaine:B01	44030	Western Maine Shelf	East of Cape Neddick (York)	43.1800D	-70.4200D	moored_buoy	08/2001	Y	NERACOOS	Yf	University of Maine		academic	University of Maine	University of Maine, Gulf of Maine Research Institute						air_temperature, wind_speed, wind_from_direction, wind_speed_of_gust, air_pressure, visibility_in_air, sea_surface_wave_significant_height, sea_surface_wave_period_at_variance_spectral_density_maximum, sea_water_temperature(+1 m, 2 m, 20 m, 50 m), sea_water_to_direction (2 m, 10 m, 14 m, 18 m, 22 m, 26 m, 30 m, 34 m, 38 m, 42 m, 46 m, 50 m, 54 m), sea_water_speed (2 m, 10 m, 14 m, 18 m, 22 m, 26 m, 30 m, 34 m, 38 m, 42 m, 46 m, 50 m, 54 m), sea_water_salinity (1 m, 20 m, 50 m), sea_water_density (1 m, 20 m, 50 m)	
NERACOOS	WHOI	44080	Cape Cod Bay Wave Buoy	CDIP wave buoy	41.8600D	-70.1300D	wave_buoy	5/23/14	Y	NERACOOS, MassDEP, USGS	Yp	Woods Hole Group		industry	Woods Hole Group	Woods Hole Group, Gulf of Maine Research Institute						sea_water_to_direction, sea_surface_wave_mean_period	
NERACOOS	UNH	44098	Jeffrey's Ledge	CDIP wave buoy	42.8000D	-70.1600D	wave_buoy	09/2008	Y	NERACOOS	Yp	University of New Hampshire		academic	University of New Hampshire	University of New Hampshire, Gulf of Maine Research Institute						sea_water_to_direction, sea_surface_wave_significant_height, sea_surface_wave_mean_period, sea_water_temperature	
NERACOOS	Unaine:E01	44032	Central Maine Shelf	55 of Port Clyde	43.7120D	-69.3500D	moored_buoy	02/2002	Y	NERACOOS	Yf	University of Maine		academic	University of Maine	University of Maine, Gulf of Maine Research Institute						air_temperature, wind_speed, wind_from_direction, wind_speed_of_gust, air_pressure, visibility_in_air, sea_surface_wave_significant_height, sea_surface_wave_period_at_variance_spectral_density_maximum, sea_water_temperature(+1 m, 2 m, 20 m, 50 m), sea_water_to_direction (2 m, 10 m, 14 m, 18 m, 22 m, 26 m, 30 m, 34 m, 38 m, 42 m, 46 m, 50 m, 54 m, 58 m, 62 m, 66 m, 70 m, 74 m, 78 m, 82 m, 86 m, 90 m, 94 m, 98 m), sea_water_speed (2 m, 10 m, 14 m, 18 m, 22 m, 26 m, 30 m, 34 m, 38 m, 42 m, 46 m, 50 m, 54 m, 58 m, 62 m, 66 m, 70 m, 74 m, 78 m, 82 m, 86 m, 90 m), sea_water_salinity (1 m, 20 m, 50 m), sea_water_density (1 m, 20 m, 50 m)	
NERACOOS	Unaine:F01	44033	Penobscot Bay	Between Owls Head and Vinalhaven	44.0500D	-68.9900D	moored_buoy	08/2001	Y	NERACOOS	Yf	University of Maine		academic	University of Maine	University of Maine, Gulf of Maine Research Institute						air_temperature, wind_speed, wind_from_direction, wind_speed_of_gust, air_pressure, visibility_in_air, sea_surface_wave_significant_height, sea_surface_wave_period_at_variance_spectral_density_maximum, sea_water_temperature(+1 m, 2 m, 20 m, 50 m), sea_water_to_direction (2 m, 10 m, 14 m, 18 m, 22 m, 26 m, 30 m, 34 m, 38 m, 42 m, 46 m, 50 m, 54 m, 58 m, 62 m, 66 m, 70 m, 74 m, 78 m, 82 m, 86 m, 90 m, 94 m, 98 m), sea_water_speed (2 m, 10 m, 14 m, 18 m, 22 m, 26 m, 30 m, 34 m, 38 m, 42 m, 46 m, 50 m, 54 m, 58 m, 62 m, 66 m, 70 m, 74 m, 78 m, 82 m, 86 m, 90 m), sea_water_salinity (1 m, 20 m, 50 m), sea_water_density (1 m, 20 m, 50 m)	
NERACOOS	Unaine:I01	44034	Eastern Maine Shelf	Acadia	44.1000D	-68.1000D	moored_buoy	08/2001	Y	NERACOOS	Yf	University of Maine		academic	University of Maine	University of Maine, Gulf of Maine Research Institute						air_temperature, wind_speed, wind_from_direction, wind_speed_of_gust, air_pressure, visibility_in_air, sea_surface_wave_significant_height, sea_surface_wave_period_at_variance_spectral_density_maximum, sea_water_temperature(+1 m, 2 m, 20 m, 50 m, 100 m, 150 m, 200 m, 250 m), sea_water_to_direction (2 m, 10 m, 14 m, 18 m, 22 m, 26 m, 30 m, 34 m, 38 m, 42 m, 46 m, 50 m, 54 m, 58 m, 62 m, 66 m, 70 m, 74 m, 78 m, 82 m, 86 m, 90 m, 94 m, 98 m, 110 m, 122 m, 138 m, 158 m, 178 m, 198 m, 222 m), sea_water_speed (2 m, 10 m, 14 m, 18 m, 22 m, 26 m, 30 m, 34 m, 38 m, 42 m, 46 m, 50 m, 54 m, 58 m, 62 m, 66 m, 70 m, 74 m, 78 m, 82 m, 86 m, 90 m), sea_water_salinity (1 m, 20 m, 50 m, 100 m, 150 m, 200 m, 250 m), sea_water_density (1 m, 20 m, 50 m, 100 m, 150 m, 200 m, 250 m)	
NERACOOS	Unaine:M01	44037	Jordan Basin	Jordan Basin	43.4900D	-67.8800D	moored_buoy	08/2003	Y	NERACOOS	Yf	University of Maine		academic	University of Maine	University of Maine, Gulf of Maine Research Institute						air_temperature, wind_speed, wind_from_direction, wind_speed_of_gust, air_pressure, visibility_in_air, sea_surface_wave_significant_height, sea_surface_wave_period_at_variance_spectral_density_maximum, sea_water_temperature(+1 m, 2 m, 20 m, 50 m 100 m, 150 m, 180 m), sea_water_to_direction (2 m, 18 m, 26 m, 34 m, 42 m, 50 m, 58 m, 66 m, 74 m, 82 m, 90 m, 98 m, 106 m, 114 m, 122 m, 130 m, 138 m, 146 m, 154 m, 162 m, 170 m, 178 m, 186 m, 194 m, 202 m), sea_water_speed(2 m, 18 m, 26 m, 34 m, 42 m, 50 m, 58 m, 66 m, 74 m, 82 m, 90 m, 98 m, 106 m, 114 m, 122 m, 130 m, 138 m, 146 m, 154 m, 162 m, 170 m, 178 m, 186 m, 194 m, 202 m), sea_water_salinity (1 m, 20 m, 50 m, 100 m, 150 m, 180 m), sea_water_density (1 m, 20 m, 50 m, 100 m, 150 m, 180 m), sea_water_temperature, sea_water_electrical_conductivity, sea_water_salinity, sea_water_pressure, mass_concentration_of_oxygen_in_sea_water, mass_concentration_of_chlorophyll_in_sea_water, sea_water_turbidity	Buoy broke loose from its mooring.
PACIOOS	N605	NA	Pago Pago NSS	SBE-19+2+, WetLabs ECOFLNTUS	-14.2766D	-170.6908D	fixed	6/8/10	Y	PacIOOS	Yf	PacIOOS		Academic	PacIOOS	PacIOOS						sea_water_temperature, sea_water_electrical_conductivity, sea_water_salinity, sea_water_pressure, mass_concentration_of_chlorophyll_in_sea_water, sea_water_turbidity	Working with NDBC to get WMO ID.
PACIOOS	CDIP 202	S1208	Honolei, Kauai, Hawaii	Datawell Waverider	22.2847D	-159.5742D	wave_buoy	10/2/13	Y	PacIOOS	Yf	PacIOOS		Academic	PacIOOS	CDIP						sea_surface_wave_significant_height, sea_surface_wave_from_direction, sea_surface_wave_mean_period from_variance_spectral_density_second_frequency_moment, sea_surface_wave_period_at_variance_spectral_density_maximum, sea_water_temperature	
PACIOOS	CDIP 106	S1201	Waimea Bay, Oahu, Hawaii	Datawell Waverider	21.6705D	-158.1172D	wave_buoy	12/31/01	Y	PacIOOS	Yf	PacIOOS		Academic	PacIOOS	CDIP						sea_surface_wave_significant_height, sea_surface_wave_from_direction, sea_surface_wave_mean_period from_variance_spectral_density_second_frequency_moment, sea_surface_wave_period_at_variance_spectral_density_maximum, sea_water_temperature	
PACIOOS	CDIP 233	S1211	Pearl Harbor Entrance, Hawaii	Datawell Waverider DWR	21.2976D	-157.9589D	wave_buoy	6/8/17	Y	PacIOOS	Yf	PacIOOS		Academic	PacIOOS	CDIP						sea_surface_wave_significant_height, sea_surface_wave_from_direction, sea_surface_wave_mean_period from_variance_spectral_density_second_frequency_moment, sea_surface_wave_period_at_variance_spectral_density_maximum, sea_surface_wave_significant_height, sea_water_speed, sea_water_temperature, sea_water_to_direction	Future status of this buoy is unknown, as the researcher maintaining it is retiring. It is unknown if new faculty at UH will take over the maintenance. Future funding for this buoy has also been uncertain. Also working on NDBC for WMO ID.
PACIOOS	WQB-KN	NA	Kilo Nalu Buoy	SBE-37-SMP, YSI-6600, LICOR-820-NDIR, Matech-MAM-2510,	21.2960D	-157.8700D	moored_buoy	8/7/08	U		N	University of Hawaii		Academic	University of Hawaii							sea_water_temperature, sea_water_electrical_conductivity, sea_water_salinity, sea_water_pressure, mass_concentration_of_chlorophyll_in_sea_water, sea_water_turbidity	
PACIOOS	N602	NA	Hawaii Yacht Club NSS	SBE-19+2+, WetLabs ECOFLNTUS	21.2846D	-157.8428D	fixed	7/28/08	Y	PacIOOS	Yf	PacIOOS		Academic	PacIOOS	PacIOOS						sea_water_temperature, sea_water_electrical_conductivity, sea_water_salinity, sea_water_pressure, mass_concentration_of_chlorophyll_in_sea_water, sea_water_turbidity	Working with NDBC to get WMO ID.
PACIOOS	N603	NA	Hilton Hawaiian Village NSS	SBE-16+2+	21.2824D	-157.8381D	fixed	1/15/09	Y	PacIOOS	Yf	PacIOOS		Academic	PacIOOS	PacIOOS						sea_water_temperature, sea_water_electrical_conductivity, sea_water_salinity, sea_water_pressure, mass_concentration_of_chlorophyll_in_sea_water, sea_water_turbidity	Working with NDBC to get WMO ID.
PACIOOS	N604	NA	Waikiki Aquarium NSS	SBE-16+2+	21.2668D	-157.8228D	fixed	9/25/09	Y	PacIOOS	Yf	PacIOOS		Academic	PacIOOS	PacIOOS						sea_water_temperature, sea_water_electrical_conductivity, sea_water_salinity, sea_water_pressure, mass_concentration_of_chlorophyll_in_sea_water, sea_water_turbidity	Working with NDBC to get WMO ID.
PACIOOS	AWS-HIMB	NA	Coconut Island Weather Station		21.4330D	-157.7863D	fixed	1/1/01	Y		N	Hawaii Institute of Marine Biology		Academic	Hawaii Institute of Marine Biology	PacIOOS						air_temperature, rainfall_amount, wind_speed, wind_from_direction, downwelling_shortwave_flux_in_air, sea_water_temperature, surface_downwelling_photosynthetic_photon_flux_in_air, altitude	No WMO ID because asset is land-based.
PACIOOS	CDIP 225	S1210	Kaneohe WSTS, Oahu, Hawaii	Datawell Waverider	21.4778D	-157.7558D	wave_buoy	10/26/17	Y	PacIOOS	Yp	PacIOOS		Academic	PacIOOS	CDIP						sea_surface_wave_significant_height, sea_surface_wave_from_direction, sea_surface_wave_mean_period from_variance_spectral_density_second_frequency_moment, sea_surface_wave_period_at_variance_spectral_density_maximum, sea_water_temperature	Buoy broke loose from mooring on 8/17/17. PacIOOS team working to retrieve mooring before redeploying the buoy in order to avoid entanglement with old mooring.
PACIOOS	CDIP 198	S1207	Kaneohe Bay, Oahu, Hawaii	Datawell Waverider	21.4775D	-157.7526D	wave_buoy	10/16/12	O	PacIOOS	Yp	PacIOOS		Academic	PacIOOS	CDIP						sea_surface_wave_significant_height, sea_surface_wave_from_direction, sea_surface_wave_mean_period from_variance_spectral_density_second_frequency_moment, sea_surface_wave_period_at_variance_spectral_density_maximum, sea_water_temperature	Buoy run over on 5/5/17. Working on getting permits to move to the out of mariner traffic route
PACIOOS	N610	NA	Moanalua Bay NSS	SBE-16+2+, WetLabs ECOFLNTUS	21.2802D	-157.7110D	fixed	5/30/11	Y	PacIOOS	Yf	PacIOOS		Academic	PacIOOS	PacIOOS						sea_water_temperature, sea_water_electrical_conductivity, sea_water_salinity, sea_water_pressure, mass_concentration_of_chlorophyll_in_sea_water, sea_water_turbidity	Working with NDBC to get WMO ID.
PACIOOS	CDIP 098	S1202	Mokapu Point, Oahu, Hawaii	Datawell Waverider	21.4150D	-157.6783D	wave_buoy	8/9/00	Y	PacIOOS	Yf	PacIOOS		Academic	PacIOOS	CDIP						sea_surface_wave_significant_height, sea_surface_wave_from_direction, sea_surface_wave_mean_period from_variance_spectral_density_second_frequency_moment, sea_surface_wave_period_at_variance_spectral_density_maximum, sea_water_temperature	
PACIOOS	CDIP 146	S1203	Kaumalapau, Lanai, Hawaii	Datawell Waverider	20.7878D	-157.0098D	wave_buoy	5/17/07	O	PacIOOS	Yf	PacIOOS		Academic	PacIOOS	CDIP						sea_surface_wave_significant_height, sea_surface_wave_from_direction, sea_surface_wave_mean_period from_variance_spectral_density_second_frequency_moment, sea_surface_wave_period_at_variance_spectral_density_maximum, sea_water_temperature	Buoy run over on 5/5/17. Working on getting permits to move to the out of mariner traffic route
PACIOOS	N612	NA	Kalama Beach Park, Maui NSS	YSI-6600V2	20.7312D	-156.4550D	fixed	8/5/14	Y	PacIOOS	Yf	PacIOOS		Academic	PacIOOS	PacIOOS						sea_water_turbidity, mass_concentration_of_chlorophyll_in_sea_water, sea_water_salinity, depth, sea_water_ph_reported_on_total_scale, fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water	Working with NDBC to get WMO ID.
PACIOOS	CDIP 187	S1205	Pauwela, Maui, Hawaii	Datawell Waverider	21.0182D	-156.4253D	wave_buoy	1/2/11	O	PacIOOS	Yf	PacIOOS		Academic	PacIOOS	CDIP						sea_surface_wave_significant_height, sea_surface_wave_from_direction, sea_surface_wave_mean_period from_variance_spectral_density_second_frequency_moment, sea_surface_wave_period_at_variance_spectral_density_maximum, sea_water_temperature	Buoy broke loose from mooring on 10/31/17. Team working to redeploy buoy ASAP.
PACIOOS	WQB-04	NA	Hilo Bay, Hawaii	YSI-6MM-68	19.7362D	-155.0867D	moored_buoy	10/23/10	Y	PacIOOS	Yf	PacIOOS		Academic	PacIOOS	PacIOOS						sea_water_temperature, volume_scattering_function_of_relative_flux_in_sea_water, sea_water_salinity, mass_concentration_of_oxygen_in_sea_water, fractional_saturation_of_oxygen_in_sea_water, mole_concentration_of_nitrate_in_sea_water, mass_concentration_of_chlorophyll_in_sea_water, sea_water_turbidity, mass_concentration_of_colored_dissolved_organic_matter_in_sea_water_expressed_as_equivalent_mass_fraction_of_quinine_sulfate_dihydrate	Working with NDBC to get WMO ID.
PACIOOS	CDIP 188	S1206	Hilo, Hawaii	Datawell Waverider	19.7800D	-154.9700D	wave_buoy	8/8/12	Y	PacIOOS	Yf	PacIOOS		Academic	PacIOOS	CDIP						sea_surface_wave_significant_height, sea_surface_wave_from_direction, sea_surface_wave_mean_period from_variance_spectral_density_second_frequency_moment, sea_surface_wave_period_at_variance_spectral_density_maximum, sea_water_temperature	
PACIOOS	AWS-CRRF	NA	Ngeruangel Island, Koror, Palau Weather Station		7.2091S	134.3710D	fixed	2/28/07	Y		N	Coral Reef Research Foundation		Non-profit	Coral Reef Research Foundation	Coral Reef Research Foundation, Inc						air_temperature, tone, relative_humidity, rainfall_amount, downwelling_shortwave_flux_in_air, surface_downwelling_photosynthetic_photon_flux_in_air, wind_speed, wind_from_direction, altitude	No WMO ID because asset is land-based.
PACIOOS	N615	NA	Pago Bay, Guam NSS	SBE-16+2+, WetLabs ECOFLNTUS	13.4208Z	144.7898D	fixed	7/8/12	Y	PacIOOS	Yf	PacIOOS		Academic	PacIOOS	PacIOOS						sea_water_temperature, sea_water_electrical_conductivity, sea_water_salinity, sea_water_pressure, mass_concentration_of_chlorophyll_in_sea_water, sea_water_turbidity	Working with NDBC to get WMO ID.
PACIOOS	CDIP 121	S2200	Ipan, Guam	Datawell Waverider	13.3142D	144.7883D	wave_buoy	7/15/03	Y	PacIOOS	Yf	PacIOOS		Academic	PacIOOS	CDIP						sea_surface_wave_significant_height, sea_surface_wave_from_direction, sea_surface_wave_mean_period from_variance_spectral_density_second_frequency_moment, sea_surface_wave_period_at_variance_spectral_density_maximum, sea_water_temperature	
PACIOOS	N606	NA	Piehopie NSS	SBE-16+2+, WetLabs ECOFLNTUS	6.8736N	158.2201E	fixed	5/7/10	Y	PacIOOS	Yf	PacIOOS		Academic	PacIOOS	PacIOOS						sea_water_temperature, sea_water_electrical_conductivity, sea_water_salinity, sea_water_pressure, mass_concentration_of_chlorophyll_in_sea_water, sea_water_turbidity	Working with NDBC to get WMO ID.
PACIOOS	N607	NA	Majuro NSS	SBE-16+2+, WetLabs ECOFLNTUS	7.1050N	171.1728E	fixed	5/2/10	Y	PacIOOS	Yf	PacIOOS		Academic	PacIOOS	PacIOOS						sea_water_temperature, sea_water_electrical_conductivity, sea_water_salinity, sea_water_pressure, mass_concentration_of_chlorophyll_in_sea_water, sea_water_turbidity	Working with NDBC to get WMO ID.
PACIOOS	CDIP 163	S2201	Kalo, Majuro, Marshall Islands	Datawell Waverider	7.0819N	171.3918E	wave_buoy	5/8/14	Y	PacIOOS	Yf	PacIOOS		Academic	PacIOOS	CDIP						sea_surface_wave_significant_height, sea_surface_wave_from_direction, sea_surface_wave_mean_period from_variance_spectral_density_second_frequency_moment, sea_surface_wave_period_at_variance_spectral_density_maximum, sea_water_temperature	
PACIOOS	CDIP 197	S2211	Tanapag, Saipa, CNMI	Datawell Waverider	15.2685D	145.6423E	wave_buoy	10/24/12	Y	PacIOOS	Yf	PacIOOS		Academic	PacIOOS	CDIP						sea_surface_wave_significant_height, sea_surface_wave_from_direction, sea_surface_wave_mean_period from_variance_spectral_density_second_frequency_moment, sea_surface_wave_period_at_variance_spectral_density_maximum, sea_water_temperature	
PACIOOS	CDIP 165	S1204	Barbers Point, Oahu, Hawaii	Datawell Waverider	21.2818D	-158.1237	wave_buoy	10/10/11	O	PacIOOS	Yf	PacIOOS		Academic	PacIOOS	CDIP						sea_surface_wave_significant_height, sea_surface_wave_from_direction, sea_surface_wave_mean_period from_variance_spectral_density_second_frequency_moment, sea_surface_wave_period_at_variance_spectral_density_maximum, sea_water_temperature	Buoy lost on 2/19/17. Working on getting permits to move to the out of mariner traffic route
PACIOOS	CDIP 189	S1209	Aunuu, American Samoa	Datawell Waverider	-14.2645D	-170.4934	wave_buoy	10/23/14	Y	PacIOOS	Yf	PacIOOS		Academic	PacIOOS	CDIP						sea_surface_wave_significant_height, sea_surface_wave_from_direction, sea_surface_wave_mean_period from_variance_spectral_density_second_frequency_moment, sea_surface_wave_period_at_variance_spectral_density_maximum, sea_water_temperature	

PacIOOS	CDIP 196	52202	Ritidian Point, Guam	Datawell Waverider	13.68870	144.8121	wave_buoy	10/20/12	Y	PacIOOS	Y	PacIOOS	Academic	PacIOOS	CDIP		sea_surface_wave_significant_height, sea_surface_wave_from_direction, sea_surface_wave_mean_period, from_variance_spectral_density_second_frequency_moment, sea_surface_wave_period_at_variance_spectral_density_maximum, sea_water_temperature	
SCCOOS	n/a	TBD	Stearns Wharf	Automated Shore Station	34.41070	-119.68780	fixed	8/16/05	Y	NOAA/IOOS/SCCOOS	Y	Melissa Carter/SCCOOS	academic	Melissa Carter		SCCOOS	Temperature_Pressure_Fluorescence_Salinity_2m	WMO ID in process
SCCOOS	n/a	n/a	Stearns Wharf	Harmful Algae Bloom monitoring program station	34.41070	-119.68780	sampling_location	2005	Y	NOAA/IOOS/SCCOOS	Y	Mark Brzezinski/UCSB/SCCOOS	academic	Mark Brzezinski		SCCOOS	Chlorophyll_Nutrients_Weekly_HABs_Species_Cell_Count_Temperature_Full_Water_Column	Data management under development haven't applied for a WMO ID yet
SCCOOS	n/a	n/a	Santa Monica Pier	Harmful Algae Bloom monitoring program station	34.00860	-118.49860	sampling_location	2005	Y	NOAA/IOOS/SCCOOS	Y	Rebecca Shipe/UCLA/SCCOOS	academic	Rebecca Shipe		SCCOOS	Chlorophyll_Nutrients_Weekly_HABs_Species_Cell_Count_Temperature_Full_Water_Column	Data management under development haven't applied for a WMO ID yet
SCCOOS	n/a	n/a	Santa Monica Pier	Automated Shore Station	34.0086	-118.4986	fixed	4/4/2005-1/1/2016	0 - if funding sources become available, otherwise N	NOAA/IOOS/SCCOOS	N	Melissa Carter/SCCOOS	gov_federal	Melissa Carter		SCCOOS	Temperature_Pressure_Fluorescence_Salinity_2m	site is decommissioned
SCCOOS	n/a	NBWC1	Newport Pier	Automated Shore Station	33.60730	-117.92890	fixed	2/10/05	Y	NOAA/IOOS/SCCOOS	Y	Melissa Carter/SCCOOS	academic	Melissa Carter		SCCOOS	Temperature_Pressure_Fluorescence_Salinity_2m	WMO ID in process
SCCOOS	n/a	n/a	Newport Pier	Harmful Algae Bloom monitoring program station	33.60730	-117.92890	sampling_location	2005	Y	NOAA/IOOS/SCCOOS	Y	Dave Caron/USC/SCCOOS	academic	Dave Caron		SCCOOS	Chlorophyll_Nutrients_Weekly_HABs_Species_Cell_Count_Temperature_Full_Water_Column	Data management under development haven't applied for a WMO ID yet
SCCOOS	n/a	n/a	Carlsbad Aquafarm	Burkolator	33.15900	-117.39900	sampling_location	8/8/2016	Y	NOAA/IOOS/SCCOOS		Todd Martz/SCCOOS	academic	Todd Martz		SCCOOS	Alkalinity_CO2 Water_Dissolved Inorganic Carbon_Aragonite Saturation Oxygen_Salinity_Water Temperature_pH	Instrument is in the R&D phase and not ready for WMO ID
SCCOOS	n/a	n/a	Del Mar Mooring	Mooring	32.93800	-117.32600	moored_buoy	2006	Y	NOAA/IOOS/SCCOOS	Yp	Uwe Send/SIO/UCSD	academic	Uwe Send		Uwe Send	Current_Vectors_Temperature_Salinity_Backscatter_Oxygen_Fluorescence_Meteorology_Mooring_Load_Cell	CC is still under development
SCCOOS	n/a	LINC1	Scripps Pier	Automated Shore Station	32.86700	-117.25700	fixed	4/8/05	Y	NOAA/IOOS/SCCOOS	Y	Melissa Carter/SCCOOS	academic	Melissa Carter		SCCOOS	other_Status_Buoy_Positions Temperature_Pressure_Fluorescence_Salinity_2m	WMO ID in process
SCCOOS	n/a	n/a	Scripps Pier	Harmful Algae Bloom monitoring program station	32.86700	-117.25700	sampling_location	2005	Y	NOAA/IOOS/SCCOOS	Y	Melissa Carter/SCCOOS/SCCOOS	academic	Melissa Carter		SCCOOS	Chlorophyll_Nutrients_Weekly_HABs_Species_Cell_Count_Temperature_Full_Water_Column	Data management under development haven't applied for a WMO ID yet
SCCOOS	91.8	n/a	1	CalCOFI nearshore sampling station	21.94667	-117.46667	ship	2004	Y	NOAA/IOOS/SCCOOS	Y	Raff Goericke/SCCOOS	gov_federal	Raff Goericke		CalCOFI	Temperature_salinity_oxygen_fluorescence_transmittance_nitrate_PAR_20m	WMO ID not assigned for a non-star station
SCCOOS	91.7	n/a	2	CalCOFI nearshore sampling station	21.2833	-117.46667	ship	2004	Y	NOAA/IOOS/SCCOOS	Y	Raff Goericke/SCCOOS	gov_federal	Raff Goericke		CalCOFI	Temperature_salinity_oxygen_fluorescence_transmittance_nitrate_PAR_20m	WMO ID not assigned for a non-star station
SCCOOS	90	n/a	31	CalCOFI nearshore sampling station	33.49667	-117.74667	ship	2004	Y	NOAA/IOOS/SCCOOS	Y	Raff Goericke/SCCOOS	gov_federal	Raff Goericke		CalCOFI	Temperature_salinity_oxygen_fluorescence_transmittance_nitrate_PAR_20m	WMO ID not assigned for a non-star station
SCCOOS	88.1	n/a	32	CalCOFI nearshore sampling station	33.67667	-118.00667	ship	2004	Y	NOAA/IOOS/SCCOOS	Y	Raff Goericke/SCCOOS	gov_federal	Raff Goericke		CalCOFI	Temperature_salinity_oxygen_fluorescence_transmittance_nitrate_PAR_20m	WMO ID not assigned for a non-star station
SCCOOS	86.8	n/a	33	CalCOFI nearshore sampling station	33.89667	-118.44667	ship	2004	Y	NOAA/IOOS/SCCOOS	Y	Raff Goericke/SCCOOS	gov_federal	Raff Goericke		CalCOFI	Temperature_salinity_oxygen_fluorescence_transmittance_nitrate_PAR_20m	WMO ID not assigned for a non-star station
SCCOOS	85.4	n/a	36	CalCOFI nearshore sampling station	34.8233 36	-118.8333 3	ship	2004	Y	NOAA/IOOS/SCCOOS	Y	Raff Goericke/SCCOOS	gov_federal	Raff Goericke		CalCOFI	Temperature_salinity_oxygen_fluorescence_transmittance_nitrate_PAR_20m	WMO ID not assigned for a non-star station
SCCOOS	83.3	n/a	37	CalCOFI nearshore sampling station	34.26667	-119.32667	ship	2004	Y	NOAA/IOOS/SCCOOS	Y	Raff Goericke/SCCOOS	gov_federal	Raff Goericke		CalCOFI	Temperature_salinity_oxygen_fluorescence_transmittance_nitrate_PAR_20m	WMO ID not assigned for a non-star station
SCCOOS	81.7	n/a	38	CalCOFI nearshore sampling station	34.40333	-119.83667	ship	2004	Y	NOAA/IOOS/SCCOOS	Y	Raff Goericke/SCCOOS	gov_federal	Raff Goericke		CalCOFI	Temperature_salinity_oxygen_fluorescence_transmittance_nitrate_PAR_20m	WMO ID not assigned for a non-star station
SCCOOS	90	n/a	60	CalCOFI nearshore sampling station	34.46667	-120.49966	ship	2004	Y	NOAA/IOOS/SCCOOS	Y	Raff Goericke/SCCOOS	gov_federal	Raff Goericke		CalCOFI	Temperature_salinity_oxygen_fluorescence_transmittance_nitrate_PAR_20m	WMO ID not assigned for a non-star station
SECORA	Dry Bar, Apalachicola Bay		Dry Bar, Apalachicola Bay	FL DEP station 8872-8744	29.67630	-85.05810	fixed		unknown	Y	FL DEP	N	FL DEP	gov_state	FL DEP		FL DEP	air_temperature, sea_water_temperature, wind_from_direction, wind_speed, air_pressure, relative_humidity, two_thickness_of_precipitation_amount, sea_water_electrical_conductivity, fractional_saturation_of_oxygen_in_sea_water, sea_water_ph_reported_on_total_scale, sea_water_practical_salinity, turbidity, sea_surface_height_above_sea_level	http://filley-stevens.com/readings/8728744.php
SECORA	Pilot's Cove, Apalachicola Bay		Pilot's Cove, Apalachicola Bay	FL DEP station 8872-8732	29.60140	-85.02770	fixed		unknown	Y	FL DEP	N	FL DEP	gov_state	FL DEP		FL DEP	air_temperature, sea_water_temperature, wind_from_direction, wind_speed, air_pressure, relative_humidity, two_thickness_of_precipitation_amount, sea_water_electrical_conductivity, fractional_saturation_of_oxygen_in_sea_water, sea_water_ph_reported_on_total_scale, sea_water_practical_salinity, turbidity, sea_surface_height_above_sea_level	http://filley-stevens.com/readings/8728732.php
SECORA	Little St. Marks River		Little St. Marks River	FL DEP station 8872-8703	29.75570	-85.00350	fixed		unknown	Y	FL DEP	N	FL DEP	gov_state	FL DEP		FL DEP	air_temperature, sea_water_temperature, wind_from_direction, wind_speed, air_pressure, relative_humidity, two_thickness_of_precipitation_amount, sea_water_electrical_conductivity, fractional_saturation_of_oxygen_in_sea_water, sea_water_ph_reported_on_total_scale, sea_water_practical_salinity, turbidity, sea_surface_height_above_sea_level	http://filley-stevens.com/station.php?site=8728703
SECORA	East Bay		East Bay	FL DEP station 8872-8403	29.78570	-86.87530	fixed		unknown	Y	FL DEP	N	FL DEP	gov_state	FL DEP		FL DEP	air_temperature, wind_from_direction, wind_speed, air_pressure, relative_humidity, two_thickness_of_precipitation_amount, sea_surface_height_above_sea_level	http://filley-stevens.com/station.php?site=8728403
SECORA	SHP		SHP P1	Shell Point	30.35800	-84.29000	fixed		Spring 2003	Y	SECORA	Yf	USF	Academic	USF		USF	air_pressure, air_temperature, relative_humidity, wind_speed, wind_gust, wind_from_direction, two_thickness_of_precipitation_amount, sea_water_temperature, water_surface_height_above_reference_datum	
SECORA	C12		42022	NPS Central Buoy	50m isobath	27.50500	-93.74100	moored_buoy		7/26/97	Y	SECORA	Yf	USF	Academic	USF		USF	air_pressure, air_temperature, relative_humidity, wind_speed, wind_gust, wind_from_direction, sea_water_practical_salinity (1 m, 20 m, 30 m), sea_water_temperature (1 m, 20 m, 30 m), downwelling_shortwave_flux_in_air, downwelling_longwave_flux_in_air, sea_water_speed (multi), sea_water_to_direction (multi), eastward_sea_water_velocity (multi), northward_sea_water_velocity (multi)
SECORA	C13		42023	NPS South Buoy		26.01000	-93.08400	moored_buoy		9/1/99	O	SECORA	Yf	USF	Academic	USF		USF	air_pressure, air_temperature, relative_humidity, wind_speed, wind_gust, wind_from_direction, sea_water_practical_salinity (1 m, 20 m, 30 m), sea_water_temperature (1 m, 20 m, 30 m), downwelling_shortwave_flux_in_air, downwelling_longwave_flux_in_air, sea_water_speed (multi), sea_water_to_direction (multi), eastward_sea_water_velocity (multi), northward_sea_water_velocity (multi)
SECORA	C10		42013	NPS Central Buoy	25m isobath	27.17000	-92.92400	moored_buoy		9/14/98	Y	SECORA	Yf	USF	Academic	USF		USF	air_pressure, air_temperature, relative_humidity, wind_speed, wind_gust, wind_from_direction, sea_water_practical_salinity (1 m, 15 m, 18 m), sea_water_temperature (1 m, 15 m, 18 m), downwelling_shortwave_flux_in_air, downwelling_longwave_flux_in_air, sea_water_speed (multi), sea_water_to_direction (multi), eastward_sea_water_velocity (multi), northward_sea_water_velocity (multi)
SECORA	FHP		FHPP1	Fred Howard Park		28.15300	-82.80100	fixed		2004	Y	SECORA	Yf	USF	Academic	USF		USF	air_pressure, air_temperature, relative_humidity, wind_speed, wind_gust, wind_from_direction, two_thickness_of_precipitation_amount, sea_water_pressure_dan_to_sea_water	
SECORA	Clam Bayou		CLBP1	Clam Bayou		27.73600	-82.68600	fixed		2008	Y	SECORA	Yf	USF	Academic	USF		USF	air_pressure, air_temperature, relative_humidity, wind_speed, wind_gust, wind_from_direction, two_thickness_of_precipitation_amount, sea_water_temperature, sea_water_electrical_conductivity, sea_water_practical_salinity, fractional_saturation_of_oxygen_in_sea_water, sea_water_ph_reported_on_total_scale, sea_water_ph_reported_on_total_scale, mass_concentration_of_chlorophyll_in_sea_water, turbidity, water_surface_height_above_reference_datum	station also collects bluegreen algae concentration but there is no CF name for this.
SECORA	APK		ARPP1	Arapaka		28.43300	-82.66700	fixed		Spring 2003	Y	SECORA	Yf	USF	Academic	USF		USF	air_pressure, air_temperature, relative_humidity, wind_speed, wind_gust, wind_from_direction, two_thickness_of_precipitation_amount, sea_water_temperature, sea_water_electrical_conductivity, sea_water_practical_salinity, water_surface_height_above_reference_datum	
SECORA	BCP		BGCP1	Big Carlos Pass		26.40400	-81.88100	fixed		2004	Y	SECORA	Yf	USF	Academic	USF		USF	air_pressure, air_temperature, relative_humidity, wind_speed, wind_gust, wind_from_direction, precipitation_amount, sea_water_salinity, sea_water_temperature, water_surface_height_above_reference_datum	
SECORA	Tolomato River, ICW		Tolomato River, ICW	FL DEP station 8872-0694		29.99470	-81.32960	fixed		unknown	Y	FL DEP	N	FL DEP	gov_state	FL DEP		FL DEP	air_temperature, sea_water_temperature, wind_from_direction, wind_speed, air_pressure, relative_humidity, two_thickness_of_precipitation_amount, sea_water_electrical_conductivity, sea_water_practical_salinity, sea_surface_height_above_sea_level	http://filley-stevens.com/readings/8720694.php
SECORA	Bing's Landing		Bing's Landing	FL DEP station 8872-0717		29.41540	-81.20690	fixed		unknown	Y	FL DEP	N	FL DEP	gov_state	FL DEP		FL DEP	air_temperature, sea_water_temperature, wind_from_direction, wind_speed, air_pressure, relative_humidity, two_thickness_of_precipitation_amount, sea_water_electrical_conductivity, sea_water_practical_salinity, sea_surface_height_above_sea_level	http://filley-stevens.com/readings/8720717.php
SECORA	Ponce de Leon South		Ponce de Leon South	FL DEP station 8872-1147		29.06350	-80.91610	fixed		unknown	Y	FL DEP	N	FL DEP	gov_state	FL DEP		FL DEP	air_temperature, sea_water_temperature, wind_from_direction, wind_speed, air_pressure, relative_humidity, two_thickness_of_precipitation_amount, sea_surface_height_above_sea_level	http://filley-stevens.com/readings/8721147.php
SECORA	Oil Lease in Grays Reef mooring		41008	Grays Reef	NDBC platform with Oil instrumentation	31.40000	-80.86333	moored_buoy		8/1/2004	Y	NOAA PMEL, NDBC, SECORA	Yp	USA/PMEL	gov_federal, Academic	USA		NOAA PMEL	partial_pressure_of_carbon_dioxide_in_sea_water, partial_pressure_of_carbon_dioxide_in_atmosphere, atmospheric_temperature, sea_water_ph_reported_on_total_scale (1 m), sea_water_salinity (1 m), sea_water_dissolved_oxygen (1 m), sea_water_temperature (1 m), sea_water_conductance (1 m), sea_water_turbidity (1 m), mass_concentration_of_chlorophyll_in_sea_water (1 m)	Per Scott Noakes: Original system was first in operation August 2006. It was originally funded by NOAA PMEL as it was funded by NOAA ORI. I would have to go back to see where the funds were routed through SECORA, but just guess would be 4-5 years ago. Unless you want a specific date SECORA started funding, I would say August 2006.
SECORA	Melbourne, Indian River, ICW		Melbourne, Indian River, ICW	FL DEP station 8872-0863		28.08370	-80.59200	fixed		unknown	Y	FL DEP	N	FL DEP	gov_state	FL DEP		FL DEP	sea_water_temperature, sea_water_electrical_conductivity, sea_water_practical_salinity, sea_surface_height_above_sea_level	http://filley-stevens.com/readings/8721863.php
SECORA	IRL-SB		Indian River Lagoon - Sebastian	IRL water quality		27.83910	-80.47080	moored_buoy		unknown	Y	unknown	N	FAU	Academic	FAU		FAU	sea_water_temperature, mass_concentration_of_chlorophyll_in_sea_water, sea_water_electrical_conductivity, sea_water_practical_salinity, direction_of_sea_water_velocity, sea_water_speed, depth, fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, mole_concentration_of_nitrate_in_sea_water, phosphate, turbidity, sea_water_pressure	LOBO system. Information on stations: http://fau.loboviz.com/lobovis/ and http://portal.secoora.org/#metadata/6038/station
SECORA	FRP2		41010	Fripp Nearshore		32.27450	-80.4187	moored_buoy		2/9/2005	Y	SECORA	Yf	UNCW	Academic	UNCW		UNCW	air_pressure, air_temperature, relative_humidity, wind_speed, wind_gust, wind_from_direction, sea_water_practical_salinity (1 m), sea_water_temperature (1 m)	
SECORA	IRL-VB		Indian River Lagoon - Vero Beach	IRL water quality		27.59010	-80.35530	moored_buoy		unknown	Y	unknown	N	FAU	Academic	FAU		FAU	sea_water_temperature, mass_concentration_of_chlorophyll_in_sea_water, sea_water_electrical_conductivity, sea_water_practical_salinity, direction_of_sea_water_velocity, sea_water_speed, depth, fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, mole_concentration_of_nitrate_in_sea_water, phosphate, turbidity, sea_water_pressure	LOBO system. Information on stations: http://fau.loboviz.com/lobovis/ and http://portal.secoora.org/#metadata/6038/station
SECORA	IRL-LP		Indian River Lagoon - Link Port	IRL water quality		27.53680	-80.34310	moored_buoy		unknown	Y	unknown	N	FAU	Academic	FAU		FAU	sea_water_temperature, air_temperature, relative_humidity, wind_speed, wind_from_direction, wind_speed_of_gust, air_pressure, precipitation_increment, mass_concentration_of_chlorophyll_in_sea_water, sea_water_electrical_conductivity, direction_of_sea_water_velocity, sea_water_speed, depth, fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, mole_concentration_of_nitrate_in_sea_water, phosphate, surface_downwelling_photosynthetic_photon_flux_in_air, turbidity, sea_water_practical_salinity, sea_water_pressure	LOBO system. Information on stations: http://fau.loboviz.com/lobovis/ and http://portal.secoora.org/#metadata/6037/station
SECORA	IRL-FP		Indian River Lagoon - Fort Pierce	IRL water quality		27.47560	-80.32660	moored_buoy		unknown	Y	unknown	N	FAU	Academic	FAU		FAU	sea_water_temperature, mass_concentration_of_chlorophyll_in_sea_water, sea_water_electrical_conductivity, sea_water_practical_salinity, direction_of_sea_water_velocity, sea_water_speed, depth, fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, mole_concentration_of_nitrate_in_sea_water, phosphate, turbidity, sea_water_pressure	LOBO system. Information on stations: http://fau.loboviz.com/lobovis/ and http://portal.secoora.org/#metadata/6038/station
SECORA	Birney Dock, Ft. Pierce Inlet		Birney Dock, Ft. Pierce Inlet	FL DEP station 8872-2213		27.46750	-80.30080	fixed		unknown	Y	FL DEP	N	FL DEP	gov_state	FL DEP		FL DEP	sea_water_temperature, sea_surface_height_above_sea_level	http://filley-stevens.com/data/8722213.php
SECORA	SLE-NF		St. Lucie Estuary - North Fork	SLE water quality		27.21000	-80.26920	moored_buoy		unknown	Y	unknown	N	FAU	Academic	FAU		FAU	sea_water_temperature, air_temperature, relative_humidity, wind_speed, wind_from_direction, wind_speed_of_gust, air_pressure, precipitation_increment, mass_concentration_of_chlorophyll_in_sea_water, sea_water_electrical_conductivity, direction_of_sea_water_velocity, sea_water_speed, depth, fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, mole_concentration_of_nitrate_in_sea_water, phosphate, surface_downwelling_photosynthetic_photon_flux_in_air, turbidity, sea_water_practical_salinity, sea_water_pressure	LOBO system. Information on stations: http://fau.loboviz.com/lobovis/ and http://portal.secoora.org/#metadata/6038/station
SECORA	SLE-SF		St. Lucie Estuary - South Fork	SLE water quality		27.18780	-80.26420	moored_buoy		unknown	Y	unknown	N	FAU	Academic	FAU		FAU	sea_water_temperature, air_temperature, relative_humidity, wind_speed, wind_from_direction, wind_speed_of_gust, air_pressure, precipitation_increment, mass_concentration_of_chlorophyll_in_sea_water, sea_water_electrical_conductivity, direction_of_sea_water_velocity, sea_water_speed, depth, fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, mole_concentration_of_nitrate_in_sea_water, phosphate, surface_downwelling_photosynthetic_photon_flux_in_air, turbidity, sea_water_practical_salinity, sea_water_pressure	LOBO system. Information on stations: http://fau.loboviz.com/lobovis/ and http://portal.secoora.org/#metadata/6038/station
SECORA	SLE-MB		St. Lucie Estuary - Middle Estuary	SLE water quality		27.20890	-80.24800	moored_buoy		unknown	Y	unknown	N	FAU	Academic	FAU		FAU	sea_water_temperature, air_temperature, relative_humidity, wind_speed, wind_from_direction, wind_speed_of_gust, air_pressure, precipitation_increment, mass_concentration_of_chlorophyll_in_sea_water, sea_water_electrical_conductivity, direction_of_sea_water_velocity, sea_water_speed, depth, fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, mole_concentration_of_nitrate_in_sea_water, phosphate, surface_downwelling_photosynthetic_photon_flux_in_air, turbidity, sea_water_practical_salinity, sea_water_pressure	LOBO system. Information on stations: http://fau.loboviz.com/lobovis/ and http://portal.secoora.org/#metadata/6037/station
SECORA	IRL-JB		Indian River Lagoon - Jensen Beach	IRL water quality		27.22680	-80.20230	moored_buoy		unknown	Y	unknown	N	FAU	Academic	FAU		FAU	sea_water_temperature, air_temperature, relative_humidity, wind_speed, wind_from_direction, wind_speed_of_gust, air_pressure, precipitation_increment, mass_concentration_of_chlorophyll_in_sea_water, sea_water_electrical_conductivity, direction_of_sea_water_velocity, sea_water_speed, depth, fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, mole_concentration_of_nitrate_in_sea_water, phosphate, surface_downwelling_photosynthetic_photon_flux_in_air, turbidity, sea_water_practical_salinity, sea_water_pressure	LOBO system. Information on stations: http://fau.loboviz.com/lobovis/ and http://portal.secoora.org/#metadata/6037/station
SECORA	IRL-SLE		Indian River Lagoon - St. Lucie Estuary	IRL water quality		27.16490	-80.17180	moored_buoy		unknown	Y	unknown	N	FAU	Academic	FAU		FAU	sea_water_temperature, air_temperature, relative_humidity, wind_speed, wind_from_direction, wind_speed_of_gust, air_pressure, precipitation_increment, mass_concentration_of_chlorophyll_in_sea_water, sea_water_electrical_conductivity, direction_of_sea_water_velocity, sea_water_speed, depth, fractional_saturation_of_oxygen_in_sea_water, mass_concentration_of_oxygen_in_sea_water, mole_concentration_of_nitrate_in_sea_water, phosphate, surface_downwelling_photosynthetic_photon_flux_in_air, turbidity, sea_water_practical_salinity, sea_water_pressure	LOBO system. Information on stations: http://fau.loboviz.com/lobovis/ and http://portal.secoora.org/#metadata/6037/station
SECORA	St. Lucie Inlet		St. Lucie Inlet	FL DEP station 8872-2375		27.16530	-80.16280	fixed		unknown	Y	FL DEP	N	FL DEP	gov_state	FL DEP		FL DEP	air_temperature, sea_water_temperature, wind_from_direction, wind_speed, air_pressure, relative_humidity, two_thickness_of_precipitation_amount, sea_water_electrical_conductivity, sea_water_practical_salinity, sea_surface_height_above_sea_level	
SECORA	Charleston Harbor	No ID at this time	Charleston Harbor	Piling mooring	32.75730	-79.8589	fixed	11/11/2017	Y* (see notes)	SECORA, SCDNR	Yp	SNDNR	gov_state	SCDNR		SCDNR		Sensors are deployed on the piling but data is not being pushed in real time yet. Working with NERRS CDMO and hoperto have the data online by 2018. DO, salinity, conductivity, temperature, depth, pH, turbidity (now) and will be adding chlorophyll and TDOM
SECORA	ILM3		41037	Wrightsville Beach Offshore		33.98770	-77.3617	moored_buoy		6/6/2005	Y	SECORA	Y	UNCW	Academic	UNCW		UNCW	air_pressure, air_temperature, relative_humidity, wind_speed, wind_gust, wind_from_direction, sea_water_practical_salinity (1 m), sea_water_temperature (1 m)	Acoustic receiver deployed on mooring for OTN/ATN.
SECORA	B2		41063	Raleigh Bay		35.78200	-75.961	moored_buoy		4/20/2017	Y	NSF	N	UNC-CH	Academic	UNC-CH		UNC-CH	sea_water_temperature (8m, 11m), sea_water_practical_salinity (8m, 11m), air_temperature, wind_speed, wind_gust, wind_from_direction, air_pressure	This system is part of the NSF PEACH project. This is a short term deployment. Data are available via NDBC, NCCOOS, and SECOORA. For station information: http://nccoos.org/platforms/b2-raleigh-bay
SECORA	192		44095	Oregon Inlet	CDIP mooring	35.79000	-75.33	wave_buoy		4/8/2012	Y	USACE/UNC Coastal Studies Institute	N	UNC Coastal Studies Institute	Academic	UNC Coastal Studies Institute		CDIP	sea_surface_wave_significant_height, sea_surface_wave_period_at_variance_spectral_density_maximum, sea_surface_wave_mean_period_from_variance_spectral_density_first_frequency_moment, sea_surface_wave_from_direction, sea_surface_wave_zero_upcrossing_period, sea_surface_wave_variance_spectral_density_sea_surface_temperature	
SECORA	B1		41062	Hatteras Bay		35.77800	-75.09500	moored_buoy		4/14/2017	Y	NSF	N	UNC-CH	Academic	UNC-CH		UNC-CH	air_temperature, wind_speed, wind_gust, wind_from_direction, air_pressure	This system is part of the NSF PEACH project. This is a short term deployment. Data are available via NDBC, NCCOOS, and SECOORA. For station information: http://nccoos.org/platforms/b1-oregon-inlet/
SECORA	LI11		41064	Onslow Bay Outer		34.2073	-76.9488	moored_buoy		11/14/2015	Y	SECORA	Y	UNCW	Academic	UNCW		UNCW	air_pressure, air_temperature, relative_humidity, wind_speed, wind_gust, wind_from_direction, sea_water_practical_salinity (1 m), sea_water_temperature (1 m)	This moorings in conjuction with LI11I was deployed after station 41036 was removed from service. Acoustic receiver deployed on mooring for OTN/ATN.
SECORA	LI11Inlet					34.2073	-76.9488	wave_buoy		8/1/2015	Y	SECORA, USACE	Yp	UNCW, USACE/CDIP	Academic	UNCW		CDIP	air_pressure, air_temperature, relative_humidity, wind_speed, wind_gust, wind_from_direction, sea_water_practical_salinity (1 m), sea_water_temperature (1 m)	This moorings in conjuction with LI11I was deployed after station 41036 was removed from service.
SECORA	ILM2		41058	Wrightsville Beach Nearshore		34.16450	-77.7183	moored_buoy		6/7/2005	Y	SECORA	Y	UNCW	Academic	UNCW		UNCW	sea_surface_wave_significant_height, sea_surface_wave_period_at_variance_spectral_density_maximum, sea_surface_wave_mean_period_from_variance_spectral_density_first_frequency_moment, sea_surface_wave_from_direction, sea_surface_wave_zero_upcrossing_period, sea_surface_wave_variance_spectral_density_sea_surface_temperature	Acoustic receiver deployed on mooring for OTN/ATN.
SECORA	ILM2Wave					34.16450	-77.7183	wave_buoy		8/1/2008	Y	SECORA	Yp	UNCW	Academic	UNCW		CDIP	air_pressure, air_temperature, relative_humidity, wind_speed, wind_gust, wind_from_direction, sea_water_practical_salinity (1 m), sea_water_temperature (1 m)	
SECORA	SUN2		41024	Sunset Nearshore		33.8373	-78.4768	moored_buoy		6/6/2005	Y	SECORA	Y	UNCW	Academic	UNCW		UNCW	sea_surface_wave_significant_height, sea_surface_wave_period_at_variance_spectral_density_maximum, sea_surface_wave_mean_period_from_variance_spectral_density_first_frequency_moment, sea_surface_wave_from_direction, sea_surface_wave_zero_upcrossing_period, sea_surface_wave_variance_spectral_density_sea_surface_temperature	

SECOORA	SUN2 Wave	SSBN7 Sunset Nearshore Wave	Non-CDIP Wave buoy	33.8373	-78.4768	wave_buoy	3/22/2013	O	SECOORA	Y	UNCW	Academic	UNCW	UNCW	sea_water_to_direction (mult), eastward_sea_water_velocity (mult), northward_sea_water_velocity (mult), sea_surface_wave_significant_height, sea_surface_wave_from_direction, sea_surface_wave_significant_period, sea_water_temperature (10 m) air_pressure_at_sea_level, air_temperature, relative_humidity, wind_speed, wind_gust, wind_from_direction, sea_water_practical_salinity (1 m), sea_water_temperature (1 m)	This station was given a CMAN station number by NDBC in error. They do not want to correct this error as there is a historical record with this station.
SECOORA	CAP2	41029 Capers Nearshore		32.8333	-79.6238	moored_buoy	2/11/2005	Y	SECOORA	Y	UNCW	Academic	UNCW	UNCW		

AOOS Data Management, Products and Services Reporting for December 2018 IOOS Annual Report

Data Management, Products, and Services Section:
DMAC is the framework for RA ingestion, management, and publication of digital data sets. These data sets can be generated by observing system assets, numerical models, or through any other process that results in a value added product. The specific requirements for DMAC participation are described at https://ioos.noaa.gov/data/contribute-data/.

Each section contains specific requirements that, when implemented, provide the standards based foundation for DMAC capabilities. Progress and challenges toward addressing each requirement should be described following the section headings on the web site above.

1. Open Data Sharing
   IOOS, being a part of the Global Earth Observing System of Systems (GEOSS), ascribes to the GEOSS data sharing principles:

GEOSS Data Sharing Principles:

- There will be **full and open exchange** of data, metadata and products shared within GEOSS, recognizing relevant international instruments and national policies and legislation;
- All shared data, metadata and products will be made available with minimum time delay and at minimum cost;
- All shared data, metadata and products being free of charge or no more than cost of reproduction will be encouraged for research and education.

2. Data management planning and coordination
   Data management is an increasingly important aspect of IOOS activities. Data management plans and the coordination of activities between Regions and the IOOS Program Office ensure that data are maintained in easily accessible formats that are archived for long-term storage.
3. Provision of data to the Global Telecommunication System (GTS)
   U.S. IOOS is committed to ensuring that all relevant U.S. coastal ocean observations will be contributed in near real time to the global GTS network.
   - All real-time stations must be assigned a WMO ID.
   - All real-time observations must be submitted to the WMO GTS
4. Data access services
   All IOOS Data Providers must serve all data and products through these DMAC recommended services.

- All data and products must be made available via data access services, and registered in the IOOS Catalog

- For gridded data you must use OPeNDAP and WMS
- For in-situ observations (including point, profile, trajectory, timeseries, or other sampling types) you must use SOS and optionally OPeNDAP
- For tabular data ERDDAP/TableDAP should be used

5. Catalog registration
   The IOOS Catalog is the master inventory of IOOS DMAC datasets and data access services. All DMAC data access services shall be registered in the IOOS Catalog.
6. Common data formats
   U.S. IOOS® data providers are expected to offer data in one or more approved U.S. IOOS® formats .
7. Metadata standards
   All IOOS data providers are expected to ensure relevant metadata is produced, accessible and compliant with IOOS conventions, and to participate as appropriate in the development of such conventions. Descriptive information about datasets, sensors, platforms, models, analysis methods, quality-control procedures is essential for the long-term usability and reuse of information.
   - ISO 19115-2 XML Metadata: Metadata: Part 2: Extensions for Imagery and Gridded Data
   - CS-W: Catalog Service-Web
   - IOOS Metadata Profile for NetCDF
   - NetCDF-CF: Climate and Forecast conventions for NetCDF
   - ACDD: Attribute Conventions for Data Discovery
8. Storage and archiving
   Data providers are expected to provide for storage of data, metadata and other supporting documentation and algorithm descriptions, to establish data recovery mechanisms, and to perform off-site storage of backups until the data and metadata are submitted to NCEI for archiving.
9. Ontologies, vocabularies, common identifiers
   IOOS is presently developing and adopting shared vocabularies for terminology such as names of observed properties, units of measure, coordinate reference systems, animal species, etc.

10. Consideration for Long-term Operations
    The IOOS observing, data management, and modeling capacities being developed will, ideally, persist as the overall enterprise matures. In data management plans, IOOS partners should include a discussion of potential plans for maintaining such persistence as part of normal IOOS operations (e.g., by automating as many activities as possible, implementing operational procedures).

Requirements	AOOS Procedure	Progress	Challenges

Open Data Sharing	The AOOS Data System provides data resources in a one stop data portal, free to the public, with data assets originating from federal and state agencies, local municipalities, academic institutions, research organizations, private companies, non-profit organizations, and community observers.	Status: All data currently served by the AOOS data portal(s) carries with it the permission for public view and access, and carries no privacy or ethical restrictions. Data access is defined here as being permitted to download data through an AOOS data portal. Real-time and near real-time data are served as soon as the data become available. Data assets that come from AOOS funded programs without real-time capability are currently received within 2 years after data recovery, or by the end of the awarded project period (the lesser of both). Sustained AOOS funded assets are now submitted annually through the established AOOS Research Workspace. The AOOS Research Workspace streamlines data submittal, ingestion, and compliant metadata generation. It became operational to AOOS PIs in August 2017. Update 2018: The Research Workspace supports semi-automated pathways to archive final data set	None at this time.

		through the Research Workspace DataONE Member Node. Further, the Research Workspace is in a testing environment for archive submission to the NCEI national data repository, which should be operational in early 2018.	
Data management planning and coordination	The Alaska Ocean Observing System Data Assembly Center and Data Management Subsystem Plan (referred to as the Data Plan) provides the approach to the necessary implementation, describing how data are ingested, managed and distributed from the source to public dissemination. The primary processes involved with data management and flow include data ingestion, standards and format, metadata and discovery, quality control, stewardship and preservation, access and dissemination, archival and security. All non-federal AOOS data assets (referred to as Data Streams) are fully documented for data management in individual Data Stream Plans. These Data Stream Plans are maintained as an Appendix G to the larger AOOS Data Plan New non-federal additions to the regional observational data asset inventory will have a Data Stream plan developed prior to serving of data. In 2017, AOOS and AXIOM developed a guidance document - Data Policies and Procedures – to inform the AOOS/Axiom Data Science (the AOOS	AOOS officially became RICE certified by NOAA in summer 2017. As part of this process, an AOOS data plan was completed (September 2016) and will be updated routinely (minimum 5 years) as needed to meet new requirements from the IOOS DMAC. The AOOS Data Plan and all related certification documentation are available at the link below. http://www.aoos.org/data-management-advisory-committee/ A Data Policies and Procedures document to guide AOOS PIs on data and metadata submittal expectionasis now included in new Statements of Work on all AOOS funded projects. Update 2018: AOOS completed an external Data System Review November 27-30 2017, which included but was not limited to	None at this time.

	data management team) roles and responsibilities. This document also provides a guide/pathway for AOOS funded PIs regarding data submission protocols and procedures.	evaluation of AOOS data portals and functionality, system usability, documentation of operations, business models, and strengths and weaknesses. A report was prepared that provides recommendations for planning the next 10-years of AOOS Data System operations.	
Provision of Data to GTS	A primary goal of the AOOS Data Plan is to deliver real-time, delayed-mode and historical data for in-situ and remotely-sensed physical, chemical and biological observations. The AOOS data inventories (Appendices B, C, and E of the Data Plan) list the multiple types of data, including real-time data and near real-time data (as well as historical and citizen science data) served by AOOS. AOOS defines real-time data consistent manner with IOOS RICE Guidelines: 1. *Real-time data* are ingested, served, and displayed by the AOOS Data System at the same frequency the data are collected (and sometimes reported) by the originator with little to no delay. Examples of real-time assets include weather stations, oceanographic buoys, and webcams. 2. *Near real-time data* are ingested by the AOOS Data System at the same frequency that the data are made available; however, there is some delay (hours to days) between data collection and when the data provider makes it available. Examples of near real-time assets include	Most real-time data assets served by AOOS are federally operated and are already meeting required data management standards. Update 2018: AOOS owned assets include two real-time reporting wave buoys. The Lower Cook Inlet wave buoy data are received, processed and served through the CDIP program (WMO # 46108). The Port of Nome wave and current buoy data are also received, processed and served thorugh the CDIP program (WMO # 46265). Nome is a new asset in 2018. Both data streams are also available through the CDIP and AOOS websites. The Marine Exchange of Alaska also transmitted both wave and current observations through the AIS for the Nome wave buoy. Update 2018: An additional real-time buoy, the Ice Detection Buoy (IDB), funded by the NWS, was deployed in the Chukchi Sea in August 2017.	Some real-time assets are privately owned and are not currently reporting through the GTS. AOOS staff will continue to work towards making these assets available to the GTS, which requires finding the resource contact person/company on the deployed assets, and also getting the metadata information required for reporting data according to RICE certification requirements. Real-time data sources that cannot be certified will be blocked from the real-time sensor map until remedied. Once remedied, AOOS will work on gaining a WMO for the real-time observation (if relevant, most of our

	satellite images and derived satellite products.	Unlike the first OTT funded prototype, this 2nd buoy was reporting data to the GTS for most of its real-time reporting life. The data from the 2nd ice detection buoy was on the GTS under WMO ID 4801730 through mid-November 2017, after which the surface float broke free due to ice, and the subsurface instruments stopped reporting data. Data were being used by NOAA NWS ice forecast modelers to demonstrate the buoy utility in forecasting capacity. This buoy continued to record data over winter, but not in real-time, and was recovered in 2018. In 2018, a new IDB was deployed, but stopped reporting data after a day due to ice damage to the buoy and antenna. This buoy was safely recovered for repair and hopefully will be deployed in 2019. The King Island Wave Buoy, was served through through the AOOS data portal and NDBC (WMO Station 48114). Data are shared in the AOOS portals with descriptive narratives describing the data and linking back to the NDBC website where FGDC-compliant metadata are available. UPDATE 2018: This asset is no	stations are land-based, and do not qualify for WMO status. Update 2018: As of December 2018, the National IOOS Office is working in collaboration with NDBC to setup data ingestion from IOOS RAs through standardized ERDDAP instances. If this happens it could take much of the pain in submitting data to NDBC out of the process.

		longer active and has been discontinued due to expense of operation and availability of OnM resources to keep it operational. AOOS opted to collaborate with CDIP to have a wave/current buoy deployed off the Port of Nome as a higher priority asset for this region – CDIP Waves and currents, WMO 46265. Other assets served by AOOS that are not federally sourced fall outside this provision, (e.g., are land-based or considered citizen science). There is also a limit to the age of data that can be pushed to the GTS (about 6 hours or so). WMO IDs are not assigned to "delayed-mode only" moorings because of the GTS limit.	
Data Access Services • All data and products must be made available via data access services, and registered in the IOOS Catalog • For gridded data you must use OPeNDAP and WMS	All data and products are registered in the IOOS Catalog. AOOS offers six access points: 1. *Thematic Realtime Environmental Distributed Data Services (THREDDS)* AOOS provides THREDDS access points for raster (gridded) data stored in NetCDF format. THREDDS 4.6.10 2. *Open-source Project for a Network Data Access Protocol (OPeNDAP)* - AOOS provides OPeNDAP access points for raster (gridded) and time-series data. 3. Web Map Service (WMS) - AOOS provides WMS access points for point, vector, and	Any data served by the AOOS portal carries with it the permission to view and access, and carries no privacy or ethical restrictions. Data access is defined here as being permitted to download data through an AOOS data portal. The IOOS Data Catalog is being updated at the time of this report. AOOS Data Managers are involved and aware of updated catalog.	Update 2018: Challenges- Large datasets and heavy usage can strain data access servers and negatively impact user experiences. Axiom and AOOS are continually tuning and enhancing data service software and developing deployment techniques to maximize performance and stability of these services. As new data types and variables

• For in-situ observations (including point, profile, trajectory, timeseries, or other sampling types) you must use SOS and optionally OPeNDAP • For tabular data ERDDAP/Table DAP should be used	polygon information, as well raster (gridded) data. 4. Web Feature Service (WFS) - AOOS provides WFS access points for point, vector, and polygon information, as well as time-series and raster (gridded) data. 5. Environmental Research Division's Data Access Program (ERDDAP) - AOOS primarily uses this service to facilitate device-level downloads (e.g., tabular data). ERDDAP 1.84 - http://erddap.aoos.org/ 6. File Downloads - AOOS often provides data as downloadable files. These files are mostly served in the standard shared data file formats above, or in the case of project-specific data, in their native file formats.		come on-line, routine coordination between Axiom, AOOS, and IOOS will be required to make them available.
IOOS Catalogue Registrations	All data and products are registered in the IOOS Catalog. AOOS maintains a WAF (https://thredds.aoos.org/iso), which is harvested by the IOOS Catalog.	Compliant and up to date.	None at this time
Common Data Formats	AOOS provides nearly all data in four open, standardized forms: 1. *Network Common Data Form (NetCDF)* - a self-describing, machine-independent data format that AOOS uses primarily for raster (gridded) data. Some data stored as unstructured grids use this format as well. 2. *Comma Separated Values (CSV)* - a human-readable ASCII format that is nearly universally accepted by spreadsheet and programming languages. AOOS uses CSV formats to allow users to download (1)	AOOS offers data in IOOS compliant formats through the use of ncSOS, THREDDS and ERDDAP.	None at this time

	time-series extractions from raster data, and (2) GIS vector and polygon information (e.g., boundaries). 3. *Shapefile* - an open geographic information system format for point, vector, and polygon data. AOOS allows users to download shapefiles of static GIS layers such as boundaries, biologic distributions, etc. 4. *Portable Network Graphics (PNG)* - PNG is a lossless, image format provided as an alternative to shapefiles in the AOOS catalog. PNGs are limited in use as they are pre-projected, pre-scaled, and pre-sized images of data layers. However, AOOS provides PNG files as example WMS requests, which are useful to users who cannot access GIS services and who do not understand how to manipulate WMS requests.		
Metadata standards • ISO 19115-2 XML Metadata: Metadata: Part 2: Extensions for Imagery and Gridded Data • CS-W: Catalog Service-Web • IOOS Metadata Profile for	AOOS requires standards-compliant metadata for project-level data (AOOS or IOOS-funded projects). Though AOOS does not require specific metadata standards for ingesting other types of data, most modern data submittals are accompanied by standard ISO/FGDC metadata records. Details and availability of metadata are discussed in individual AOOS Regional Data Stream Plans.	The AOOS web-based data management application, named the Research Workspace ('Workspace'), is used to assemble, store, and share data by researchers or AOOS partners. There,approximately 500 users have uploaded over 20 terabytes of data spread across nearly 1 million files using this system. The Workspace provides users with an intuitive, web-based interface that	AOOS continues to work on data discovery in order to provide quality sourced metadata in the data catalog in addition to the links already leading to source metadata. Current and future data ingestion efforts make use of a metadata editor in the AOOS Workspace to

NetCDF • NetCDF-CF: Climate and Forecast conventions for NetCDF • ACDD: Attribute Conventions for Data Discovery		allows scientists to create *projects* to represent particular scientific studies or focuses of research within a larger effort. Standard, discovery-level ISO 19115-2 and 19115-10 compliant metadata can be generated for both projects and individual datasets. Many historical datasets come with informal metadata documentation that is variable in terms of completion and detail required by modern standards. Some data sets are only accompanied with narrative information. In these cases, AOOS works to make the source information easily accessible to the end-user by providing links to source data or data providers, and by making all available metadata information that came with the data available in the data catalogue.	streamline this process and ensure standards-compliant metadata are uploaded with the data. Historical data sets continue to provide occasional difficulties in terms of metadata generation. AOOS will continue to do the best possible to make these valuable data resources available with as much documentation as possible. In some cases, we are able to find data reports that go with these datasets, and can have them scanned and uploaded to the workspace where we can access more metatdata information.
Storage and Archiving	AOOS stores ingested data in a secure, professionally managed external facility and currently has total storage space for over 1.8 petabytes of data. Those resources are geo-replicated between Portland, Oregon and Providence, Rhode Island. Local data storage in Anchorage is limited to temporary files only that are checked in to the main servers on a sub-daily basis.	AOOS serves many datasets that already have archival mechanisms in place, including CDIP wave buoy data, real-time sensor streams from federal sources (e.g., NSF Circum-Arctic Lakes Observing Network, NOAA CO-OPS, NOAA NDBC, NOAA PMEL, USGS NWIS, etc.), and marine mammal telemetry data	NCEI still does not accept all AOOS data assets served.AOOS continues to make future interest in these data accessible to NCEI and with the required formats to meet NCEI archival requirements.

	AOOS stores all aggregated data indefinitely beyond the life of each individual project. Real-time sensor feeds will become historical sensor feeds one-month after collection. The only assets that are not kept indefinitely in storage are webcam images. As a federally funded program, AOOS is required to submit data it generates to a national archive center. AOOS is working with the National Centers for Environmental Information (NCEI) to assist with the archival of appropriate data types accepted by NCEI. AOOS maintains an NCEI archive WAF at https://ncei.axiomdatascience.com/aoos/ The bulk of the data assets managed by AOOS are non-real-time, nonfederal assets, sometimes from small data originators (e.g., weather reported by a ski resort), and often from distinct research projects or large, integrated ecological research programs. These data may not fall under the purview of the NCEI. Accordingly, AOOS plans to archive these data in the DataONE network.	from the BOEM-funded MARES program. The AOOS Data System became a DataONE Tier 3 Generic Member Node (GMN) and is attached to an updated version of the Research Workspace launched in 2017. This Tier 3 Member Node will serve as the primary archive for AOOS-managed data assets that NCEI does not accept.	AOOS will continue to work with NCEI to identify the relevant data streams of interest for long-term archival within NCEI and will make those data available.
Ontologies, vocabulary, and identifiers	The AOOS data system is divided into four logical tiers. *Tier 3 (Asset Catalogue)* includes an Asset Catalogue, which provides (1) ontological metadata and (2) connections to externally-hosted data via web services. The ontological metadata in the catalogue describes the characteristics including geographic locations, spatial and temporal resolution, units, source location and CF parameter, taxonomy, date of last update, etc. of each data	Data processed through the AOOS data portals have been transformed to adhere to the following CF (Climate and Forecast) conventions. These conventions are designed to promote the processing and sharing of files created with the NetCDF API. The CF conventions are increasingly gaining acceptance and have been adopted by	I am finding some parameters have no related name on the CF Standards table, or had the incorrect (non-CF standard) name related to the variable on our RA Asset Inventory list. AOOS and Axiom staff

	resource. Storing the metadata outside of the files themselves is critical to providing a responsive, up-to-date public-facing catalog. It also allows AOOS to optimize data discovery tools such as advanced searching by parameter or geographic location and build tools such as on-the-fly unit conversions for gridded datasets. External web services in *Tier 3* provide the catalogue access to external (web-based) sources of information. This is commonly used to display data and basemaps from reliable data providers so data do not have to be stored and maintained by AOOS. CF Standards are provided in Appendix I of the AOOS Data Plan. http://www.aoos.org/data-management-advisory-committee/	a number of projects and groups as a primary standard. The conventions define metadata that provide a definitive description of what the data in each variable represent, and the spatial and temporal properties of the data. Update 2018: CF Standards used by AOOS most often are provided in Appendix I of the recently revised AOOS Data Plan, available at: http://www.aoos.org/data-management-advisory-committee/ During this reporting period, AOOS noticed the CF Standards appendix table needs to be updated to include more variables. We plan to update the table for the Data Management Plan over the next few months while cross-checking all parameter names, and will provide an updated link to this appendix in May 2019. We also are reviewing our CF standard useage on the RA Asset Inventory and cross checking with variable CF references within the Ocean Data Explorer data portal. Errors thus far have not been in the data portal, rather are on our asset inventory lists (entry error).	will update this list, and work to make sure all variables are consistent with CF standards where possible, and will seek guidance from IOOS office where we have questions. We will update our Appendix I to our data plan during this process. I would like IOOS to ensure that the RAS are reporting data for salinity as Practical Salinity (PSS-78), and not Absolute Salinity. We stress that the correct variable for archival representing salinity should be stored as Practical Salinity using PSS-78. The temperature standard for data archival is ITS-90. However, IPTS-68 is used with electrical conductivity to compute using PSS-78 to compute salinity. So It is best if all the raw variables used to compute salinity are also archived, in case someone makes an error in this calculation (it

			is not uncommon, even in our oceanographic institutitions). So, it should be clear what temperature standard people are using in the CF standard. I am reviewing the CF definitions to be sure this is clear, but I constantly am educating people on this subject. Absolute Salinity is a correction to the Practical salinity error caused by non-conducting ions in the water. HOWEVER, this correction is incomplete and will change with time as more total fractional solids data are available to improve the correction regionally. Therefore, we are to archive PSS-78 salinity, and that allows future generations to compute Absolute salinity with the latest corrections. It might be good to check on this (Derrick).

Consideration for long-term operations Potential plans for maintaining persistence of IOOS observing assets (e.g., automating as many activities as possible; implementing operational procedures).	The AOOS Data System hosts several integrated data management tools to ease data access, storage, and sharing by its users including the Research Workspace and its metadata editor, and the AOOS Ocean Data Explorer, the statewide data portals. The AOOS web-based data management application, named the Research Workspace ('Workspace'), is used to assemble, store, and share data by researchers or AOOS partners. The Workspace includes an integrated metadata editor to support the documentation of data and facilitate its accuracy and reuse. Content collected in the Research Workspace metadata editor uses fields from the ISO 19115 suite of standards for geospatial metadata, which is the FGDC endorsed successor to the CSDGM, extended to describe taxonomic classification for biological datasets. Standard, discovery-level ISO 19115-2 compliant metadata can be generated for both projects and individual datasets.	The AOOS Data Plan was completed in September 2016 and will be updated routinely as needed to meet new requirements from the IOOS DMAC. Standard Operations Protocols or Roles and Responsibilities documentation for AOOS owned assets are helping with OnM activities and budget planning. (example: Port of Nome CDIP Wave buoy involves cooperative efforts with Port of Nome, AOOS, CDIP, and Marine Exchange of Alaska). AOOS currently applies three standard and automated QC procedures to real-time and historical observation data before it is stored in the AOOS Data System. These tests include the following: 1. *Syntax Test:* If no data can be extracted, the test fails, and no data are accessed, served or stored for that record. 2. *Gross Range Test:* Values outside of the prescribed parameter ranges are rejected and replaced with missing value flags in data storage connected to access points and the graphic displays. 3. *Time-Gap Check:* If no data are received from an existing	AOOS's data management contractor, Axiom Data Science, has made significant progress redesigning the back end AOOS data system to implement and support QARTOD checks for real-time data. Prototype of visible QARTOD flags in the portal for data provider flags are currently available in v 2.9 of the Ocean Data Explorer. Early development of QARTOD testing and flag display for all real-time sensors is underway and expected to be available in May 2019. The AOOS Glider data provider is also working on QARTOD implementation, and is finding that some tests are flagging good data. They are working on fine tuning the tests and limits. This takes time. The glider data is particularly difficult to use QARTOD standard TS corrections on, especially on unpumped

		observational station for four hours, the icon on the map changes from a scaled color to a small grey-shade dot. AOOS QC syntax and gross range tests meet Quality Assurance of Real-Time Oceanographic Data (QARTOD) protocol requirements for IOOS data. AOOS will continue to implement the necessary QARTOD tests where required. The AOOS Data Management Team has actively been working with developers at NCEI on automating the submission of AOOS-owned data assets and AOOS-managed non-federal real-time assets to the archive. NCEI will advise AOOS exactly what data assets they will accept and will supply information on the data submission forms and all necessary procedures moving forward.	CTD data due to salinity spiking caused by a mis-match in T C sensor response and sample volume. Implementing QARTOD takes resources, which were not factored into any of the regional budgets. The current trend is to continue to increase QARTOD manual generation without a clear understanding of how the current QARTOD implementations are coming along and how well they are performing. In 2016 and again in 2017, we suggested that IOOS assess the current implementation of QARTOD for the existing manuals to ensure that these manuals are providing the correct level of guidance for implementing appropriate QC at the regional level prior to continued development of more complicated parameter

			manuals. NCEI does not have an interest in receiving all of the AOOS data. AOOS has found an alternative in DataONE, which is not a federal archive, but provides some long-term data access alternative. This will allow NCEI access to any data they want from AOOS, at any time they want it or are ready to receive it. Axiom is currently in a testing environment for an automated archive pathway from the Research Workspace to NCEI for data sets that they do have interest in preserving in their archive. Lack of adequate O&M support has put long-term assets at risk of being removed indefinitely The AOOS region has seen one HFR removed, and no longer supports the King Island Wave Buoy in the

			Bering Strait due to costs associated with O&M. Furthermore, many of the regional asset sensors are now reaching end of life, which will require replacement. This is especially true for HFR on the slope. Not all of the AOOS regional assets maybe capable of sending data to the GTS. If this cannot be met, does it really serve our region to disable access to these data? We think not, as long as the data are flagged accordingly or considered citizen science. PACIOOS had similar issues, and finally stopped showing data in such cases under pressure from IOOS during certification. If the region does it's best to get data available to the GTS, but is unsuccessful, then what can the region do?

HFR Operations and Maintenance Expenditures - AOOS 2018							
Operator/Principal Investigator	**Field Engineer/Techician Salary including fringe benefits & overhead***	**O&M Oversight (PI or O&M manager) salary including fringe benefits & overhead***	**Travel***	**Supply and equipment expenses, fees: computer equipment, air conditioners, generators, enclosures, antenna whips, test/calibration/repair tools, cables, services, electrical power, rentals, data communications/networking**	**# of radars**	**# of FTE**	**# of students (FTE)**
University of Alaska/Seth Danielson	$98,402	$10,857	$10,535	$51,206	3	0.458	0
	*state indirect cost rate(s) = 50.5%	*state indirect cost rate(s) = 50.5%	*state indirect cost rate(s) = 50.5%				
				Note: Shell Oil paid for $15,000 of this used towards services			

*state indirect cost rate(s)

92% O&M covered by IOOS
8% O&M covered by Shell Oil

2018 Template for reporting HF Radar expenditures - AOOS

Staff Member	**(% FTE or #person-months)**
Principal Investigator: Seth Danielson	1 person/0.5 months/year
Technicians: Rachel Potter, Hank Statscewich	2 people/2.5 months each/year = 5 months/year total technician time
Students: Used intermittently for field work, costs are absorbed into the above technician salary	

Total # of Radars Supported: 3 2018 Funding Sources: AOOS/IOOS (92%) and Shell Oil (8%)
Names, locations (lat,lon), locations (city, state), Transmit Frequency, Operating Institution for each radar: SIMP - 71.0586°N, 154.75056°W - Cape Simpson, AK - 4.55 MHz - University of Alaska Fairbanks (UAF) PBRW - 71.3784°N, 156.4801°W - Point Barrow, AK - 4.75 MHz - University of Alaska Fairbanks (UAF) WAIN - 70.6434°N, 160.0271°W - Wainwright, AK - 4.80 MHz - University of Alaska Fairbanks (UAF)