

Supplementing data with the Alaska Ocean Observing System (AOOS)

Seascape Genomics of North Pacific Forage Fishes RCN Group

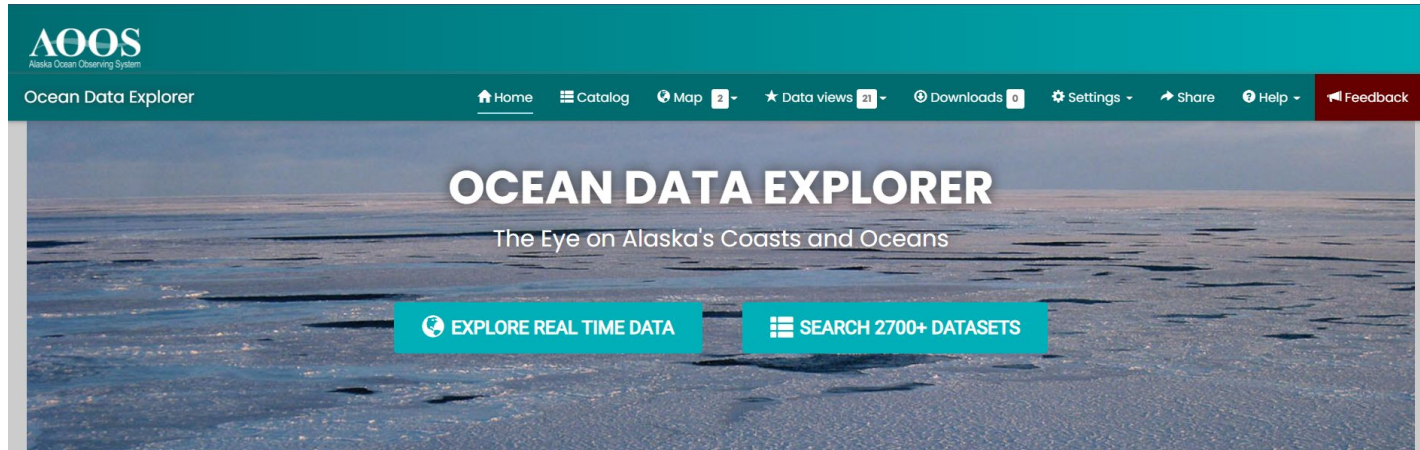
LaBua S, Rix A, Timm LE, Tucker N & J Glass (order is not set)

Data you have in hand

- Collection site coordinates are preferred, general localities are usable
- Collection dates are preferred, seasons are usable
- Depth is optional

How to supplement salinity data

Navigate to the AOOS web page (<https://portal.aaos.org/#>)



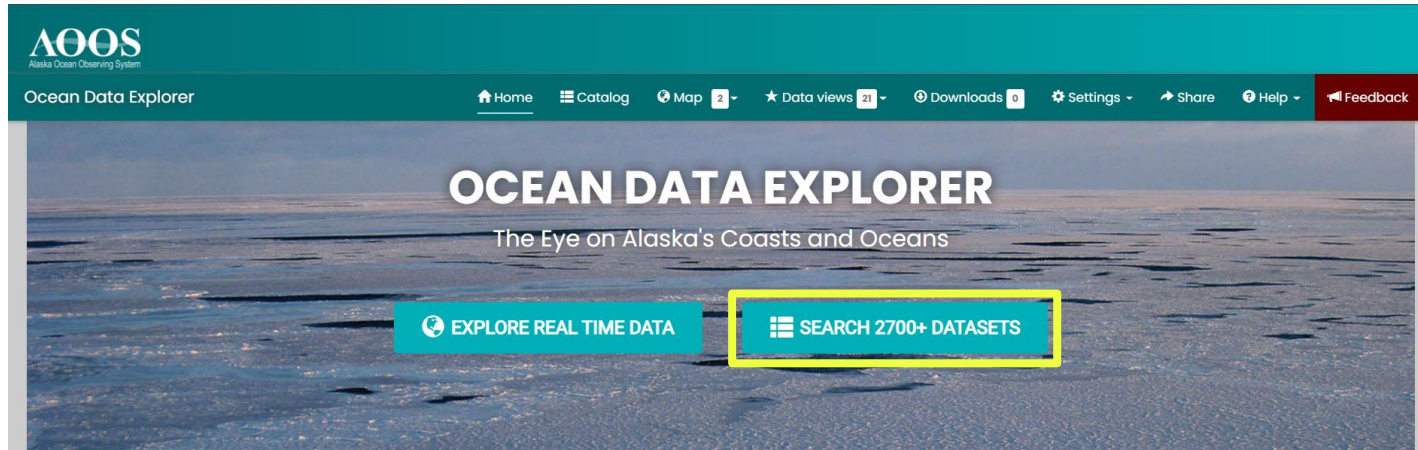
This portal contains scientific and management information including real-time sensor feeds, operational oceanographic and atmospheric models, satellite observations and GIS data sets that describe the biological, chemical and physical characteristics of Alaska and its surrounding waters. This map offers many new updated features that build upon the existing data system, including:

- Data comparison and charting functions
- Featured data views
- Advanced charting features, including climatologies and anomalies
- Station and source level metadata pages
- Shareable custom data views



How to supplement salinity data

Select “Search 2700+ Datasets”



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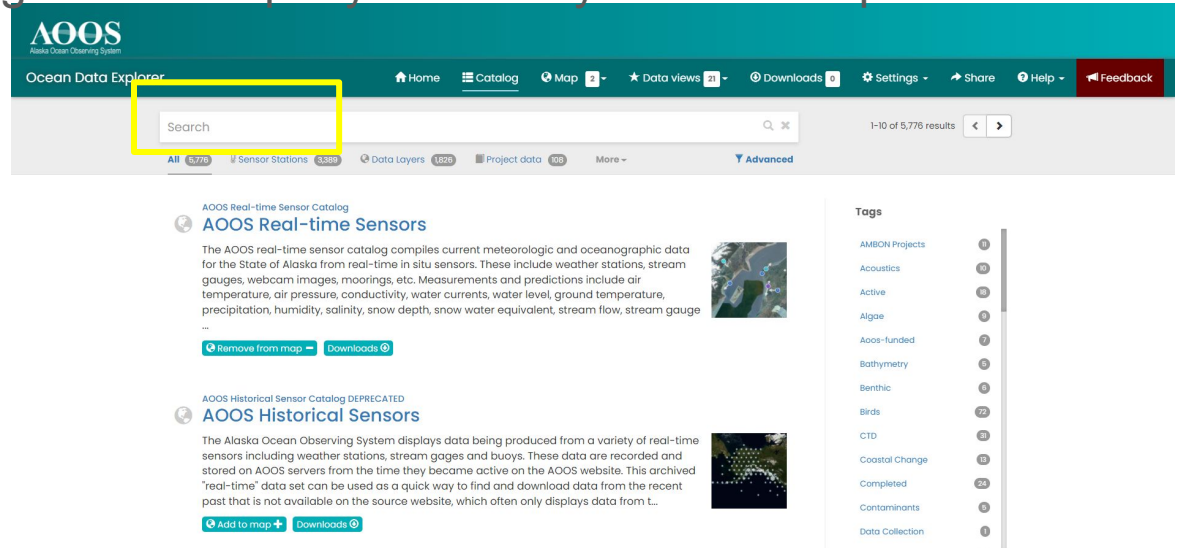
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How to supplement salinity data

A new page will show up asking you what kind of database you wish to search for. You can either scroll until you find the environmental parameters you need or use the *search* bar to identify what kind of databases exist that include those parameters. We are going to build a query for salinity as an example.

Other Searchable Variables that are available include, but not limited to: bathymetry, biota distributions (fish, birds, and some mammals), pH, sea ice, and dissolved oxygen.



The screenshot shows the AOOS (Alaska Ocean Observing System) Ocean Data Explorer interface. The top navigation bar includes links for Home, Catalog, Map, Data views, Downloads, Settings, Share, Help, and Feedback. A search bar is prominently displayed and highlighted with a yellow box. Below the search bar, there are filters for 'All' (5,776), 'Sensor Stations' (3,389), 'Data Layers' (1,826), and 'Project data' (109). The main content area features two sections: 'AOOS Real-time Sensor Catalog' and 'AOOS Historical Sensors Catalog DEPRECATED'. The 'Real-time' section describes the catalog's contents, including weather stations, stream gauges, and webcams, and lists measurable parameters like air temperature, air pressure, conductivity, water currents, water level, ground temperature, precipitation, humidity, salinity, snow depth, and stream flow. It includes a 'Remove from map' button and a 'Downloads' button. The 'Historical' section describes archived real-time data and includes an 'Add to map' button and a 'Downloads' button. On the right side, there is a 'Tags' section with a list of categories and their corresponding counts, such as 'AMBON Projects' (1), 'Acoustics' (10), 'Active' (10), 'Algae' (9), 'Aoo-funded' (7), 'Bathymetry' (9), 'Benthic' (4), 'Birds' (72), 'CTD' (18), 'Coastal Change' (15), 'Completed' (24), 'Contaminants' (9), and 'Data Collection' (1).

How to supplement salinity data

There are 531 databases which include salinity. Each database provides a year range for which data are collected for. In this case, we chose HYCOM, as it has high spatial resolution and covers the same time-range as our data.



HYCOM West Coast US Forecast (1/12°)

Aug 18, 2015 20:00 (EDT) to Oct 23, 2018 20:00 (EDT)

resolution to satellite based SST and salinity values (1/12° resolution, or ~7 km spacing on average), and provides results in 32 vertical layers ... Forecasts of salinity, sea water temperature, and sea water velocity from the Global HYbrid Coordinate Ocean Model (**HYCOM**). **HYCOM** provides comparable Surface forcing is from NOGAPS. More information is available from the **HYCOM** project at <http://hycom.org/hycom/overview>. Duke University provides an accessible summary of **HYCOM** here: <http://code.env.duke.edu/projects/mget/wiki/HYCOM>.



Layers 4

Downloads

How to supplement salinity data

You will need to add your variable (in this case, salinity) to the map. You just need to see select the link “add to map” and it will show up on the menu bar in the “Map” link at the top of the page. Once you have added it, click on the “Map” button.

The screenshot displays the Hycom data interface. At the top, a teal navigation bar contains links: Home, Catalog, Map (highlighted with a yellow box and a dropdown arrow), Data views (21), Downloads (0), Settings, Share, Help, and Feedback. Below this is a grey bar with filters: All (5,776), Sensor Stations (3,389), Data Layers (1,828), Project data (108), Moving platforms (231), Variable Types (109), and Affiliates (13). The main content area shows a 'Layers' section with a dropdown arrow. Underneath, a section titled 'Salinity, Surface and Subsurface' contains a table with metadata:

Metadata URL:	http://hycom.org/hycom/overview
Time span:	Aug 18, 2015 20:00 (EDT) - Oct 23, 2018 20:00 (EDT)
Temporal resolution:	24 hrs
Extent:	32.0285°,-195.6799° x 89.9082°,-105.9337°
Spatial Resolution:	1/12° x 1/12°

Below the table, a search bar shows 'Models and Forecasts' and 'Data Provider: Center for Ocean-Atmospheric Prediction Studies (COAPS)'. At the bottom, a yellow box highlights the 'Add to map +' button, with 'Virtual sensor' and 'Downloads' buttons next to it.

How to supplement salinity data

While dragging your cursor across the area of investigation, you will see the coordinates pop up along with the variable you are investigating. You can find your values this way. You can also change the date the data were collected by sliding the bar at the bottom of the interface. Finally, you can add other variables by using the “Find Data” option on the tool-bar to the right of the page.

The screenshot shows the AODS Ocean Data Explorer interface. The main map displays a global view with a color-coded salinity overlay in the North Atlantic. The interface includes a top navigation bar with links to Home, Catalog, Map, Data views, Downloads, Settings, Share, Help, and Feedback. A left sidebar contains map controls like zoom, pan, and layers. A right sidebar shows the 'Find Data' search bar and a legend for the selected variable, 'Salinity, Surface and Subsurface'. Below the legend, there is a color scale for salinity (PSS) ranging from 30.190 to 37.430, and a 'Selected Depth (m)' dropdown menu set to 0. At the bottom, a 'Time' slider allows users to adjust the date of the data, with a range from August 18, 2015, to October 23, 2018.

Coordinates

Adjust Date

Add Variable (i.e. temp, pH, etc.)

Adjust Depth

Caveats

Just because you cannot find data for a set of coordinates within some date range does not mean similar data does not exist.

“Filling in” data in this way can be useful and informative, but always remember this process inherently introduces error. Keep this in mind when interpreting results.

If you try this guide, let us know!