



NANOOS

NORTHWEST ASSOCIATION OF NETWORKED OCEAN OBSERVING SYSTEMS



Shellfish Growers

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NANOOS Workshop, OCCO July 13, 2017



Shellfish Growers



Apps Disclaimer Settings Log In

v3.6 Contact NANOOS

NANOOS VISUALIZATION SYSTEM

Powered by Vizer



Data Explorer



Tsunami Evacuation Zones



Boaters



Tuna Fishers



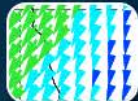
Shellfish Growers



Beach and Shoreline Changes



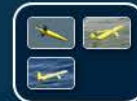
Maritime Operations



High Frequency Radar



Cruises



Gliders



Help

ADDITIONS & UPDATES

[View Last 3 Months](#)



KC PTWILLIAMS

New SUNA nitrate sensor deployed in early May 2014, now harvesting into NVS.

Updated on 12 Jun 2014



KC YCQMHO1

Monitoring site was restored to service around May 21, 2014.

Updated on 12 Jun 2014



STTI Port Susan

Sensors started malfunctioning around June 2, 2014. The buoy will be serviced the week of June 17, and sensors redeployed soon after unless additional servicing is required.



Seattle Aquarium

CO2 sensor has been offline since around May 22, 2014. A service visit is expected for the week of June 17, if possible.

Updated on 12 Jun 2014



APL-UW Chá?ba

Buoy was recovered for maintenance in early May. Redeployment is scheduled for June 23, 2014.



EC 46206

Service and data transmission restored since approx. May 2, 2014.

Updated on 6 Jun 2014



NVS SHELLFISH GROWERS

Map

About

Reference

Help

Map

Lat: 46.629

Lon: -123.9516

Timeline

Regions

Fixed Platforms

Remote Sensing

Forecasts

Plots

Legend



Google



19 June 2014 5:15 pm PDT

Map data ©2014 G

- Map
- Timeline
- Regions
- Fixed Platforms
- Remote Sensing
- Forecasts
- Plots
- Legend

Lat: 50.4631 Lon: -119.7949

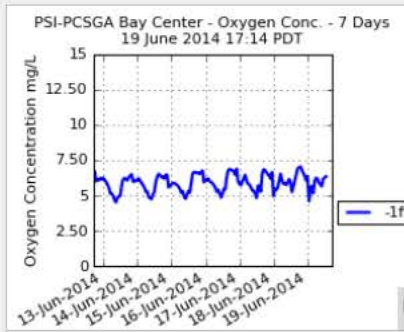


PCSGA - Bay Center Port mooring, Willapa Bay

Observations Details History Credits

Provider: PSI

Data Updated: 19 Jun 2014 13:01 PDT



Oxygen Conc. (-1ft):	6.3 mg/L
Oxygen Pct. Sat. (-1ft):	77.8 %
pH (-1ft):	7.9
Salinity (-1ft):	24.2 PSU
Water Temp. (-1ft):	64.8 °F

24 Hours 7 Days 30 Days 60 Days

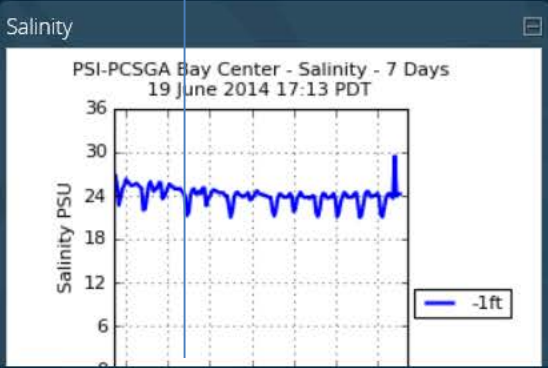
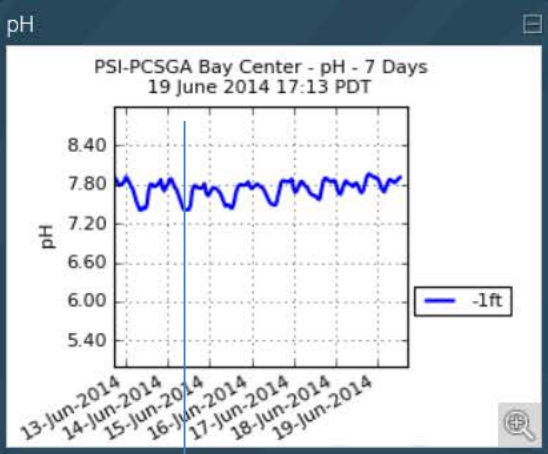


- Map
- Timeline
- Regions
- Fixed Platforms
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- Legend

Plots

Lat: 50.4631 Lon: -119.7949

Oxygen Percent Sat.

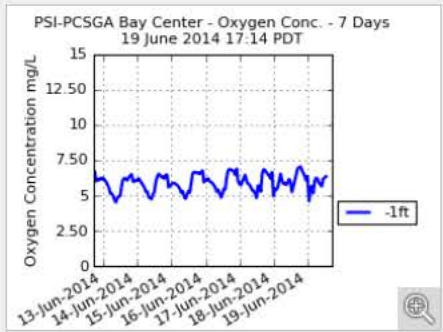


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Salinity (-1ft):	24.2 PSU
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24 Hours 7 Days 30 Days 60 Days



Lat: 45.5525 Lon: -120.1025

Terrain

- Regions
- Current Conditions
- Fixed Platforms
- Remote Sensing
- Forecasts
- Plots
- Legend



PCSGA - Whiskey Creek Shellfish Hatchery, Netarts Bay

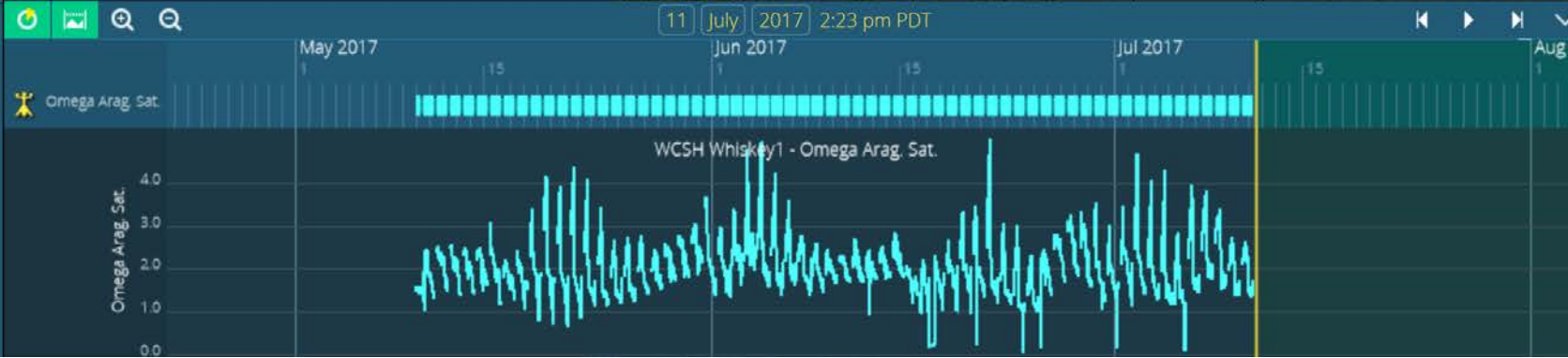
Observations Forecasts Comparator Details History Credits

Data Updated: 11 Jul 2017 9:45 PDT Provider: WhiskeyCr

HYDROGRAPHIC

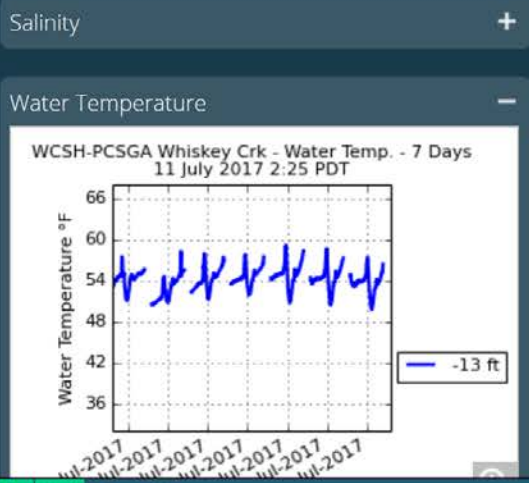
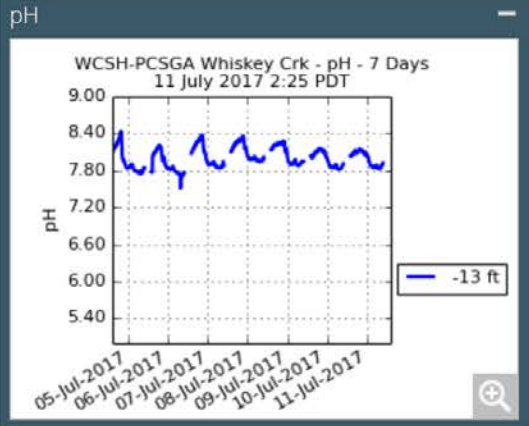
Alkalinity (total) (-13 ft)	2,309.5 $\mu\text{mol/kg}$	<a>Download <a>Refresh
CO2 Water (-13 ft)	559.1 μatm	<a>Download <a>Refresh
TCO2 (-13 ft)	2,065.6 $\mu\text{mol/kg}$	<a>Download <a>Refresh
Omega Arag. Sat. (-13 ft)	1.7	<a>Download <a>Refresh
pH (-13 ft)	7.9	<a>Download <a>Refresh
Salinity (-13 ft)	33.5 PSU	<a>Download <a>Refresh
Water Temperature (-13 ft)	56.3 $^{\circ}\text{F}$	<a>Download <a>Refresh

Link



Plots Lat: 42.0656 Lon: -122.0361 Terrain

- Regions
- Current Conditions
- Fixed Platforms
- Remote Sensing
- Forecasts
- Plots**
- Legend



PCSGA - Whiskey Creek Shellfish Hatchery, Netarts Bay

Observations Forecasts Comparator Details History Credits

Data Updated: 11 Jul 2017 9:45 PDT Provider: WhiskeyCrShell

HYDROGRAPHIC

Alkalinity (total) (-13 ft)	2,309.5 $\mu\text{mol/kg}$	Download	Refresh
CO2 Water (-13 ft)	559.1 μatm	Download	Refresh
TCO2 (-13 ft)	2,065.6 $\mu\text{mol/kg}$	Download	Refresh
Omega Arag. Sat. (-13 ft)	1.7	Download	Refresh
pH (-13 ft)	7.9	Download	Refresh
Salinity (-13 ft)	33.5 PSU	Download	Refresh
Water Temperature (-13 ft)	56.3 $^{\circ}\text{F}$	Download	Refresh

Link

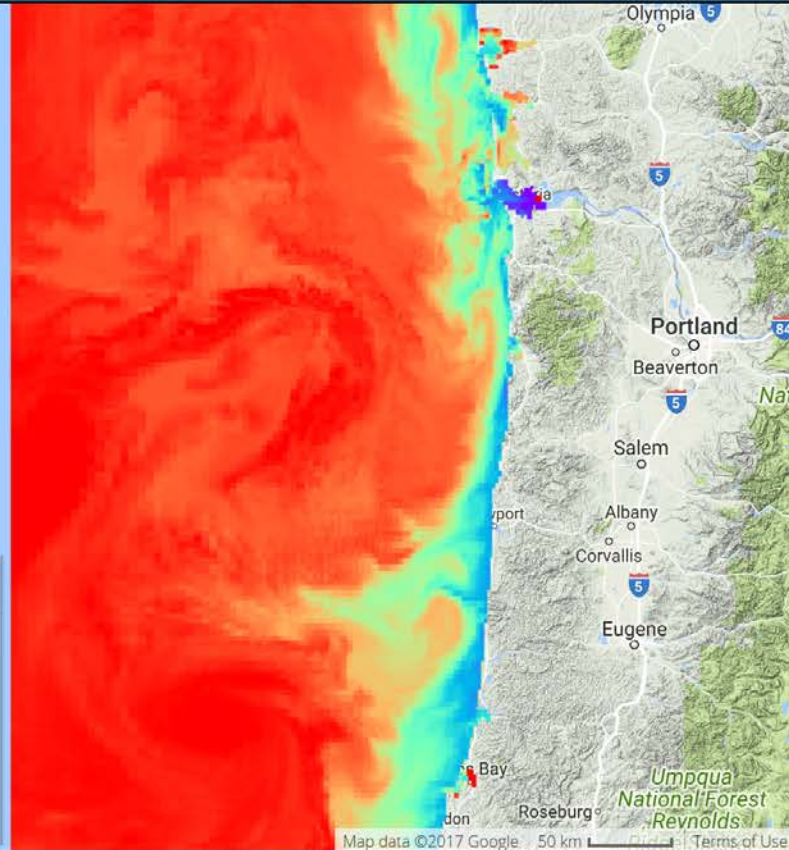
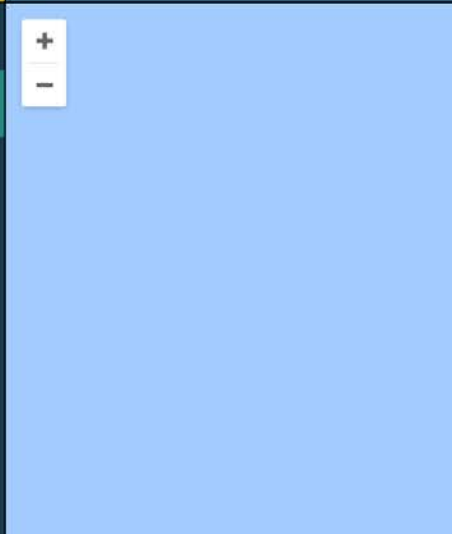
- Regions
- Current Conditions
- Fixed Platforms
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- Plots
- Legend

Forecasts

Lat: 43.0368 Lon: -127.1008

Terrain

- Air Temperature
- Aragonite Saturation
- Barometric Pressure
- Oxygen Concentration
- pH
- Salinity
- Tides
- Water Temperature



Current Conditions

Lat: 44.1743 Lon: -129.5398

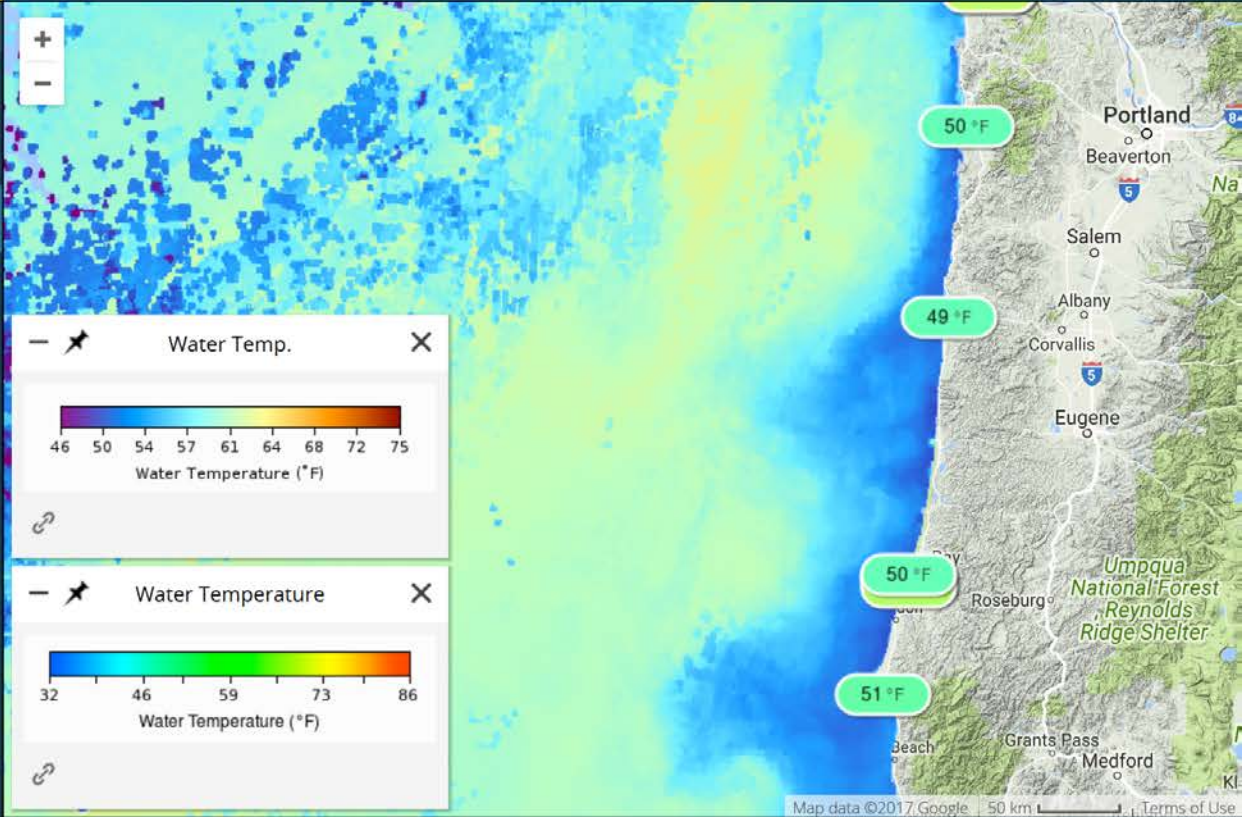
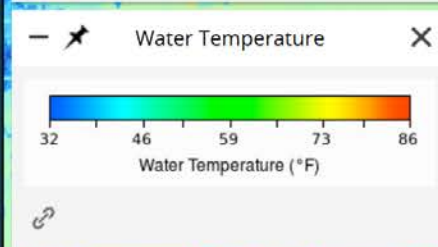
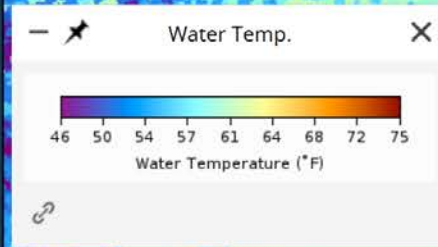
Terrain

Auto Hide Platforms

Air Temperature

Barometric Pressure

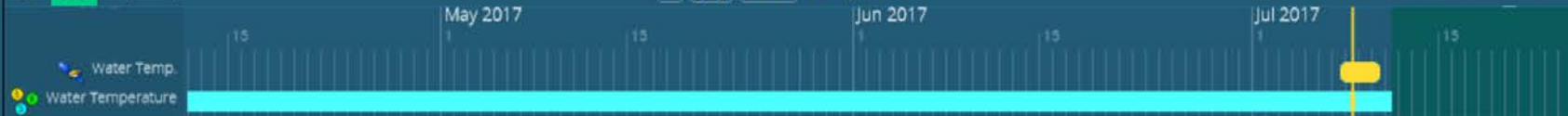
Water Temperature (Surface)



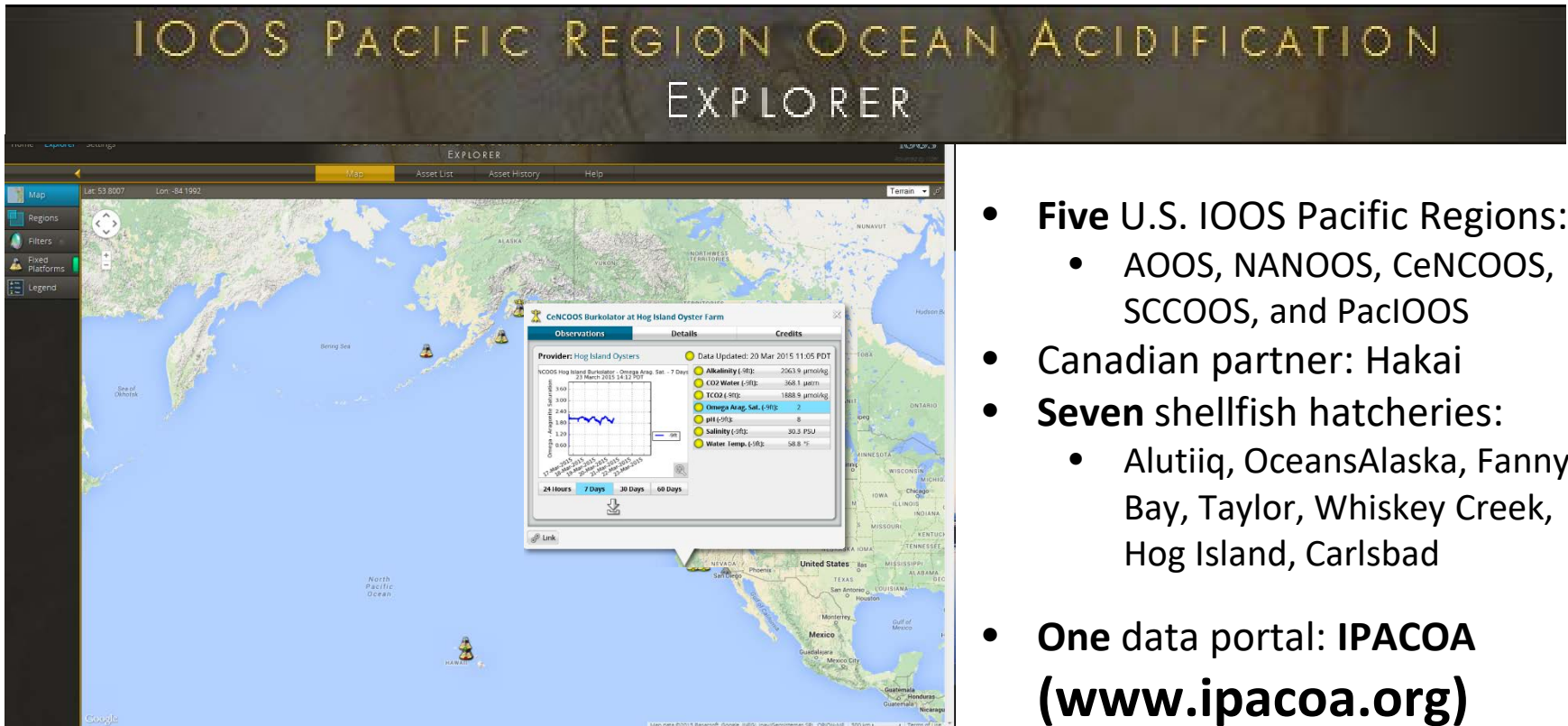
Map data ©2017 Google 50 km Terms of Use



8 July 2017 3:00 pm PDT

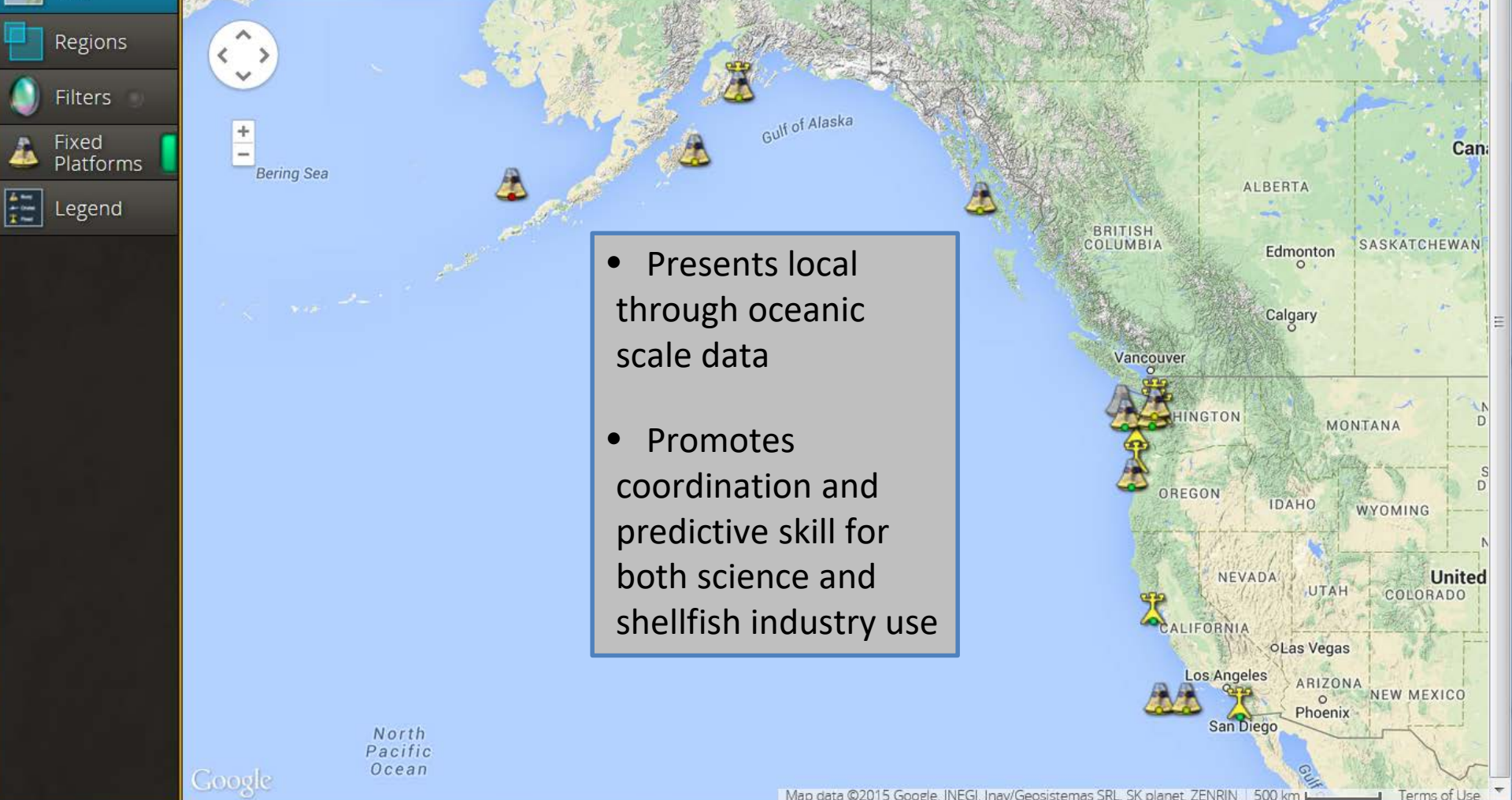


Ocean Acidification data portal

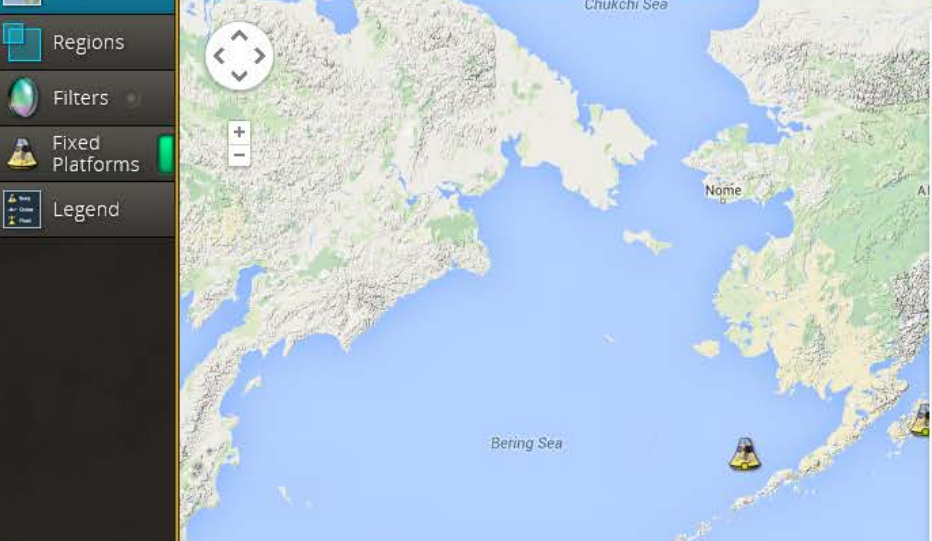


- **Five** U.S. IOOS Pacific Regions:
 - AOOOS, NANOOS, CeNCOOS, SCCOOS, and PacIOOS
- Canadian partner: Hakai
- **Seven** shellfish hatcheries:
 - Alutiiq, OceansAlaska, Fanny Bay, Taylor, Whiskey Creek, Hog Island, Carlsbad
- **One** data portal: **IPACOA** (www.ipacoa.org)
- Funded by a joint U.S. IOOS and NOAA OAP project to enhance OA monitoring in shellfish hatcheries

Allows access to real-time data and information links; eventually links to manuals, FAQ, etc. in order to facilitate a 'community of practice' for monitoring.



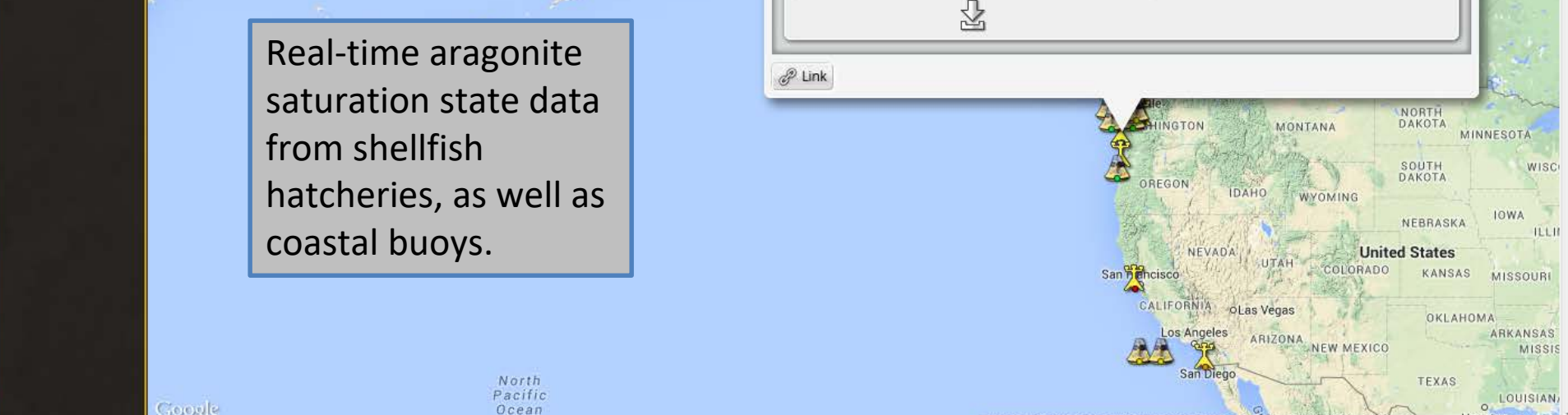
- Presents local through oceanic scale data
- Promotes coordination and predictive skill for both science and shellfish industry use



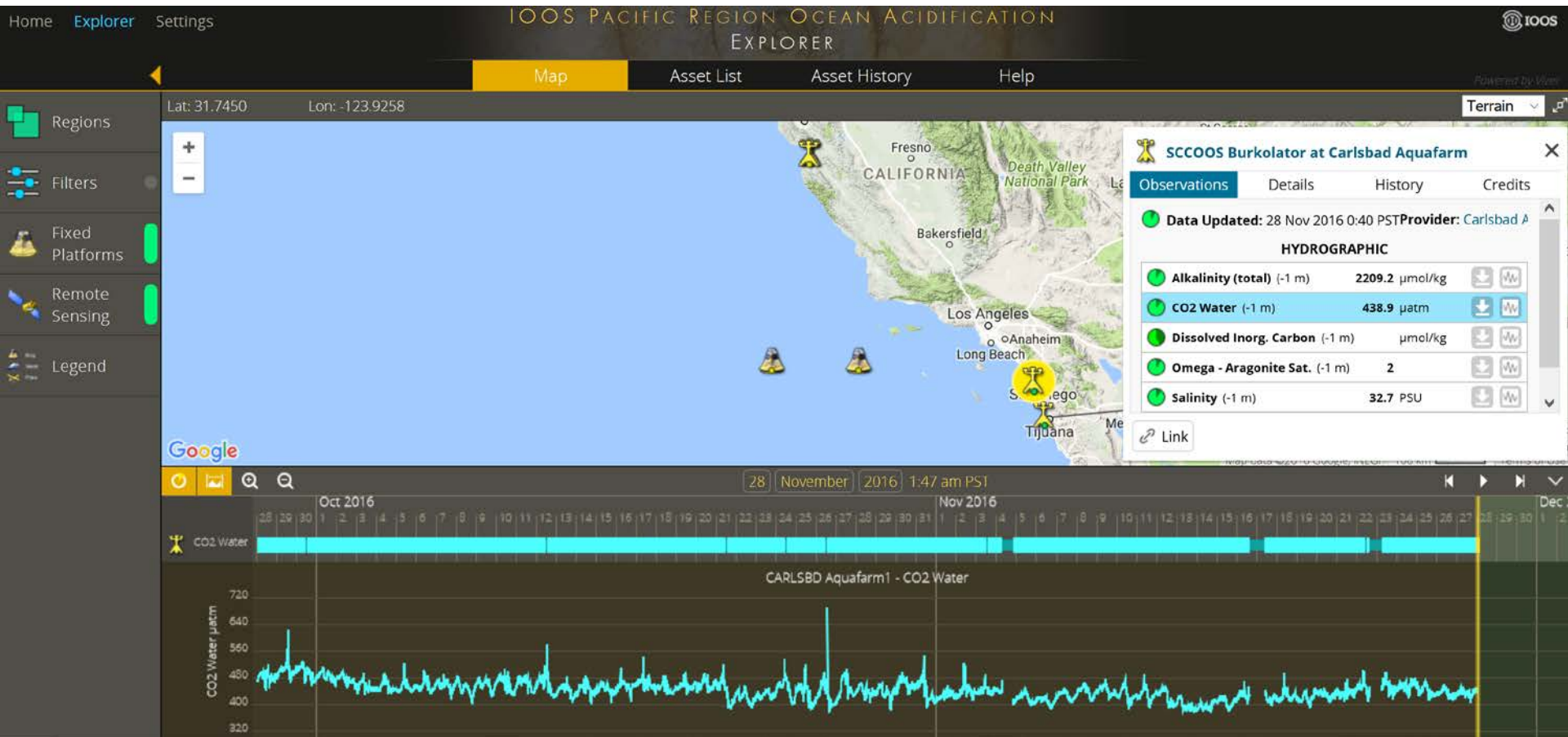
PCSGA - Whiskey Creek Shellfish Hatchery, Netarts Bay

Observations	Details	History	Credits
Provider: WhiskeyCrShellfish /CSH-PCSGA Whiskey Crk - Omega Arag. Sat. - 24 Hours 1 June 2015 18:29 PDT			
<p>Omega - Aragonite Saturation</p> <p>24 Hours 7 Days 30 Days 60 Days</p>		Data Updated: 1 Jun 2015 9:45 PDT	
<ul style="list-style-type: none"> Alkalinity (-13ft): 2146.7 $\mu\text{mol/kg}$ CO2 Water (-13ft): 627 μatm TCO2 (-13ft): 26.7 $\mu\text{mol/kg}$ Omega Arag. Sat. (-13ft): 1.4 pH (-13ft): 9.1 Salinity (-13ft): 32.2 PSU Water Temp. (-13ft): 55.9 $^{\circ}\text{F}$ 			

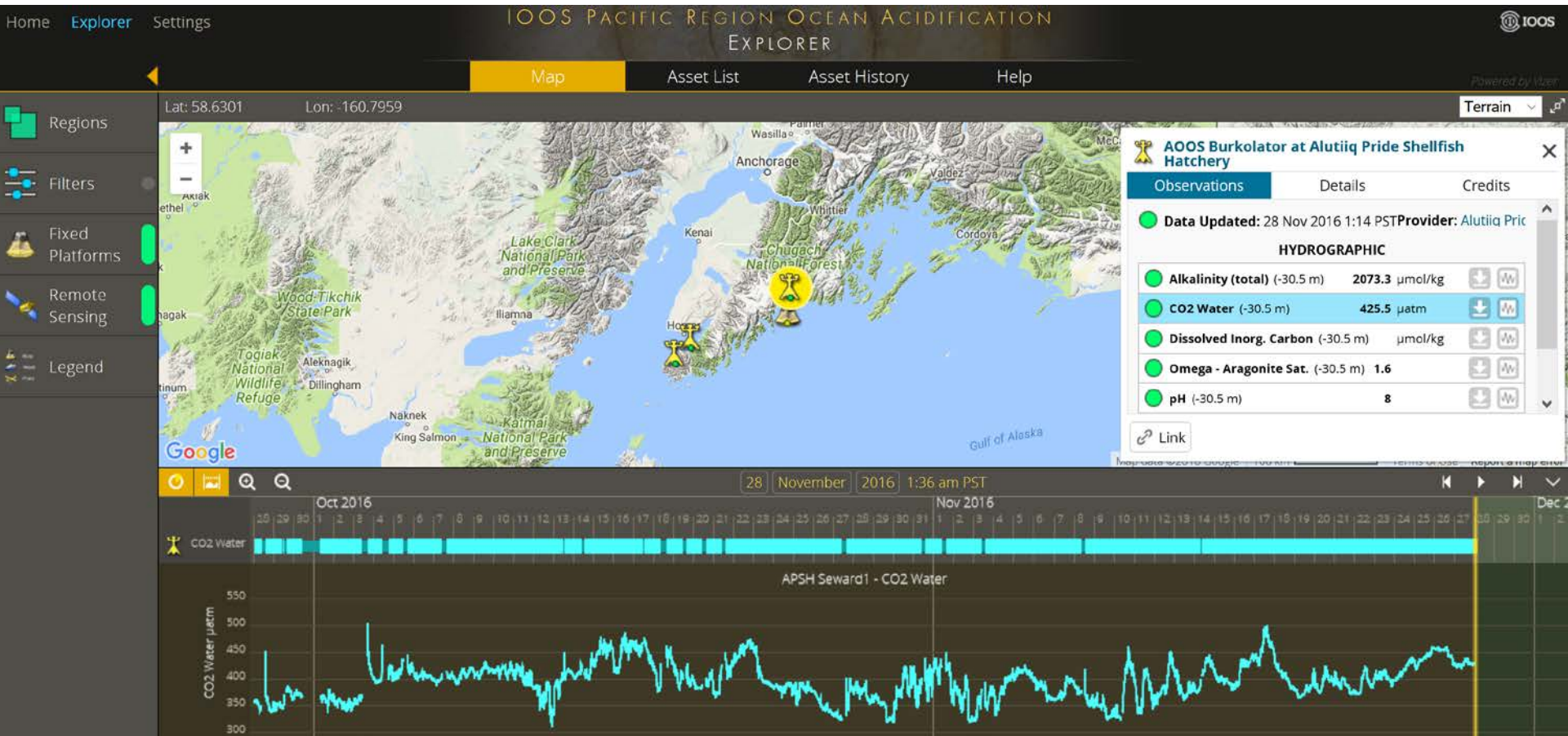
Real-time aragonite saturation state data from shellfish hatcheries, as well as coastal buoys.



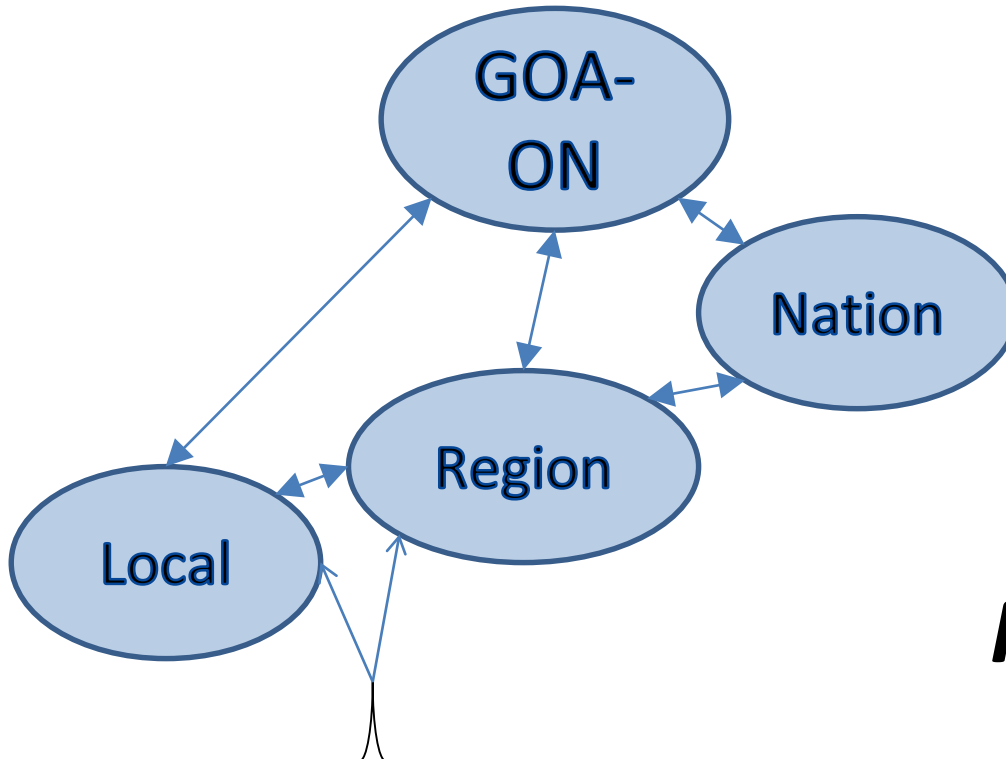
Carlsbad Aquafarm, CA: Oct-Nov 2016



Alutiiq Hatchery, AK: Oct-Nov 2016



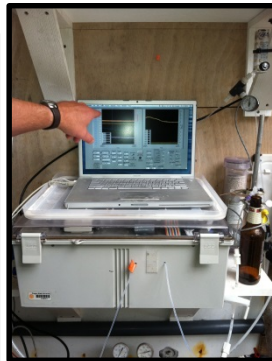
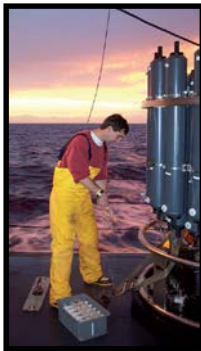
Integration of local through global



Weekly Trends

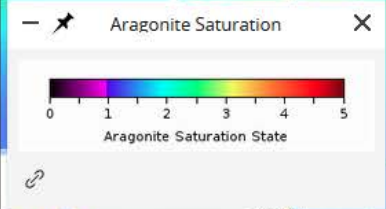
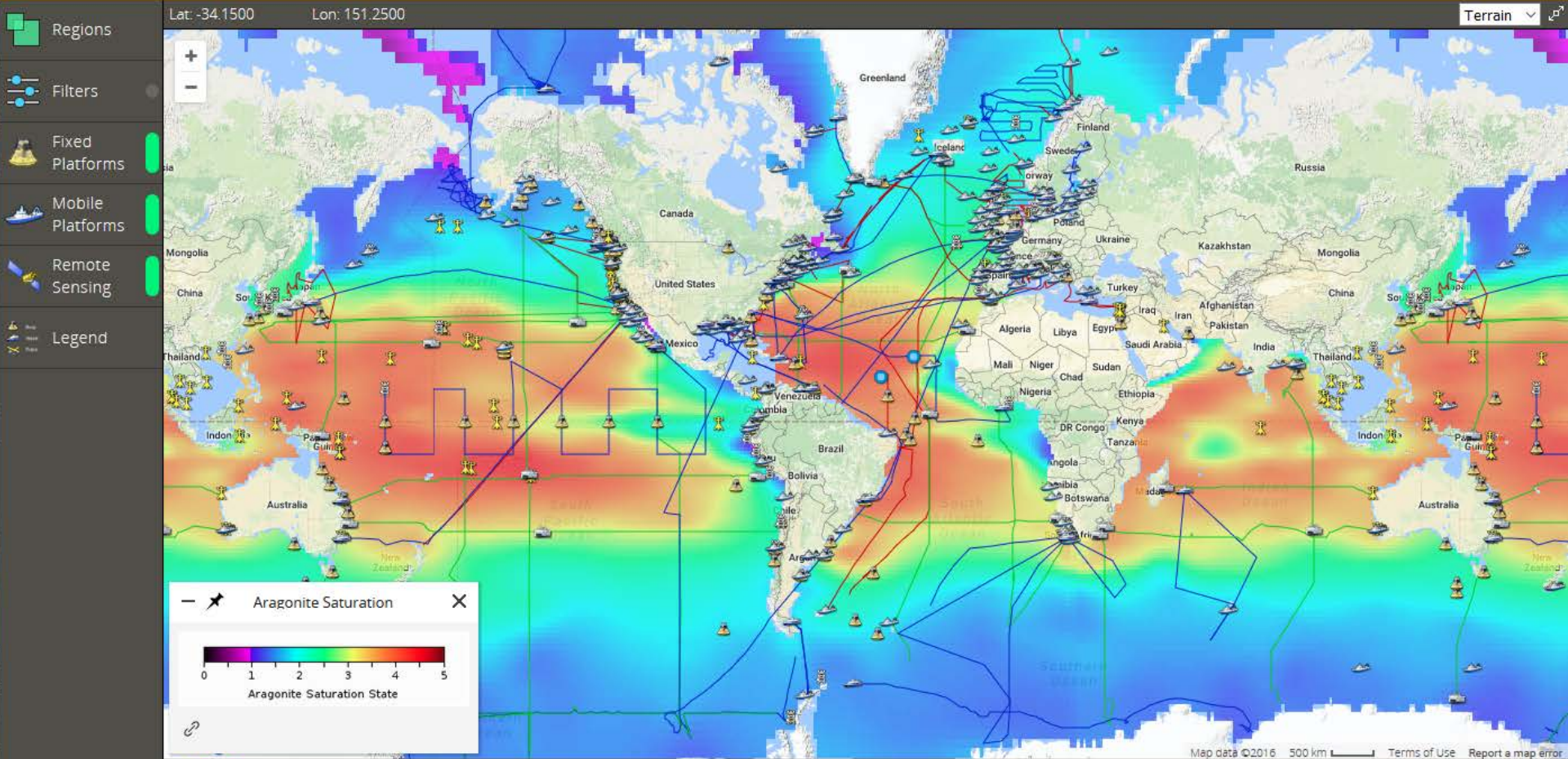
Partnerships:

- Governments
- Academia
- Industry
- NGOs
- etc.



The GOA-ON interactive data portal

Featuring global OA data, asset inventory, metadata, data synthesis products, etc.



The GOA-ON interactive data portal

Featuring global OA data, asset inventory, metadata, data synthesis products, etc.



Global Ocean Acidification Observing Network

Home Explorer Settings GLOBAL OCEAN ACIDIFICATION OBSERVING NETWORK EXPLORER

Map Asset List Asset History Help

Lat: 0.0000 Lon: -113.5547

Regions Filters Fixed Platforms Mobile Platforms Remote Sensing Legend

Chuuk K1 Lagoon Mooring

Observations Details Credits

Data Updated: 13 Sep 2016 17:17 PDT Provider: PMEL-CO2

ATMOSPHERIC

CO2 Air (1 m)	395.2 ppm
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HYDROGRAPHIC

CO2 Water (-0.8 m)	465.4 ppm
pH (-0.8 m)	7.4
Salinity (-0.8 m)	34.1 PSU
Water Temperature (-0.8 m)	30.6 °C

Link

27 December 2012 12:00 am PST

2012 2013 2014 2015 2016 2017

Aragonite Saturation CO2 Water

PMELCO2 chuukk1 - CO2 Water