



NOAA West Watch

*Reporting Regional Environmental
Conditions & Impacts in the West*

September 25, 2018

Call Agenda



- **Project Recap & Updates (Timi Vann)**
- El Niño and Regional Climate brief (Dan McEvoy)
- IOOS Nearshore Conditions brief (Jan Newton, Alex Harper, Megan Hepner)
- Discussion - Environmental conditions and impacts reporting (All)
 - Additional impacts to share?
 - Online evaluation survey to be disseminated in a few weeks by researchers at Oregon State University - if you receive, please complete
 - Future guest speaker or thematic issue of interest?

Project Recap and Updates



- NOAA West Watch bi-monthly webinars are a project of the NOAA Western Regional Collaboration Team (NOAA West), in partnership with the Western Regional Climate Center with standing contributions from the three Integrated Ocean Observing System Regional Associations.
- Initiated in 2015, evaluated in 2016 and re-instated as a bi-monthly offering in 2018. Current goals:
 - Serve as forum for bring together NOAA staff and partners from across the agency and region to share information about regional scale environmental observations and impacts on human systems.
 - Help facilitate interdisciplinary connections and the exchange of information among agency staff and partners on regional climatic and oceanic conditions, particularly departures from normal.

These webinars are not formal public releases of data.

Project Recap and Updates



- This is the last webinar offering for Fiscal Year 2018. NOAA West agreed to provide funding to the Western Regional Climate Center to offer three more in Fiscal Year 2019 (November, January & Spring/Summer timeframe). Next webinar: **November 28th (Proposed), 1-2PM PDT/ 2-3PM MDT.**
- 2019 is a transitional year. The team is investigating options for permanent hosting. If no permanent host and/or operational funding is found, these webinars will conclude at the end of summer, 2019.
- Request: If you find these webinars helpful, or if you have ideas of in-region entities that may be open to taking on this webinar please let me know: (timi.vann@noaa.gov).

Call Agenda



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Current Drought Conditions



U.S. Drought Monitor West

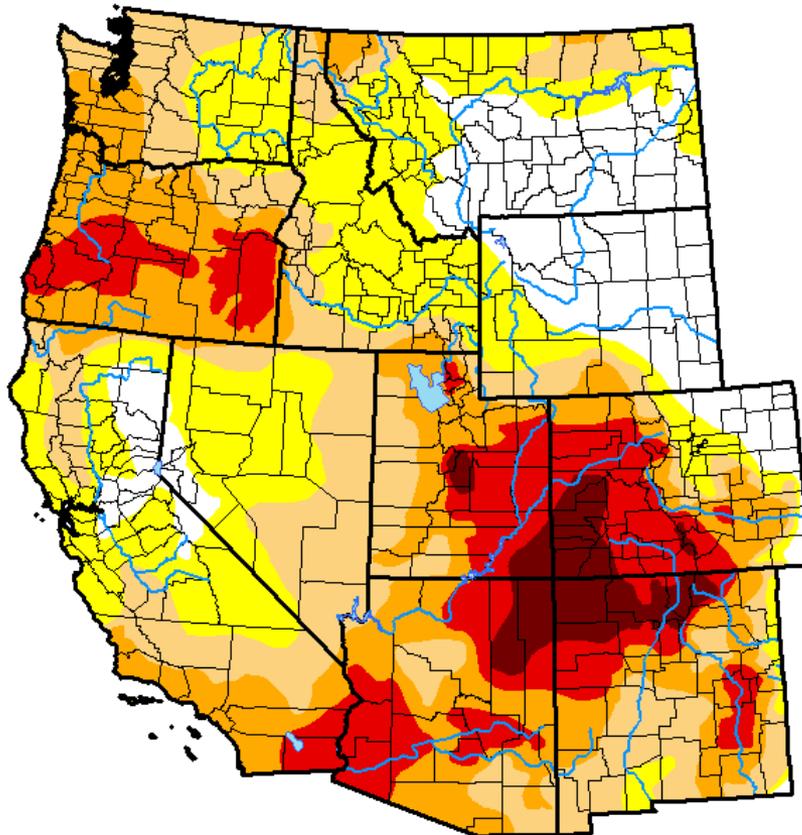
September 18, 2018

(Released Thursday, Sep. 20, 2018)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	14.94	85.06	60.18	37.67	17.19	3.95
Last Week <i>09-11-2018</i>	15.84	84.16	59.11	37.22	16.36	3.69
3 Months Ago <i>06-19-2018</i>	33.21	66.79	44.55	31.70	18.67	4.33
Start of Calendar Year <i>01-02-2018</i>	48.76	51.24	29.03	8.60	1.52	0.00
Start of Water Year <i>09-26-2017</i>	55.72	44.28	21.01	8.72	5.30	2.17
One Year Ago <i>09-19-2017</i>	53.90	46.10	21.50	8.90	5.30	2.17



Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

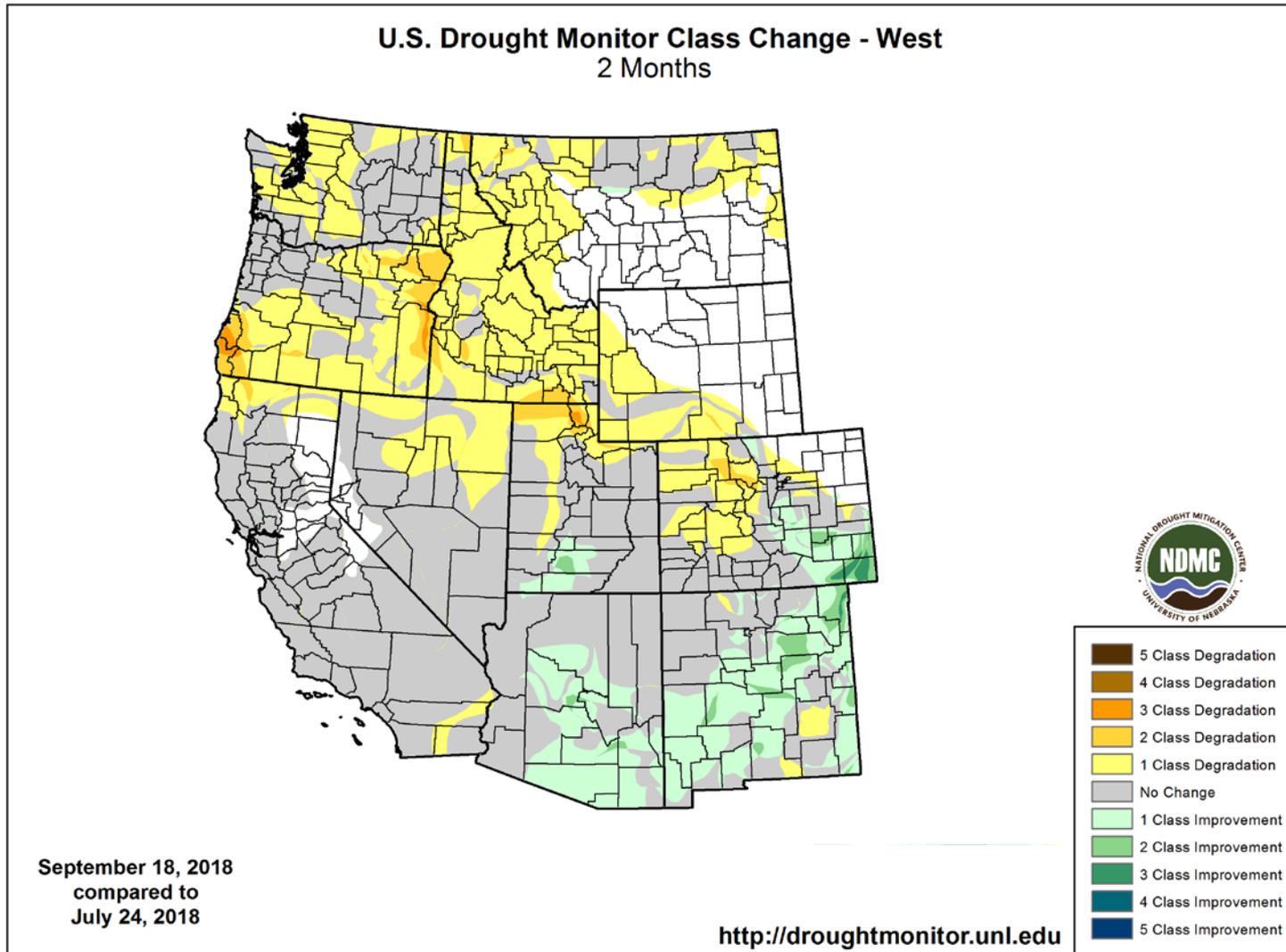
Author:

Jessica Blunden
NCEI/NOAA



<http://droughtmonitor.unl.edu/>

Current Drought Conditions



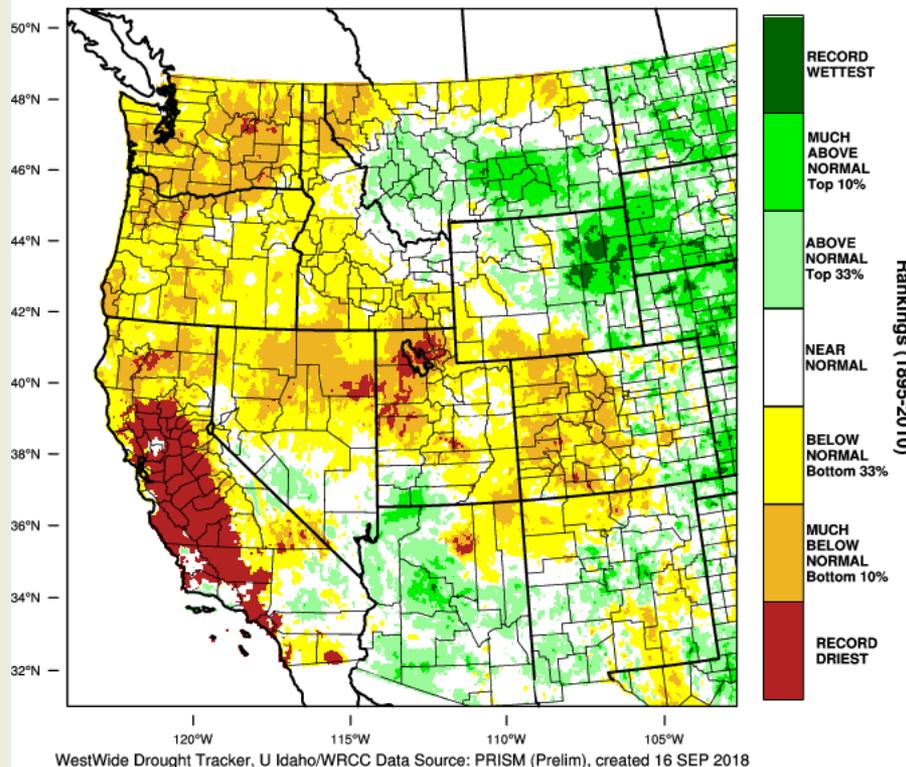
Precipitation and Temperature



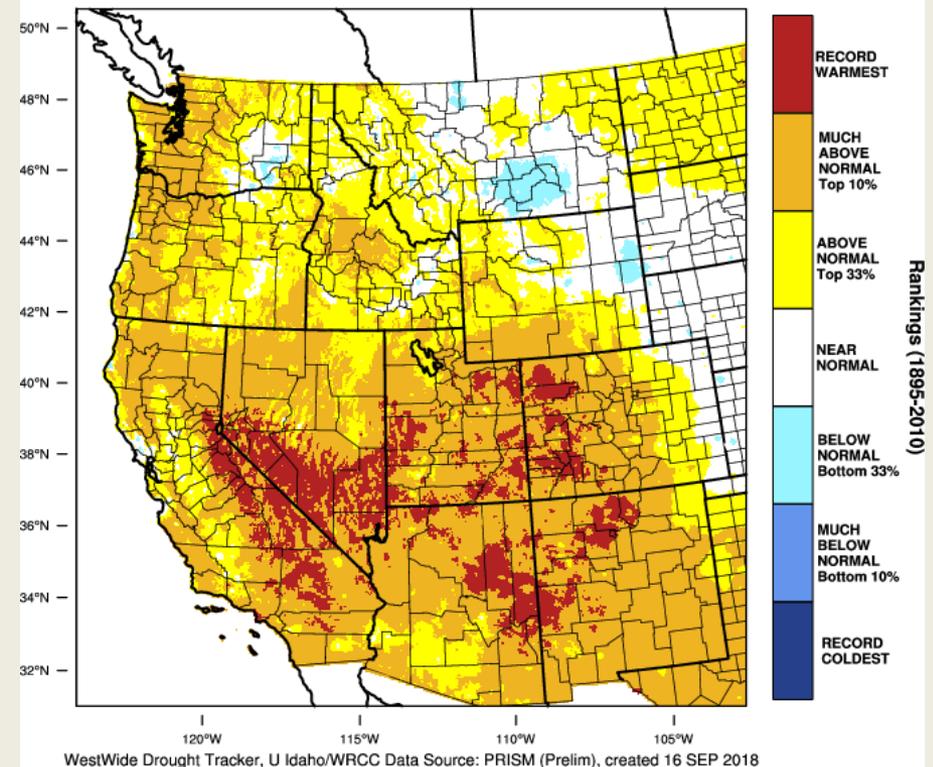
June-August Precipitation Percentiles

June-August Temperature Percentiles

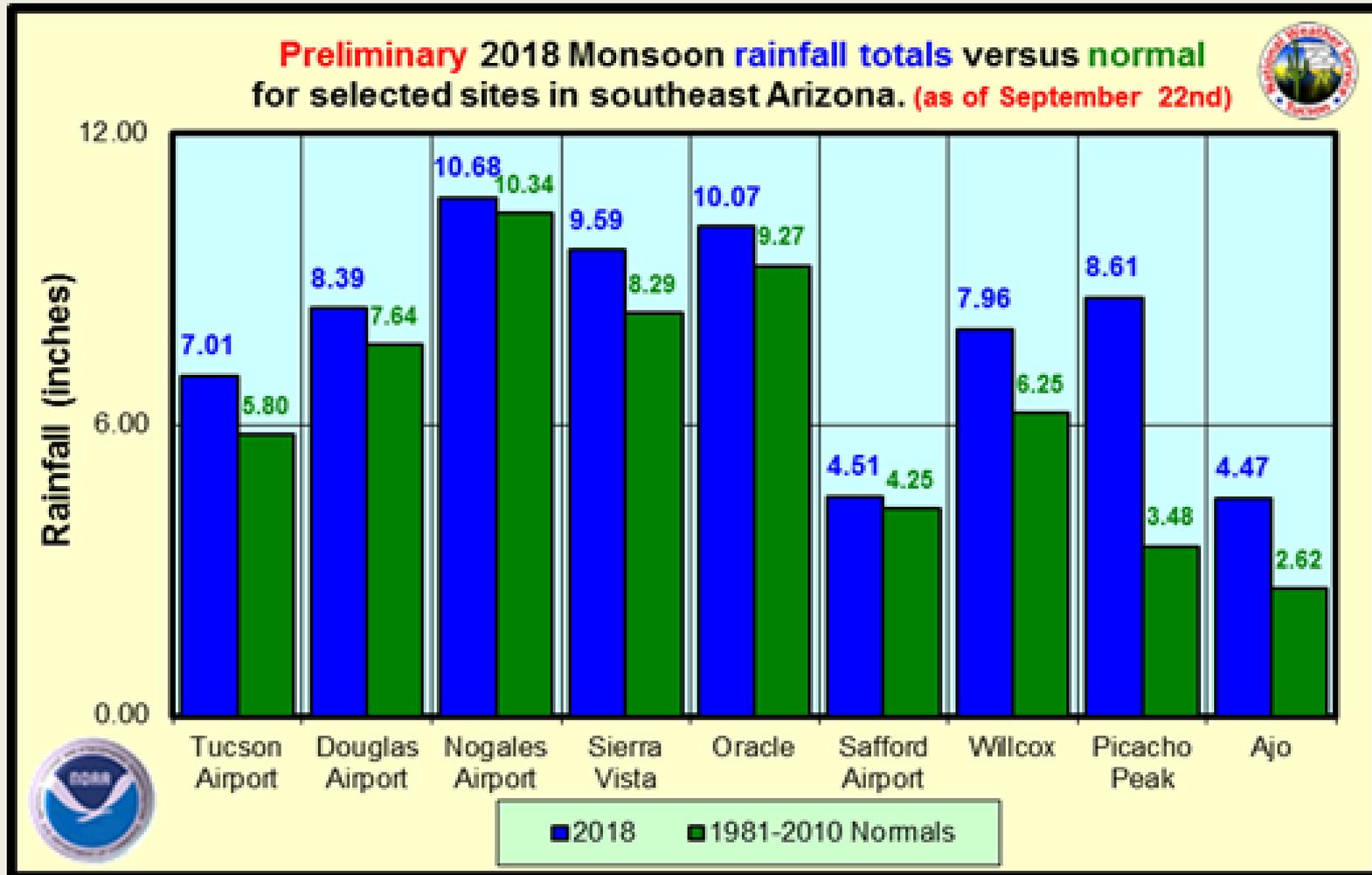
Western United States - Precipitation
June-August 2018 Percentile



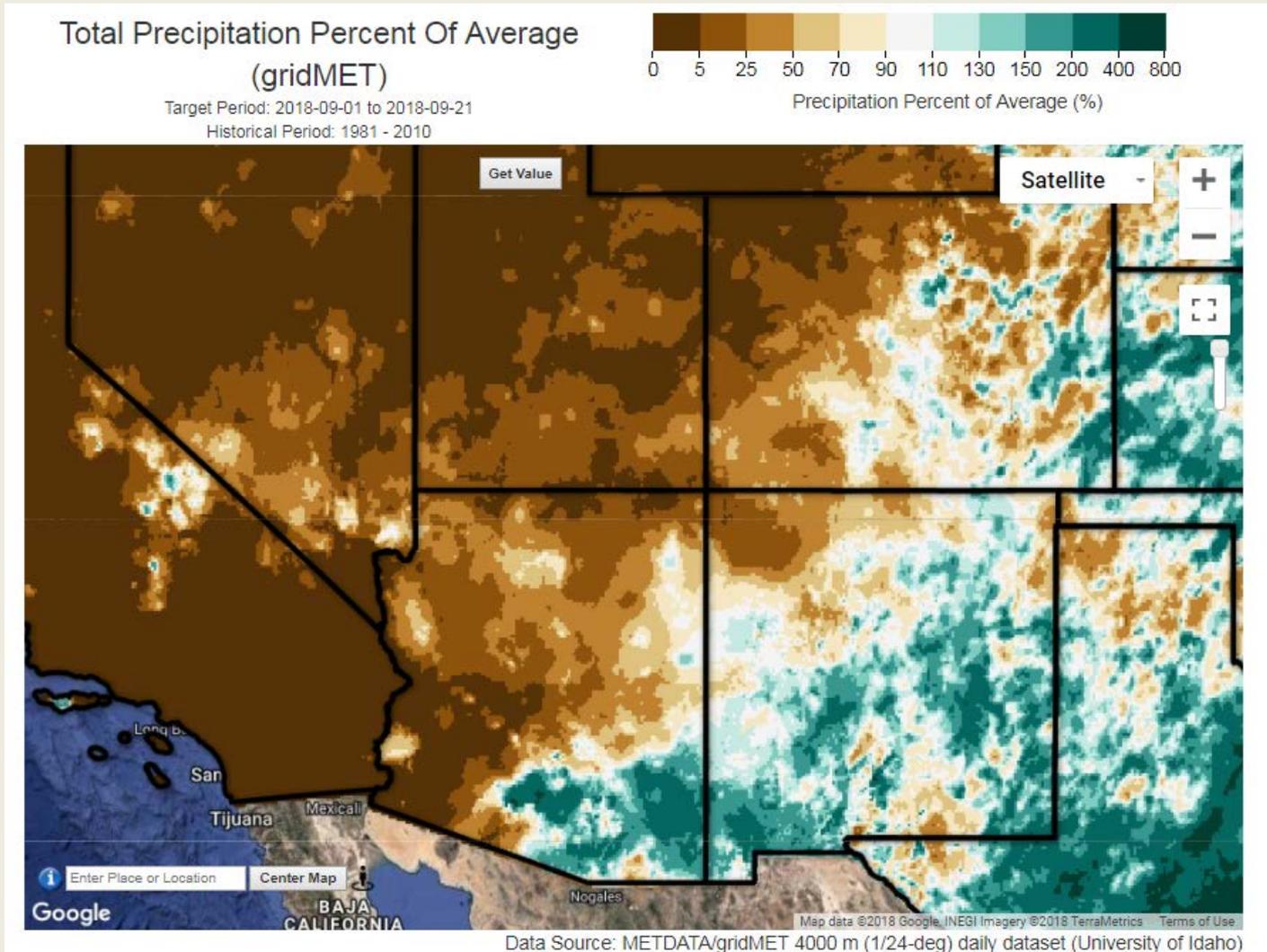
Western United States - Mean Temperature
June-August 2018 Percentile



Southwest Monsoon



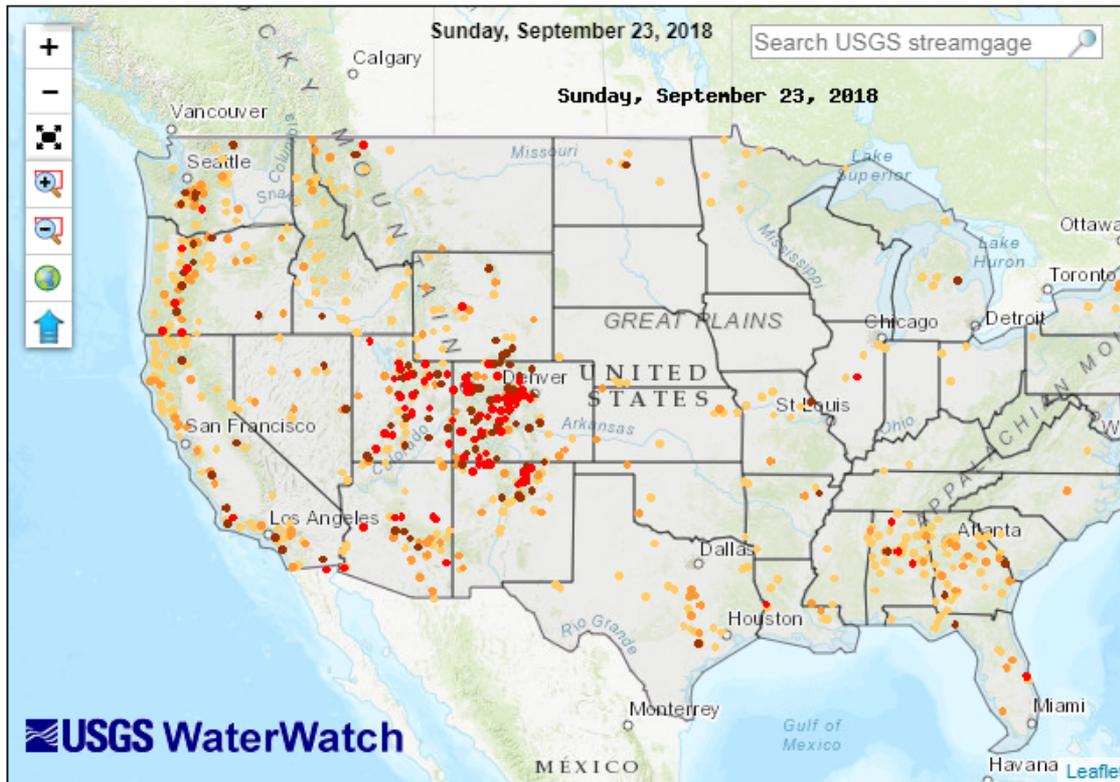
Southwest Monsoon – September Precipitation



Streamflow



Map of below normal 7-day average streamflow compared to historical streamflow for the day of the year

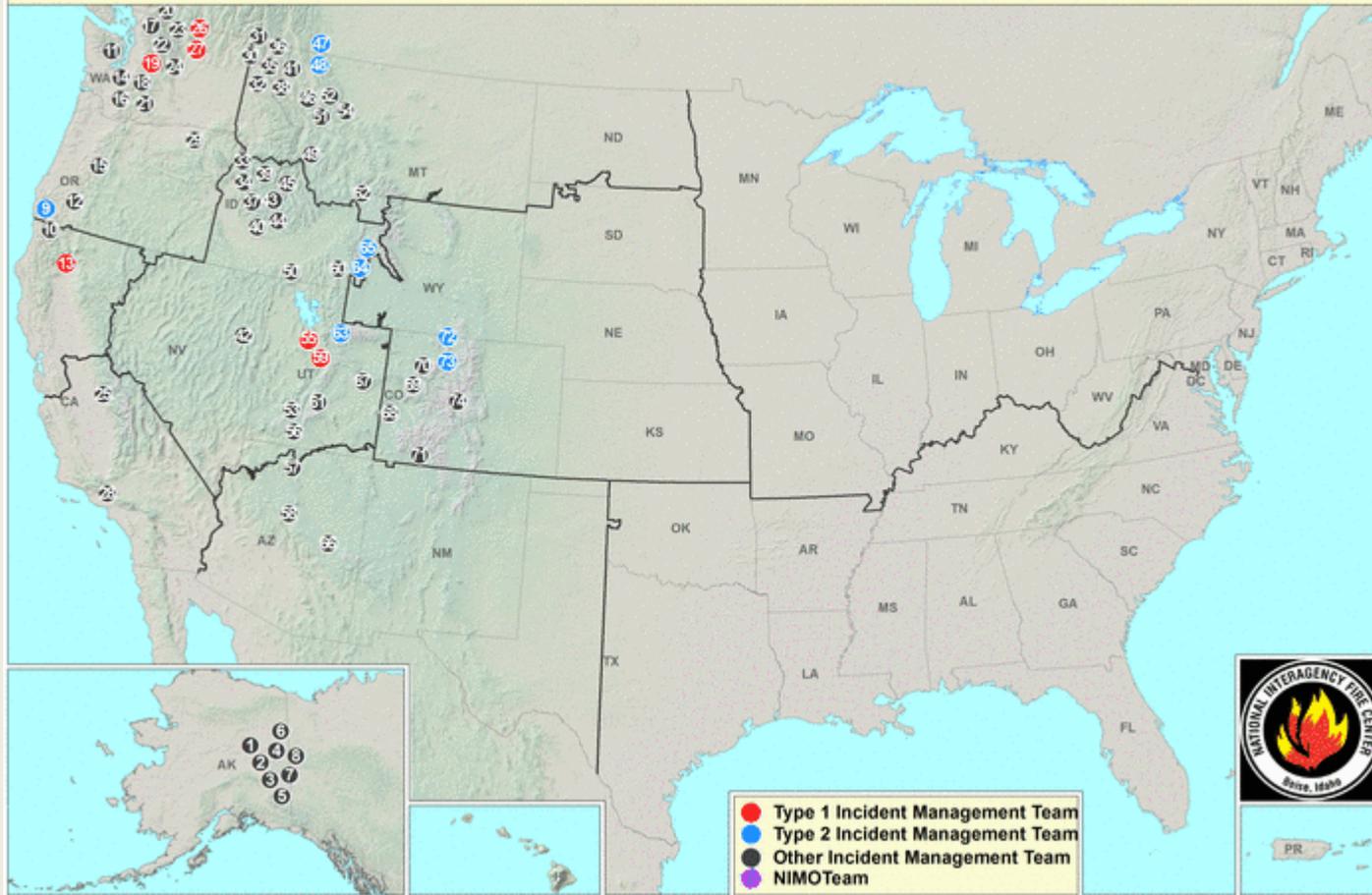


Explanation - Percentile classes			
Low	≤ 5	6-9	10-24
Extreme hydrologic drought	Severe hydrologic drought	Moderate hydrologic drought	Below normal

Wildfires



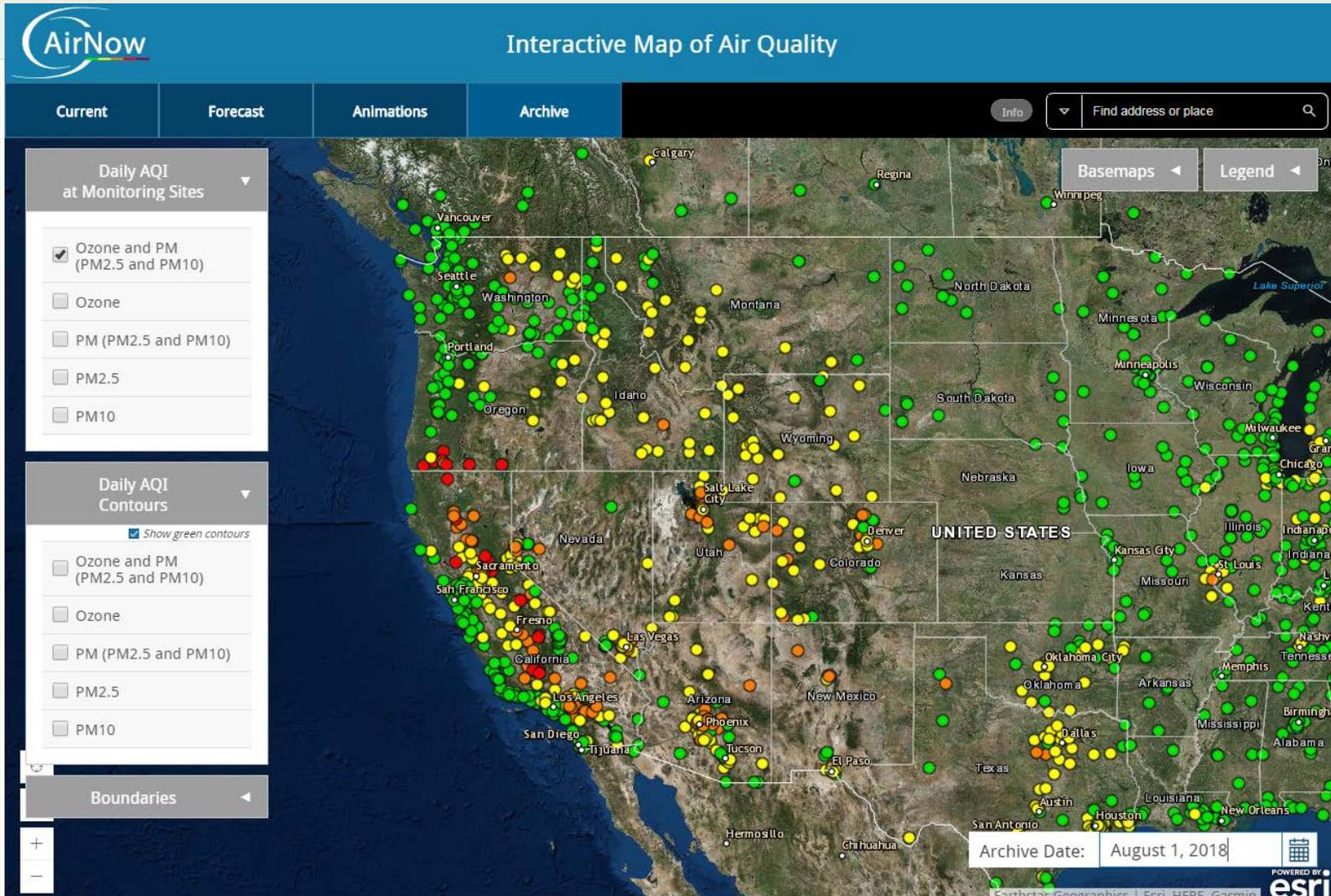
Current Large Incidents September 24, 2018



Air Quality



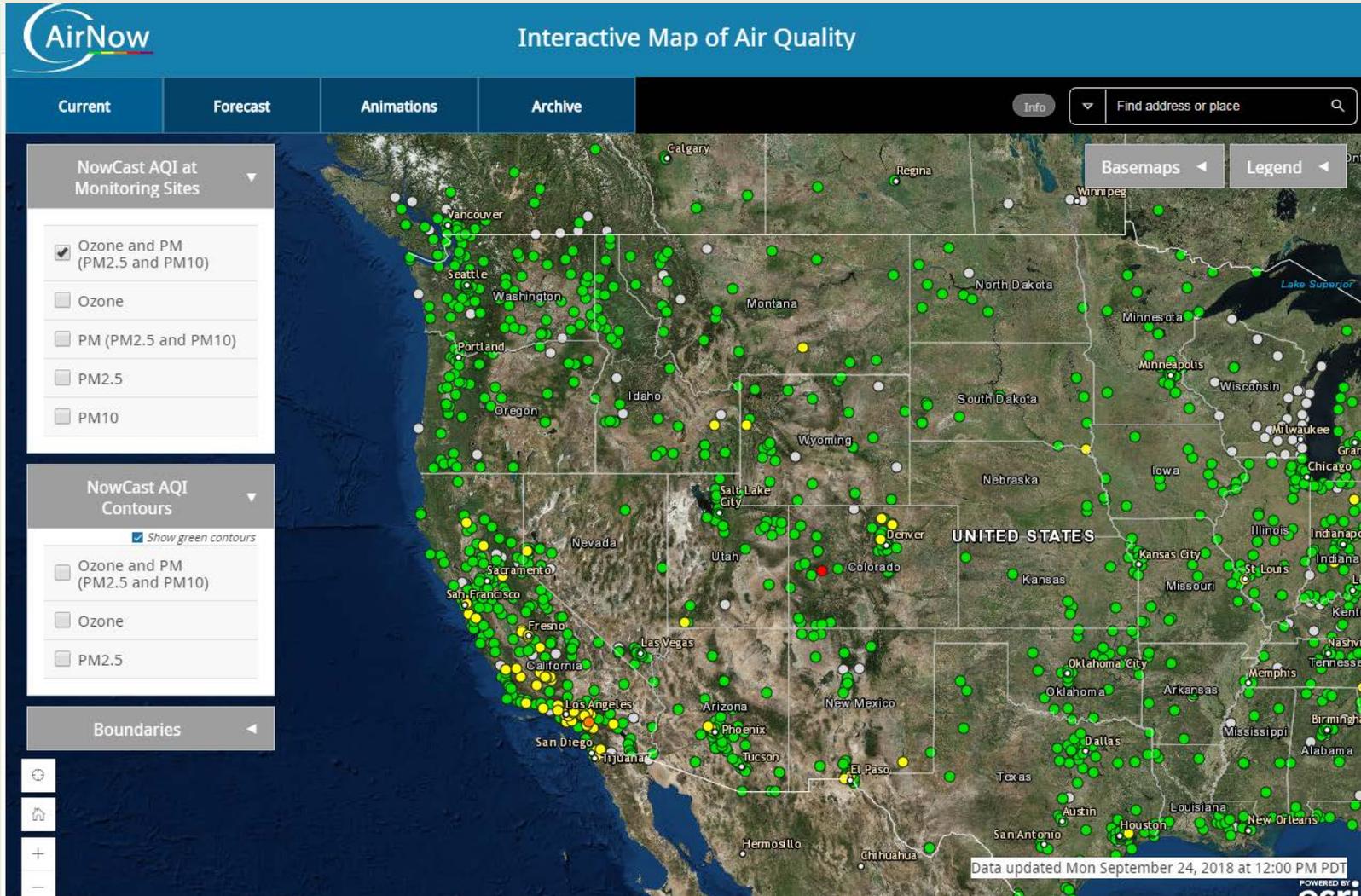
August 1, 2018



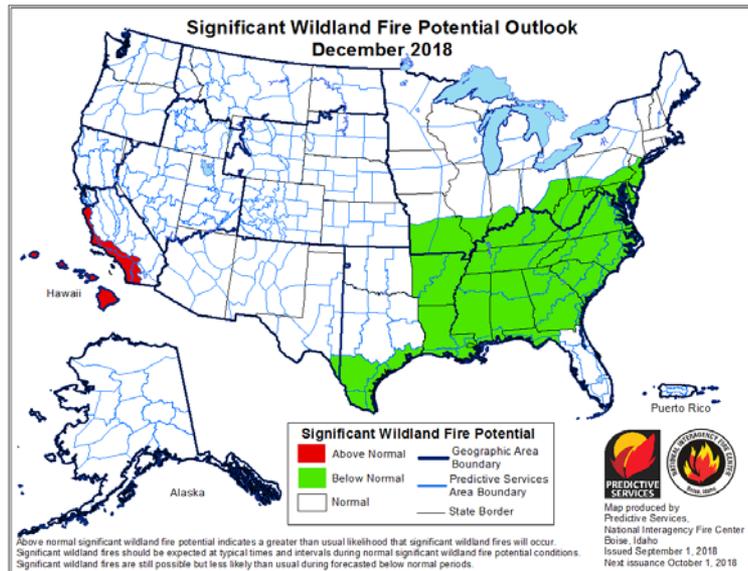
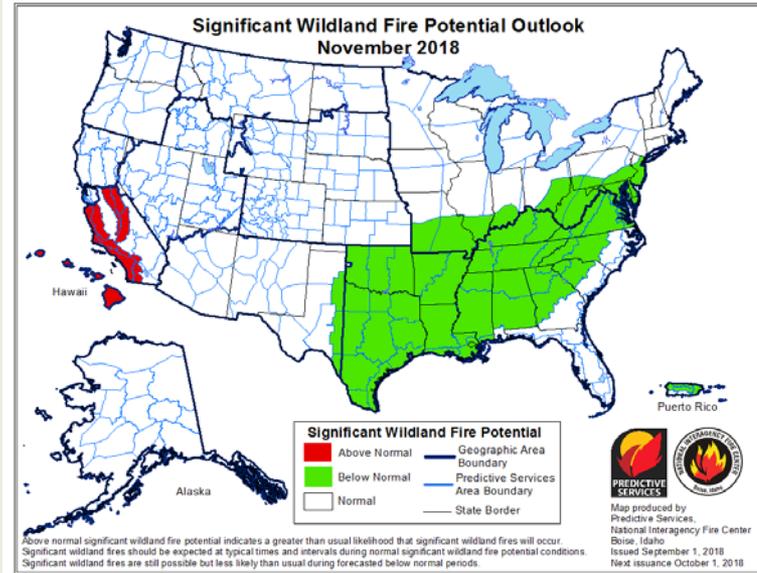
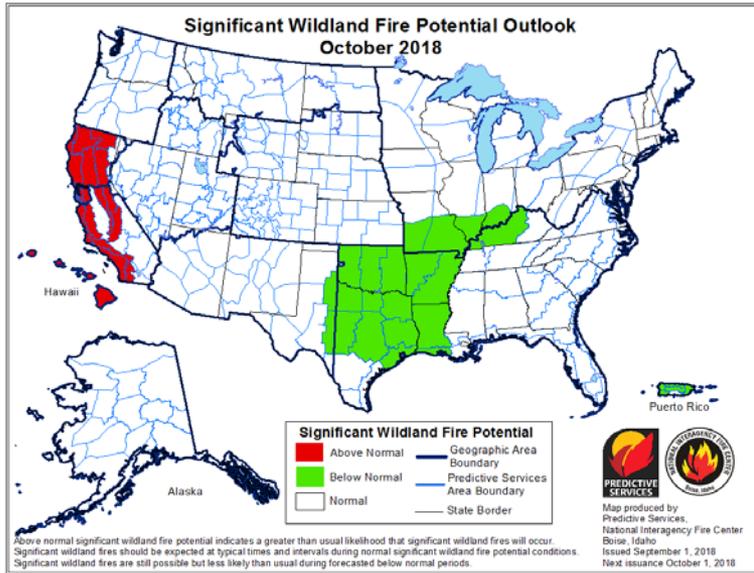
Air Quality



September 24, 2018



Significant Wildland Fire Potential Outlook



ENSO Status



- ENSO Alert System Status: **El Niño Watch**
- ENSO-neutral conditions are present. *
- Equatorial sea surface temperatures (SSTs) are near-to-above average across most of the Pacific Ocean.
- There is a 50-55% chance of El Niño onset during the Northern Hemisphere fall 2018 (September-November), increasing to 65-70% during winter 2018-19.*

Credit: CPC

* Note: These statements are updated once a month (2nd Thursday) in association with the ENSO Diagnostics Discussion, which can be found here:

http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/.

Niño Region SST Departures (°C) Recent Evolution



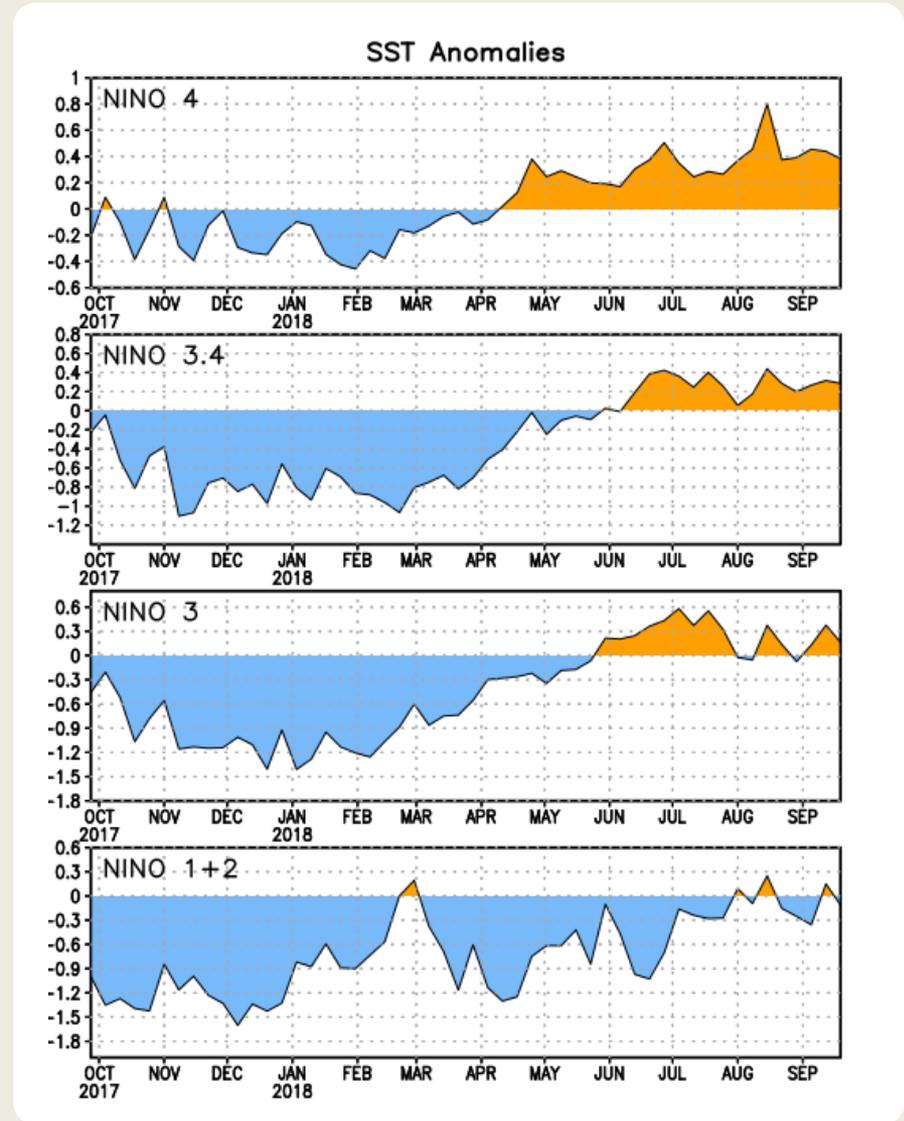
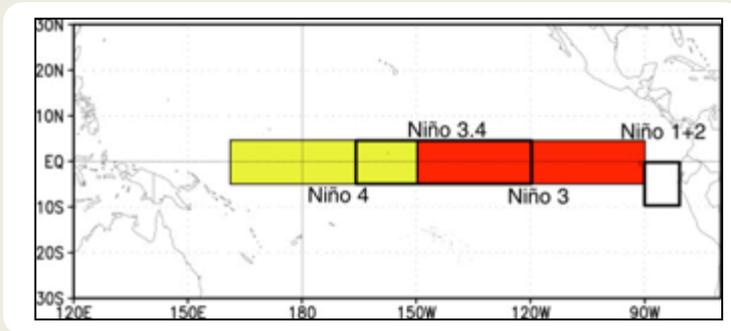
The latest weekly SST departures are:

Niño 4 0.4°C

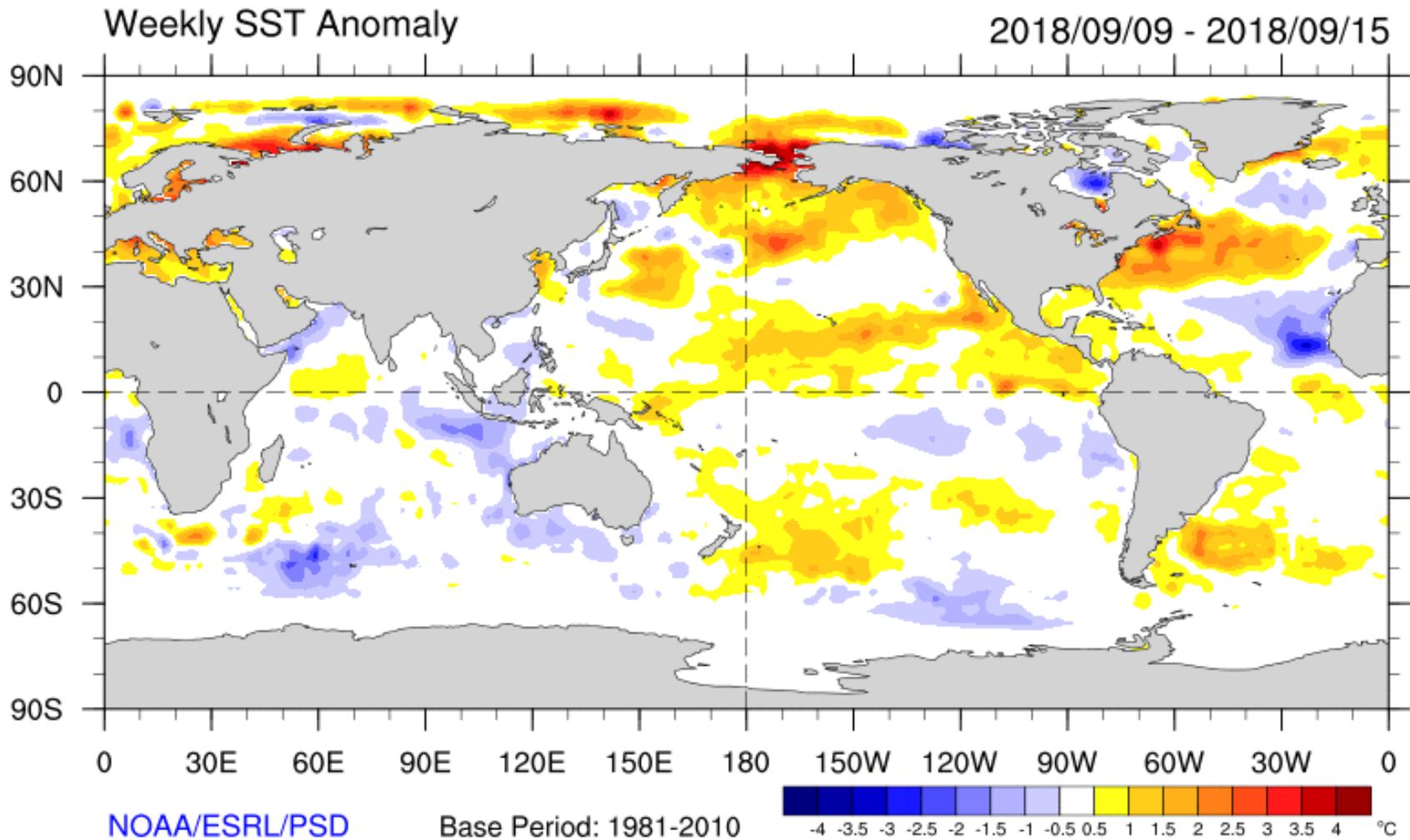
Niño 3.4 0.3°C

Niño 3 0.2°C

Niño 1+2 -0.1°C



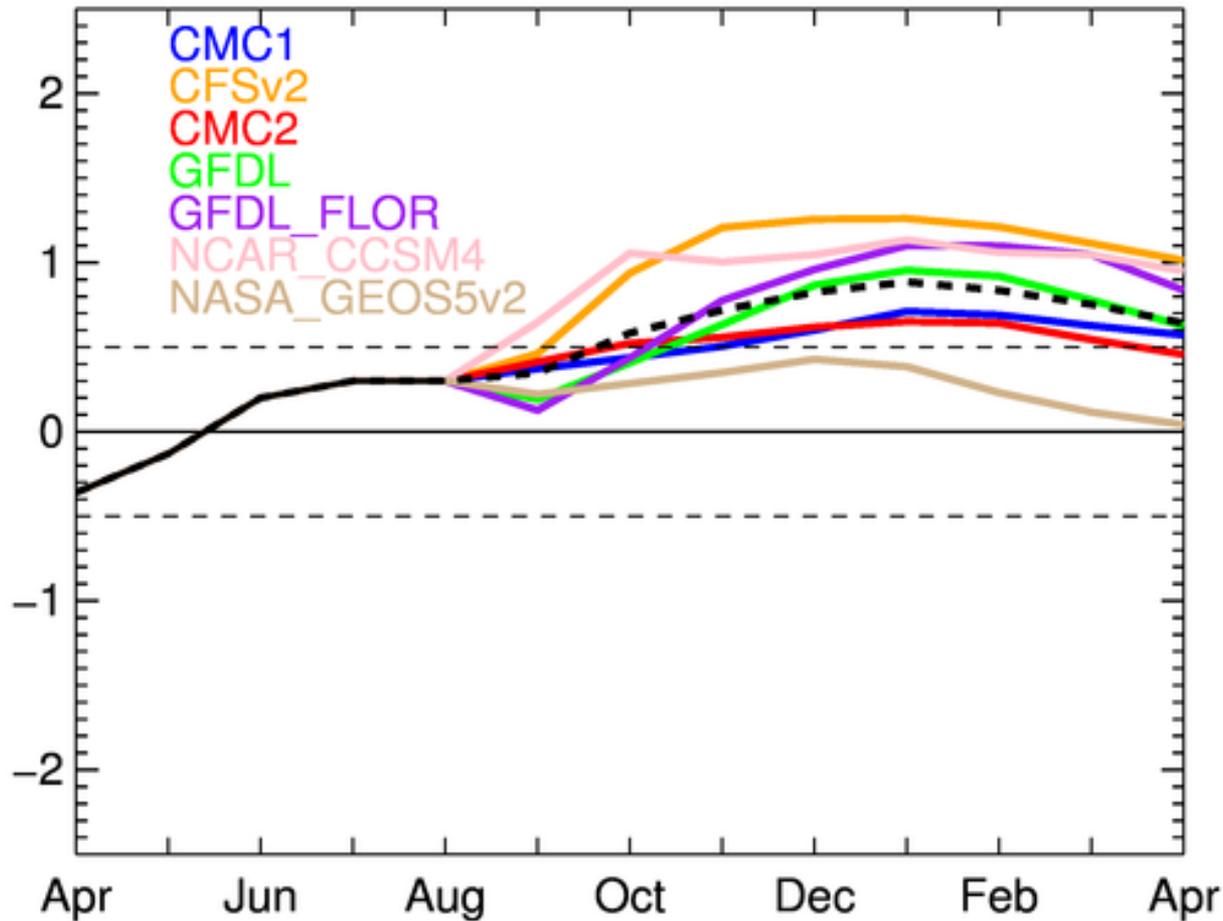
Current Sea Surface Temperatures



ENSO Forecasts



NMME scaled Nino3.4, IC=201809

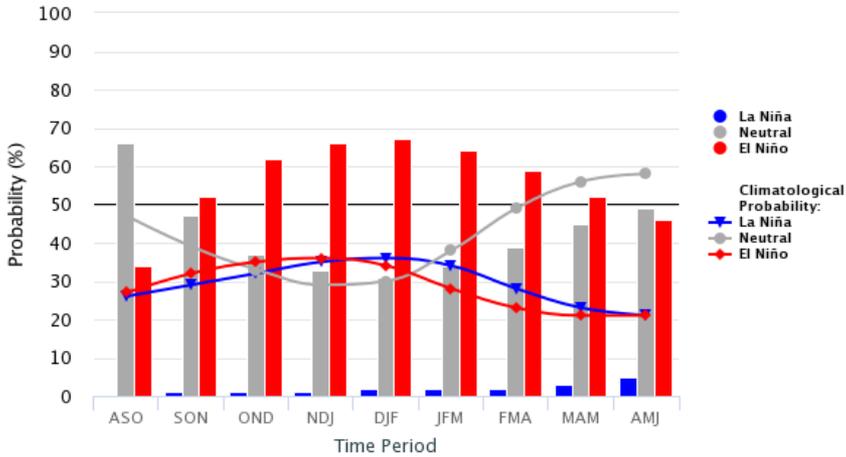


ENSO Forecasts



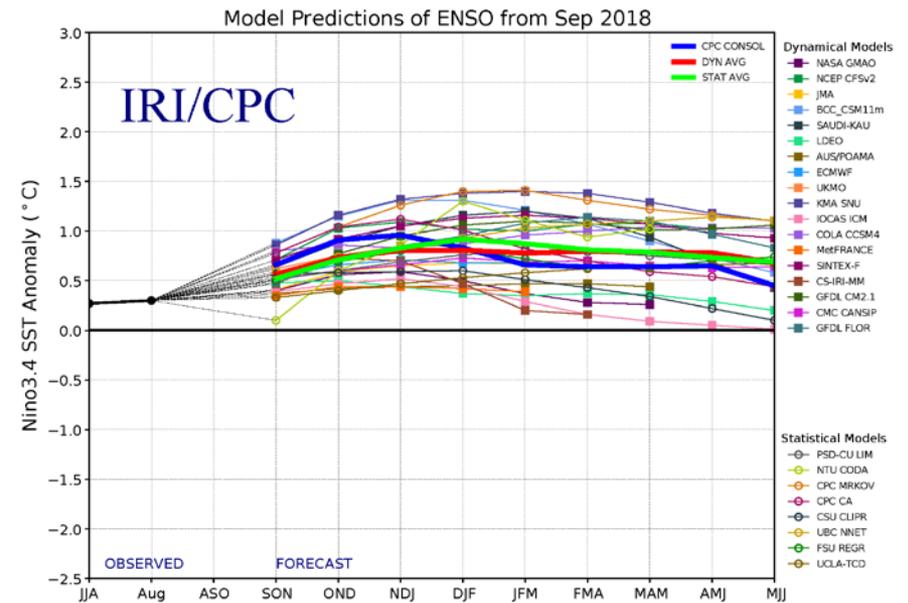
Early-Sep CPC/IRI Official Probabilistic ENSO Forecasts

ENSO state based on NINO3.4 SST Anomaly
Neutral ENSO: -0.5 °C to 0.5 °C

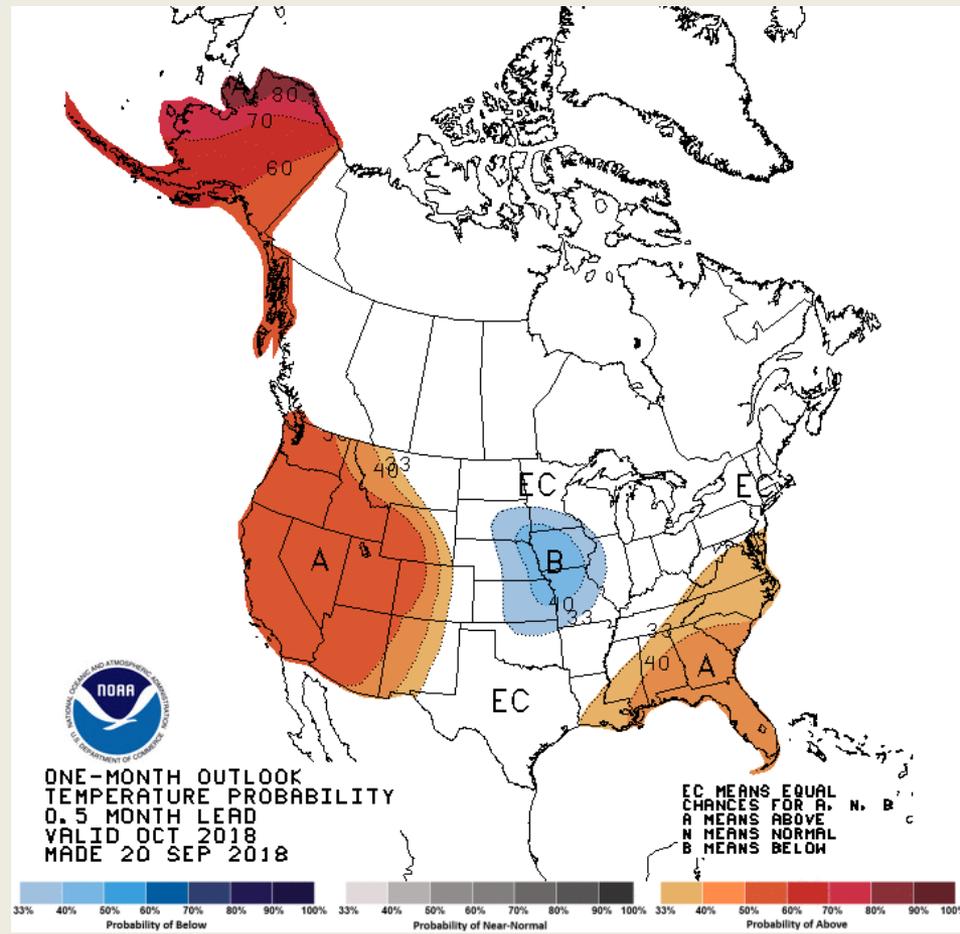
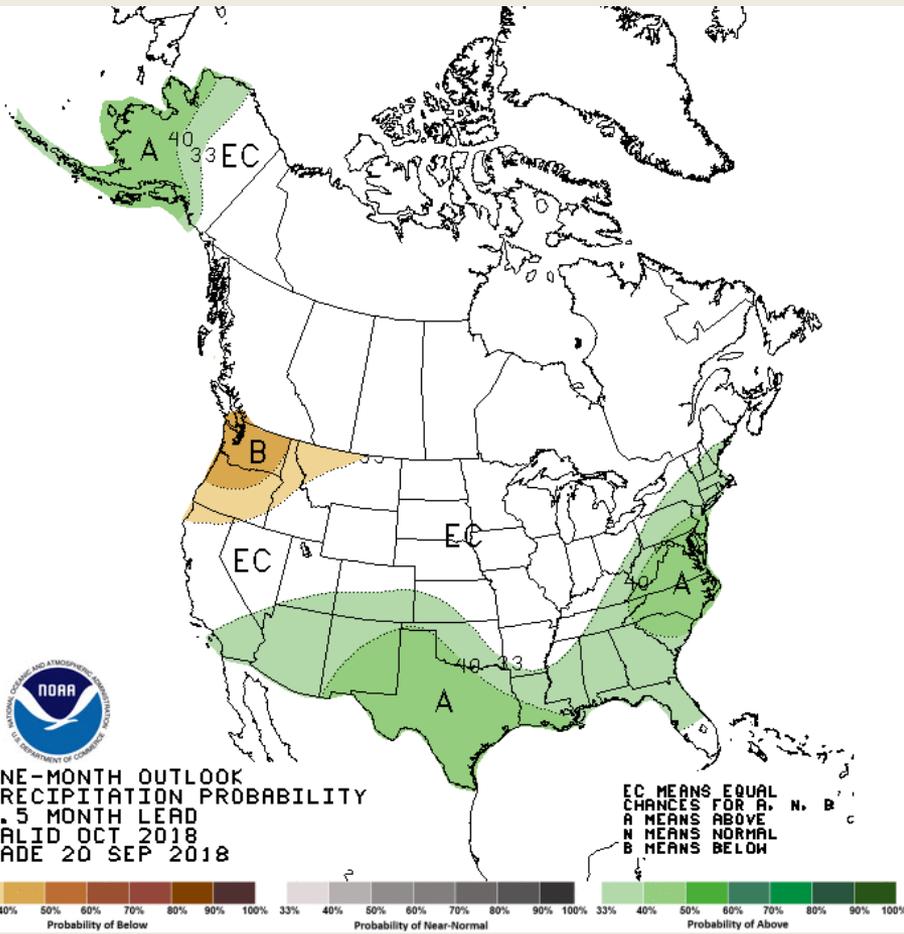


CPC/IRI El Nino forecast:

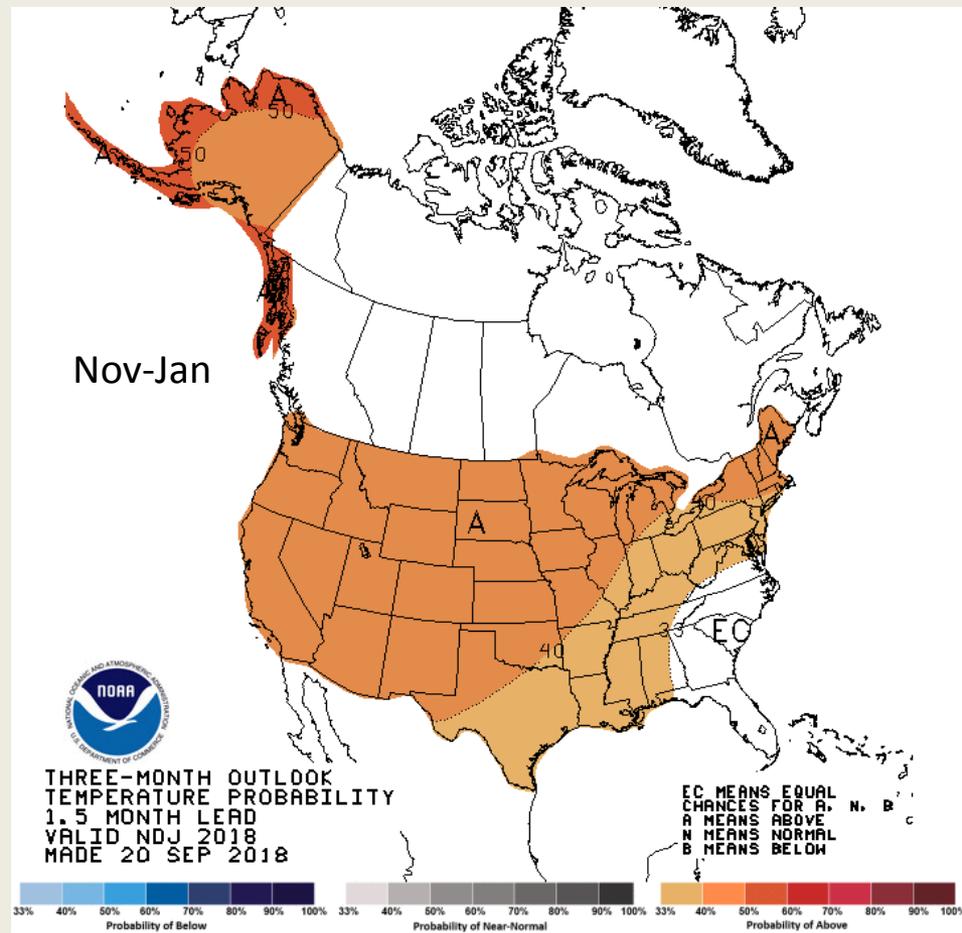
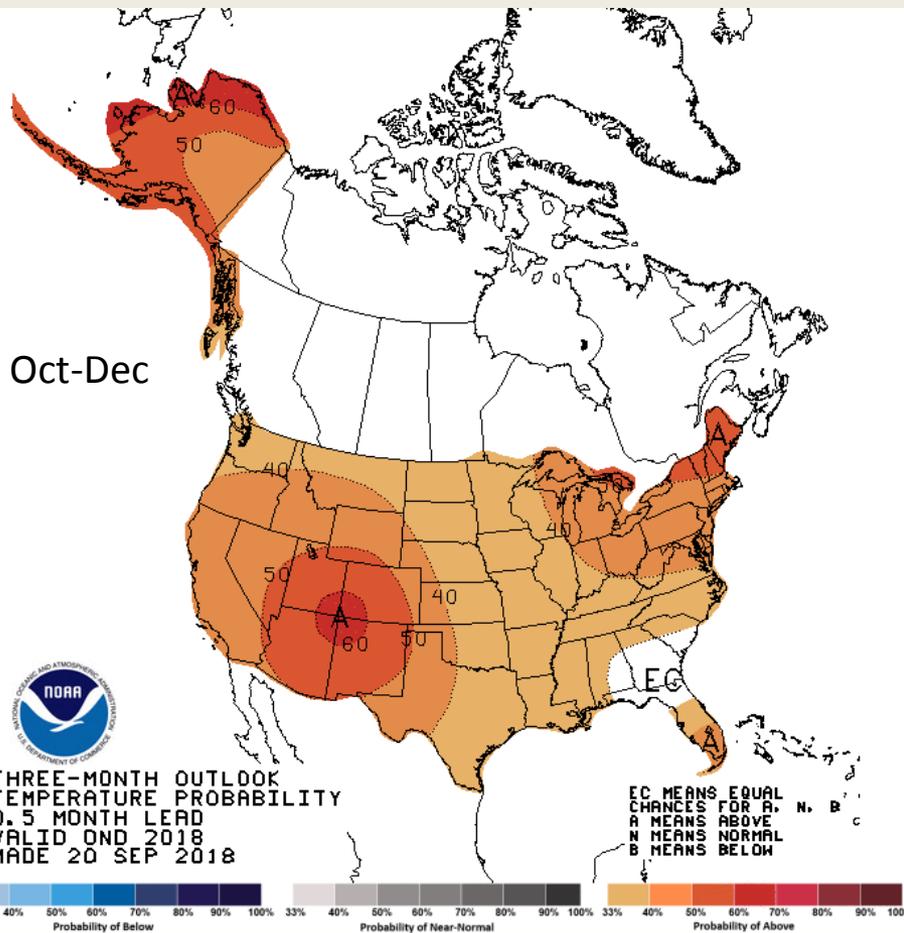
NMME models + other dynamical models + statistical models



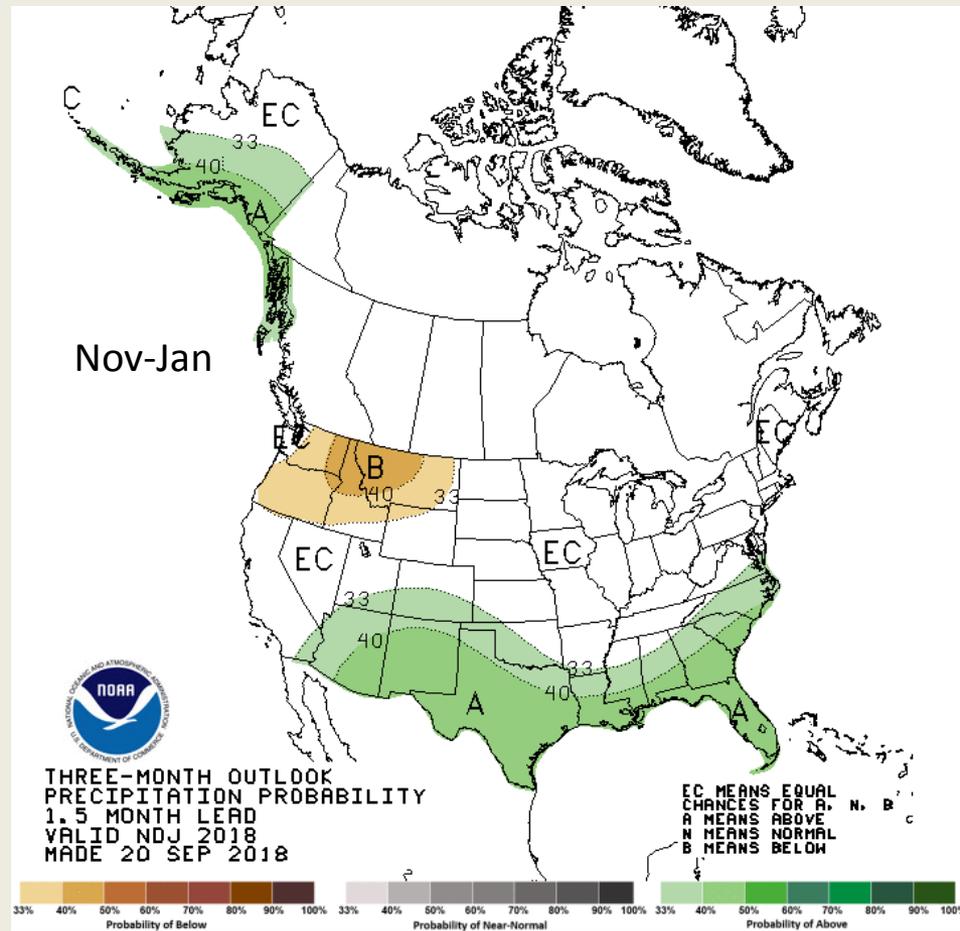
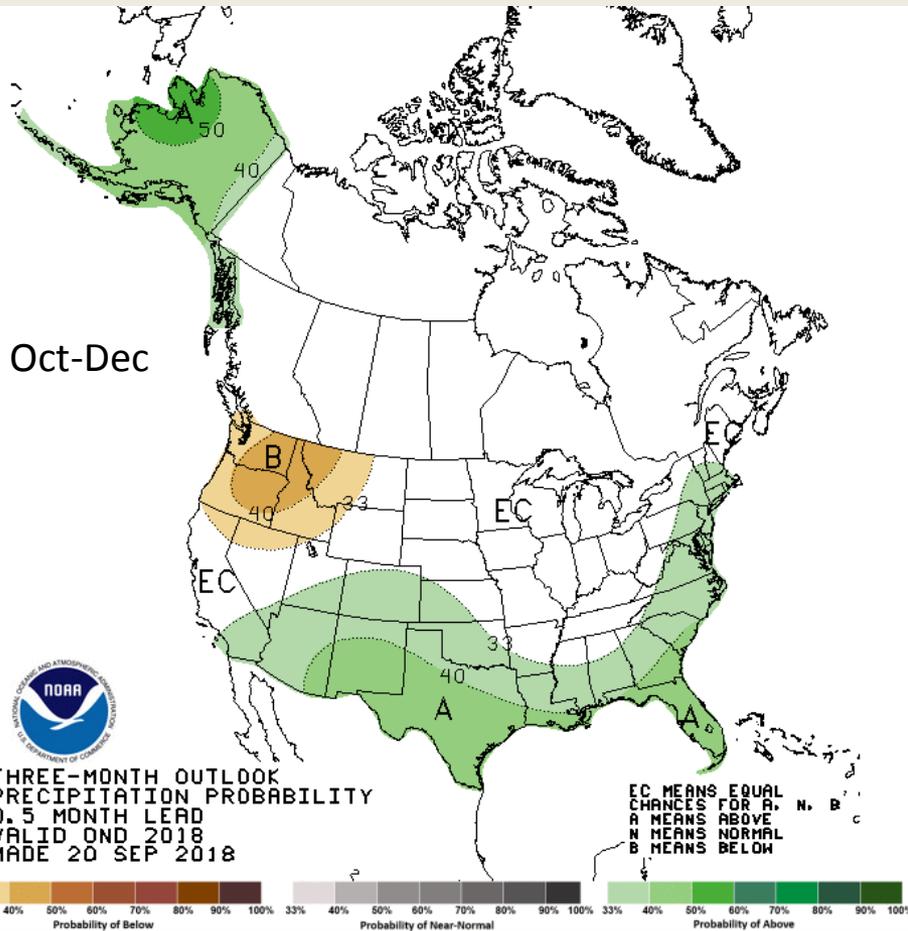
October U.S. Forecasts



U.S. Seasonal Temperature Forecasts



U.S. Seasonal Precipitation Forecasts

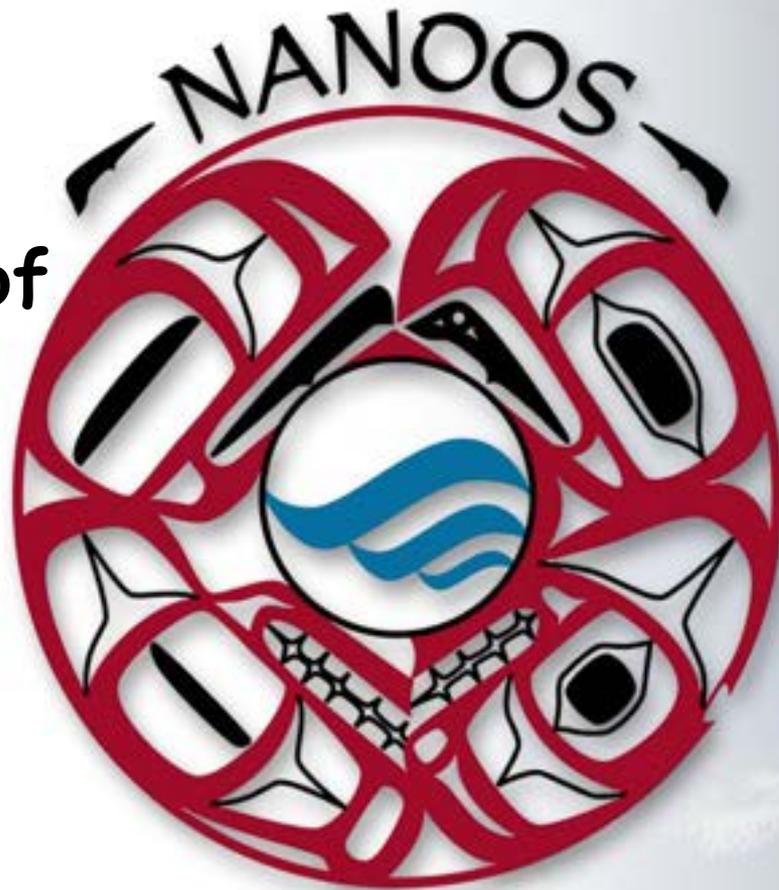


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Northwest Association of Networked Ocean Observing Systems



NOAA West Watch Update 25 September 2018:
Washington / Oregon Observations

Jan Newton, NANOOS Executive Director

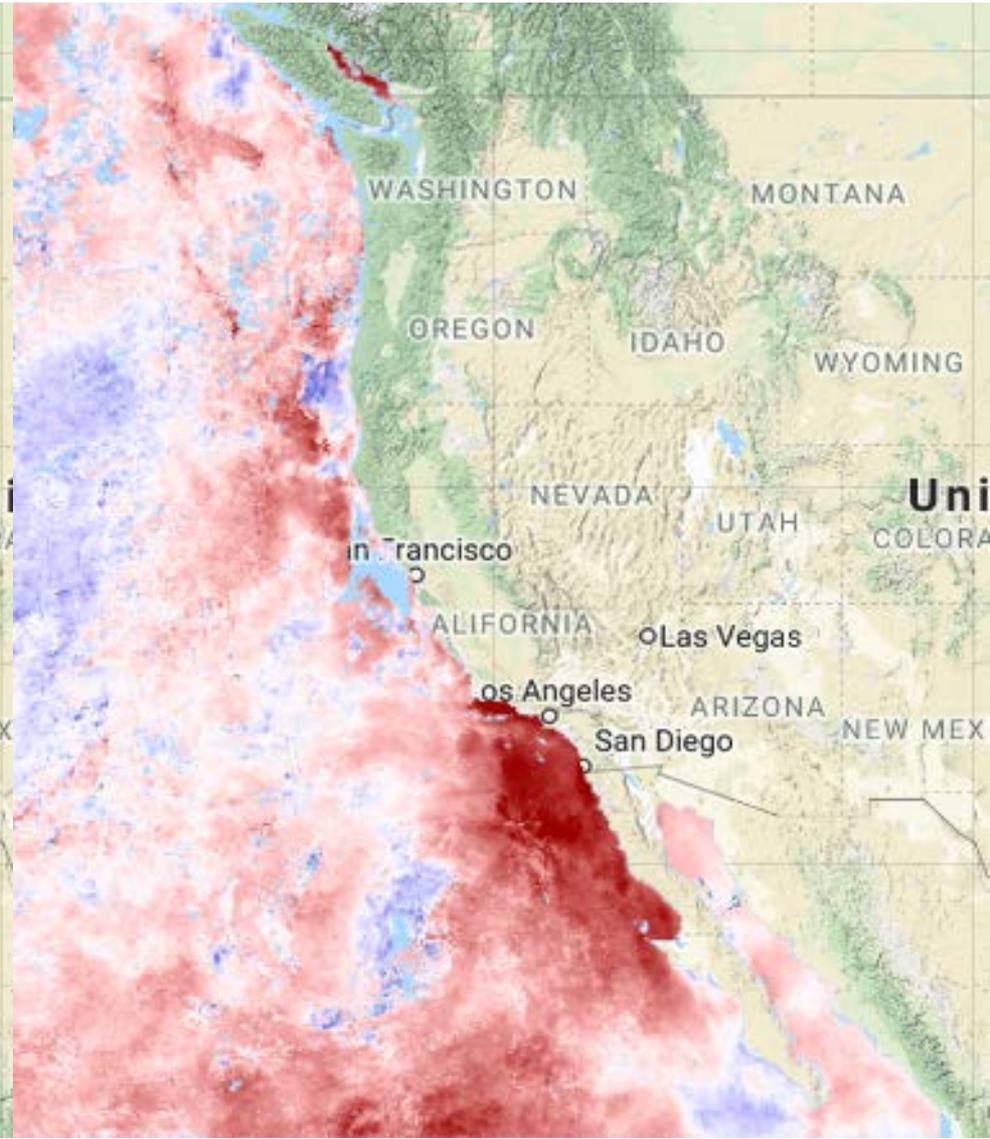
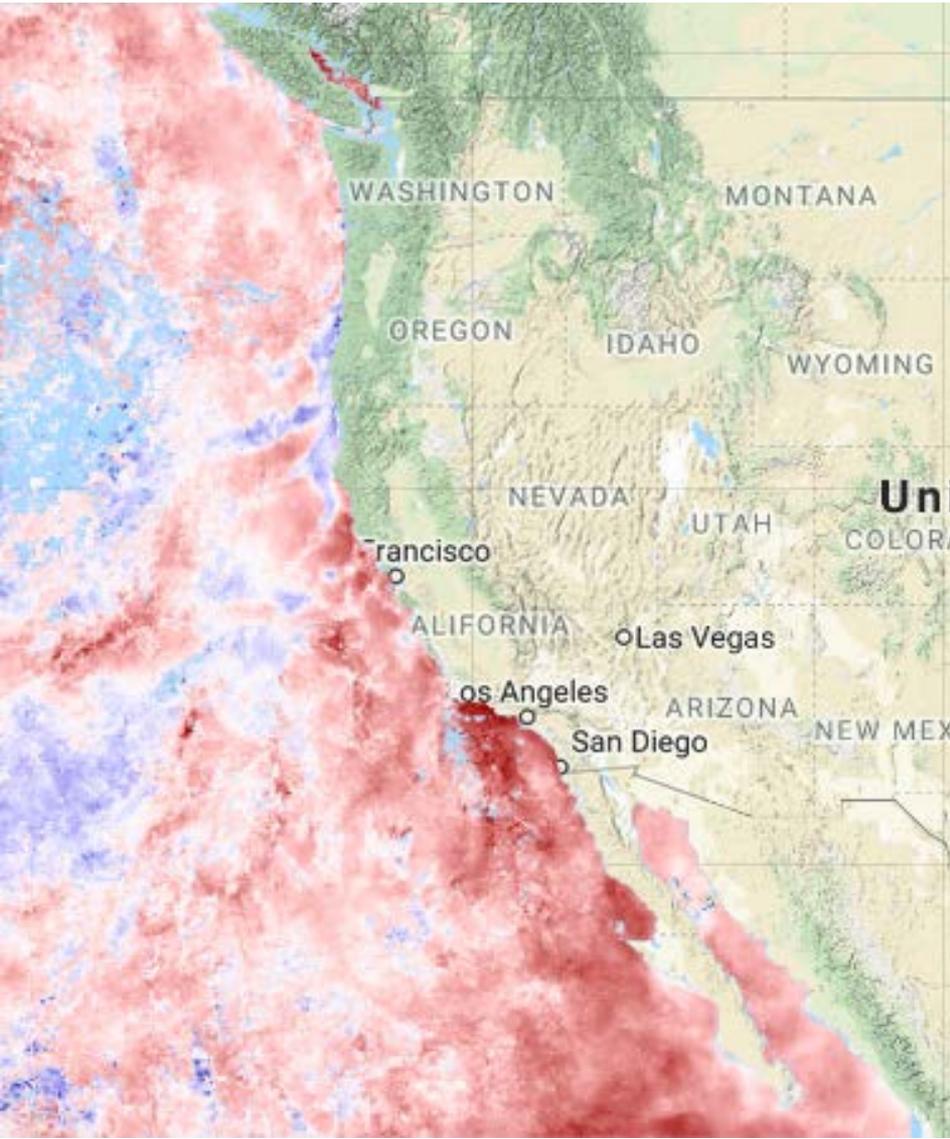
NANOOS: Climatology app

<http://nvs.nanoos.org/Climatology>

Sea Surface Temperature Anomaly

July 2018

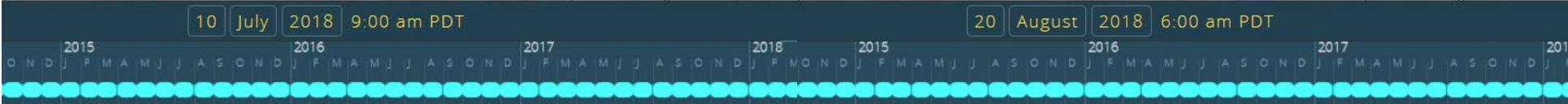
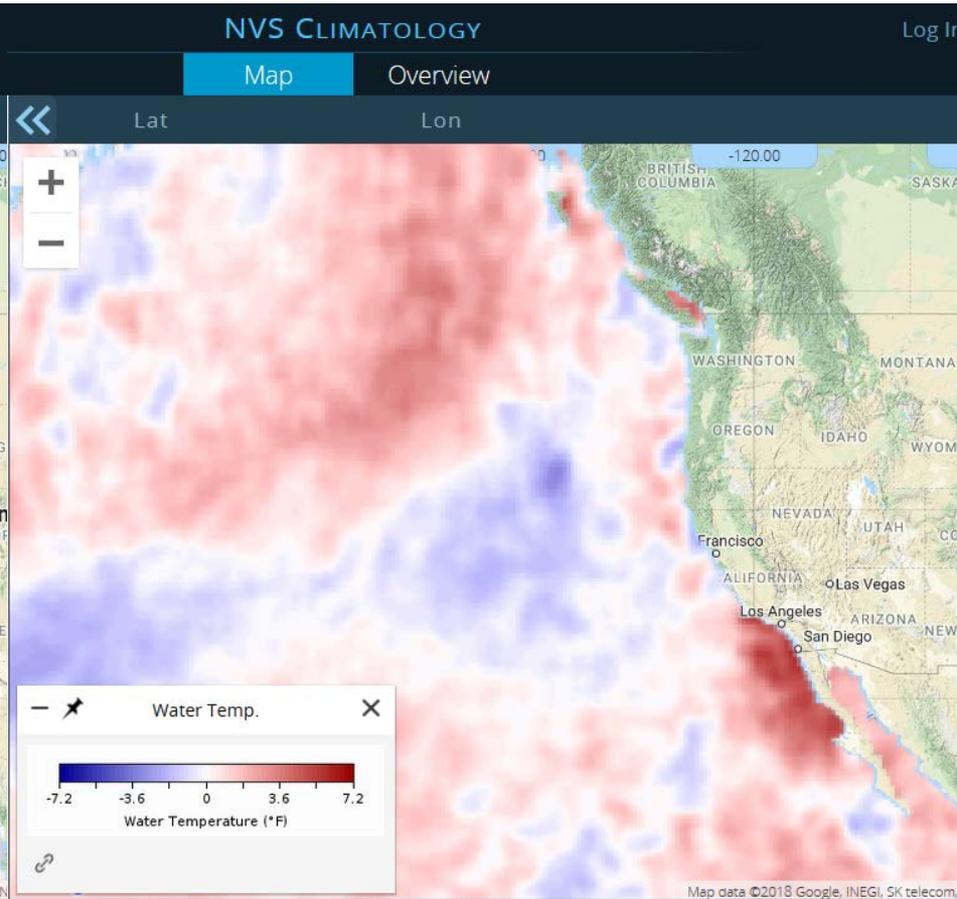
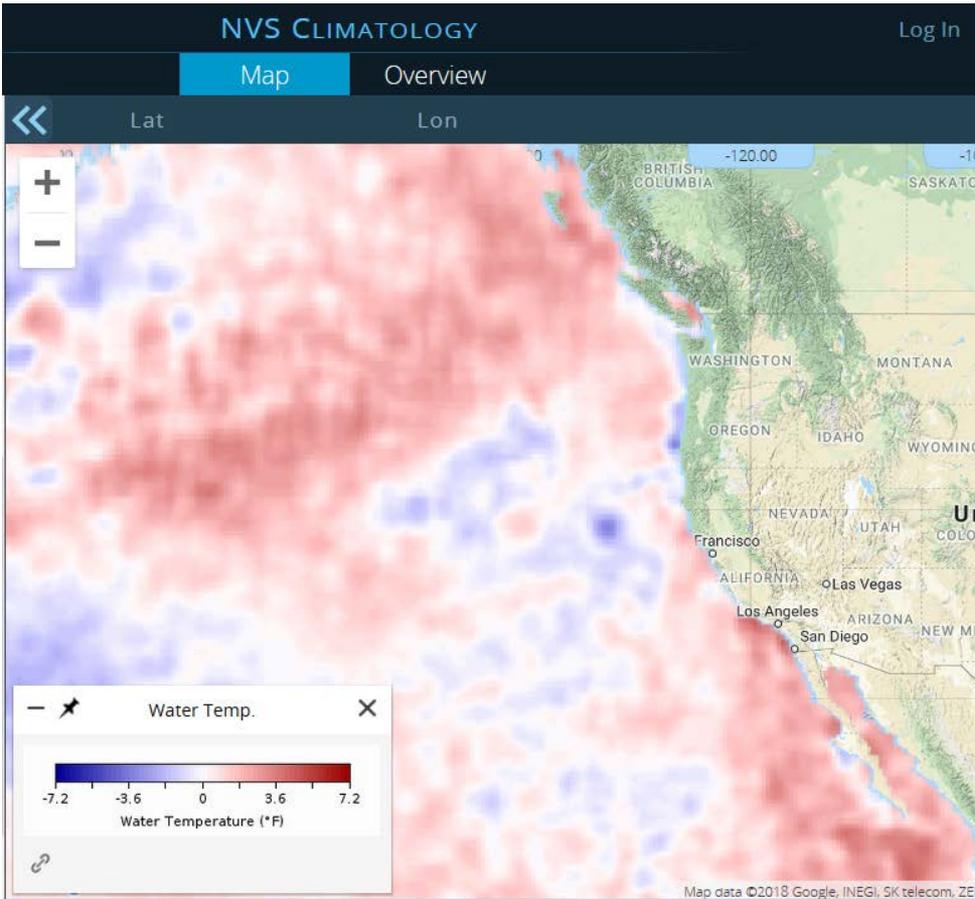
Aug 2018

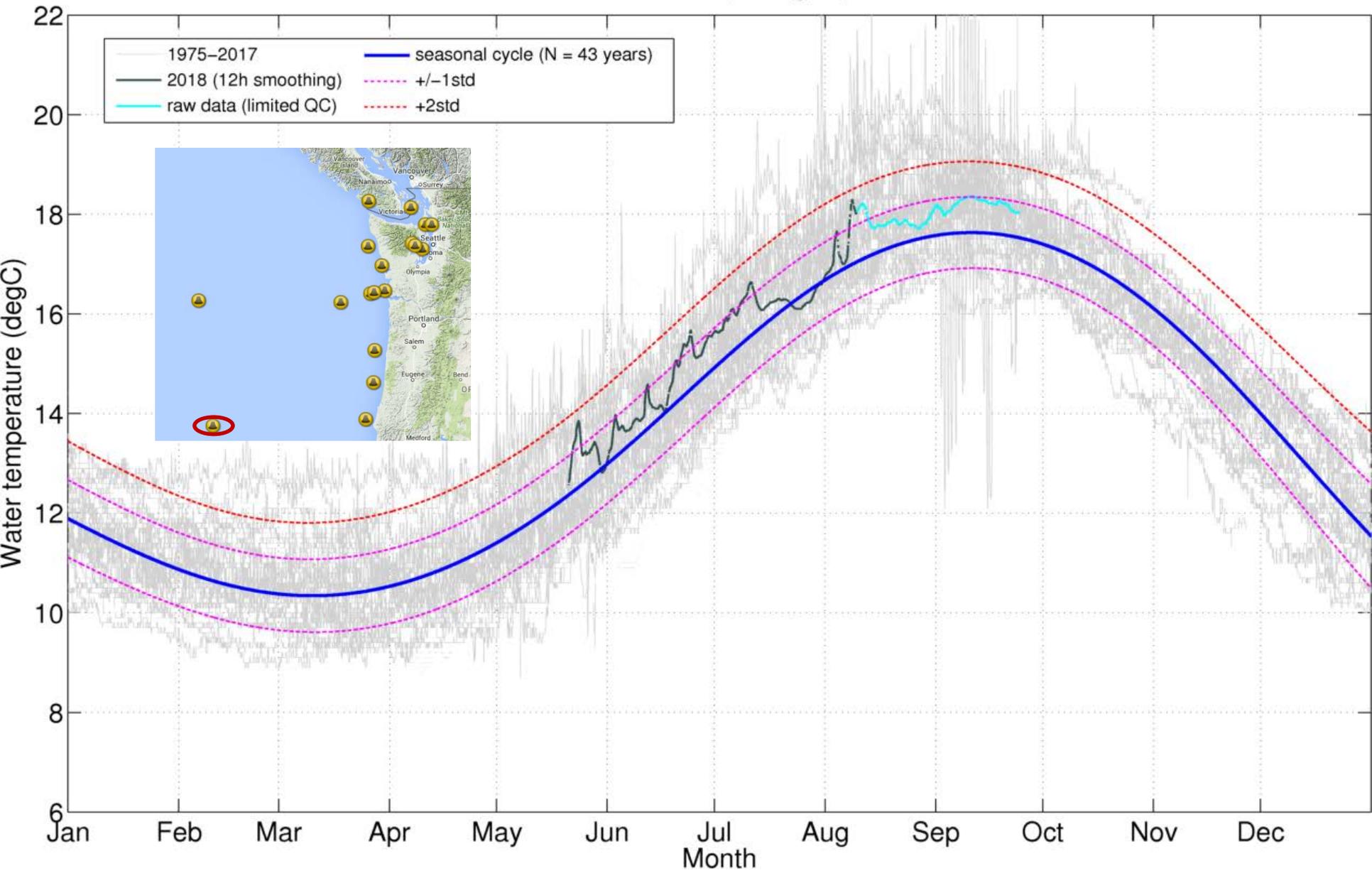


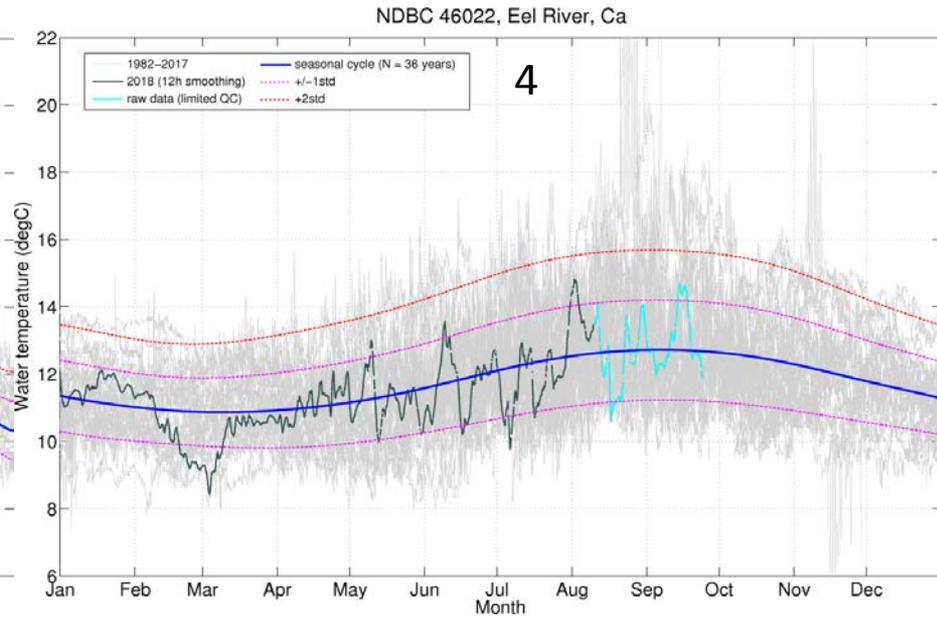
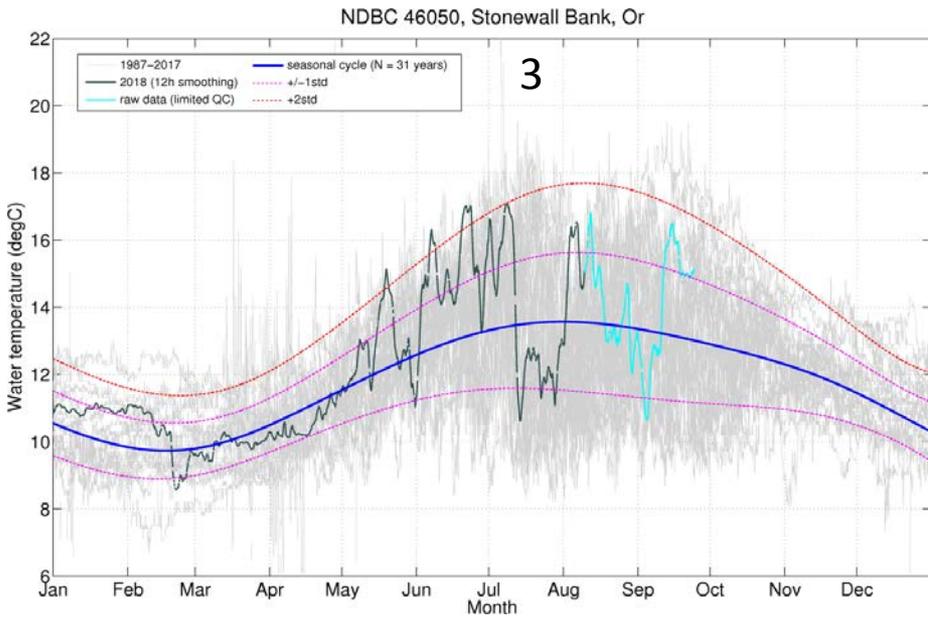
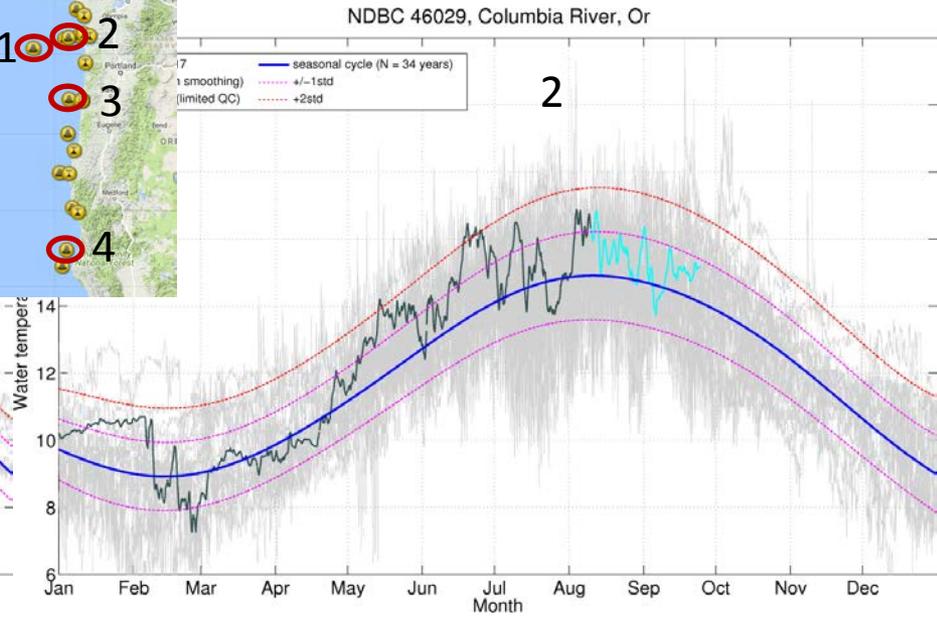
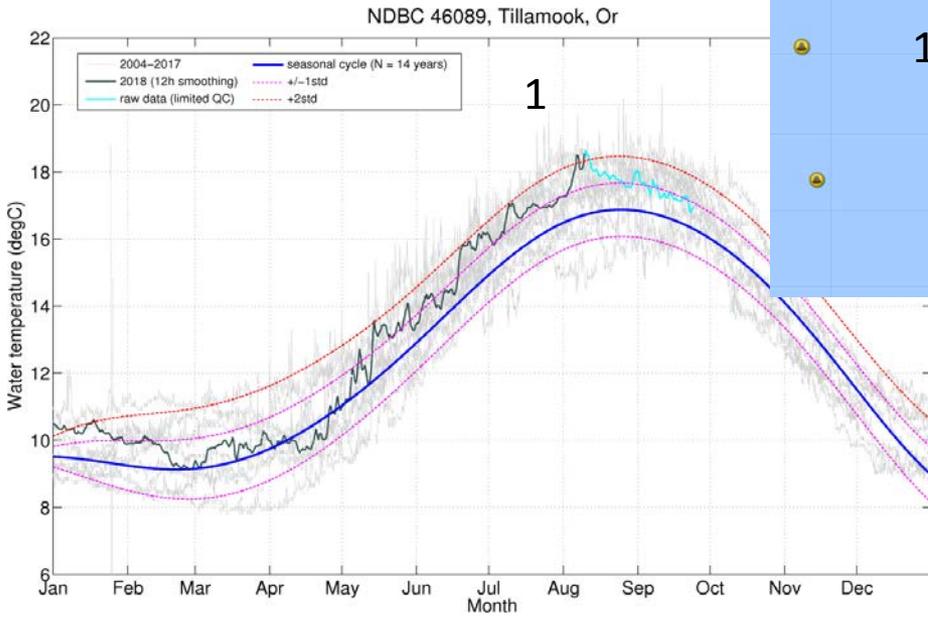
Sea Surface Temperature Anomaly

July 2018

Aug 2018

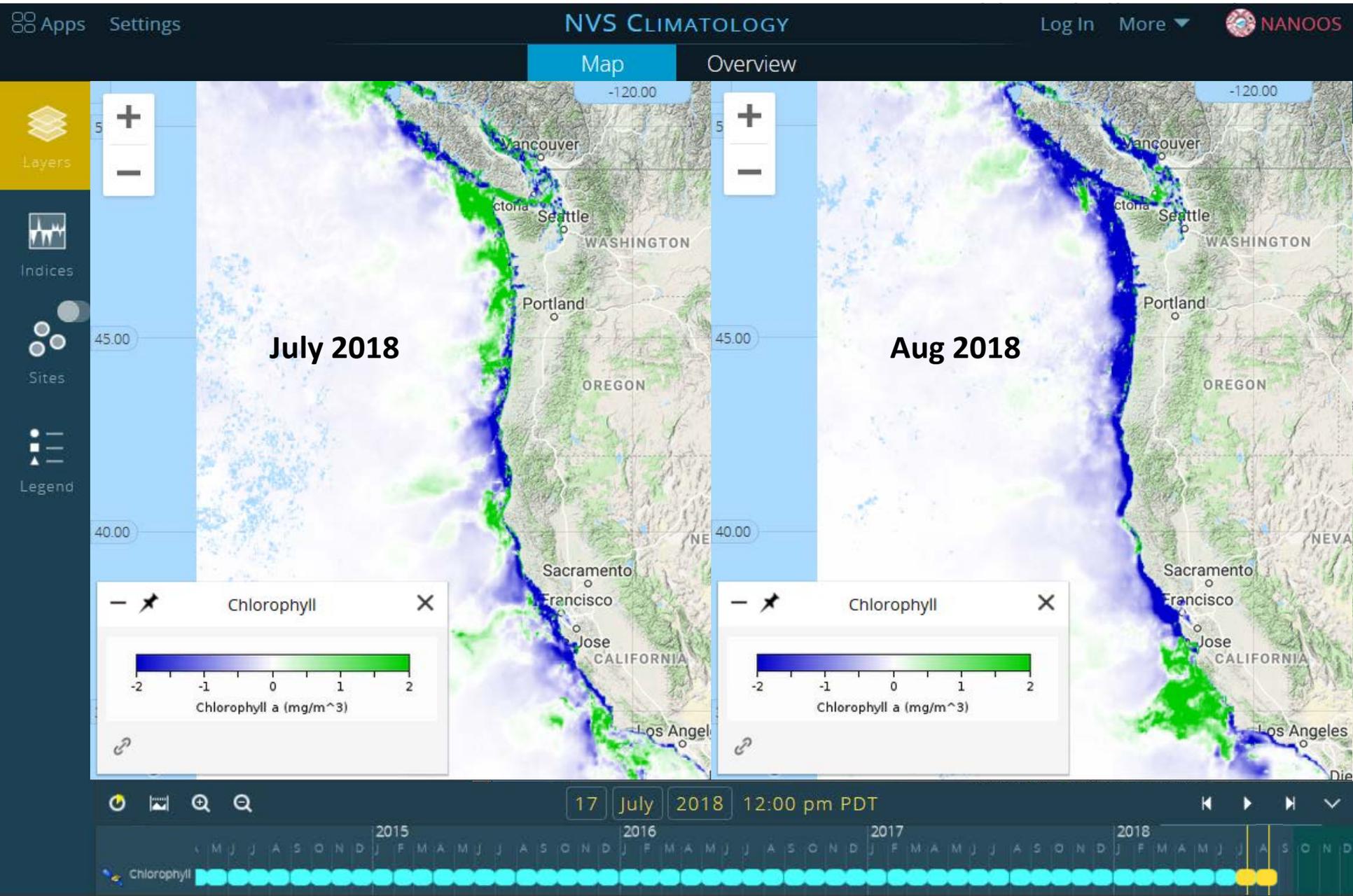


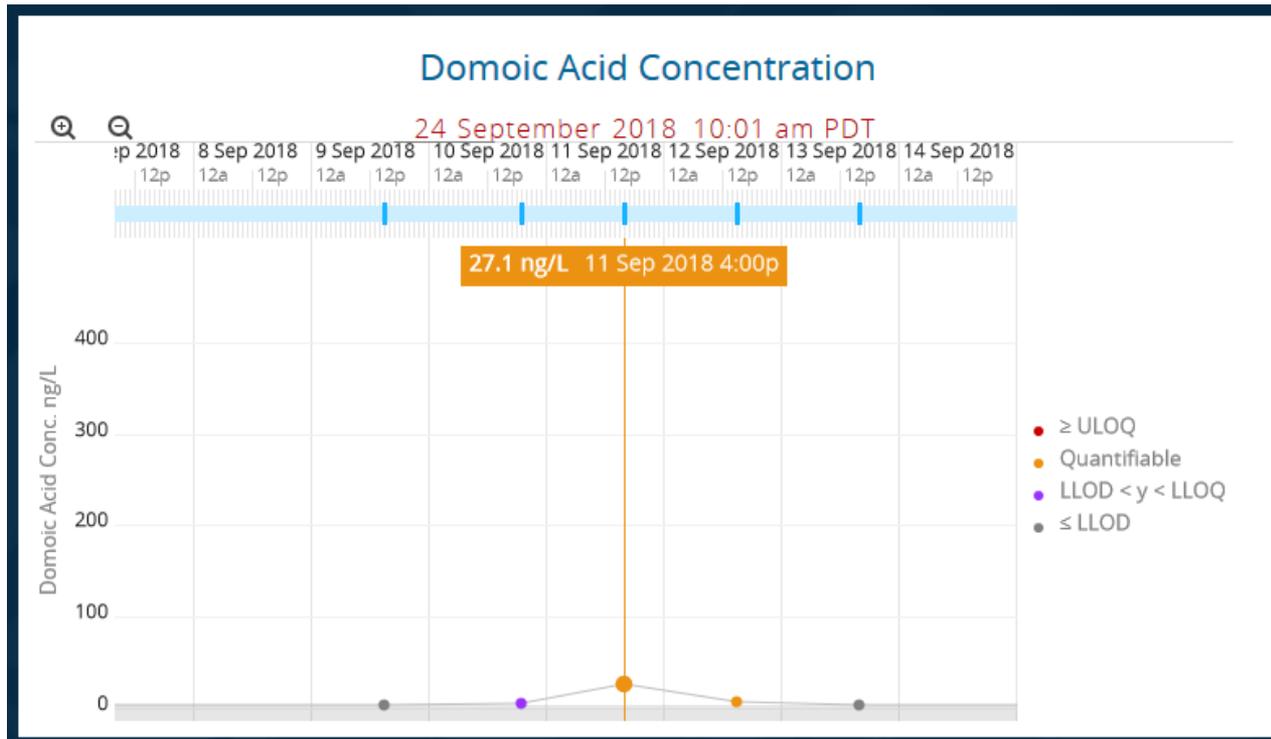
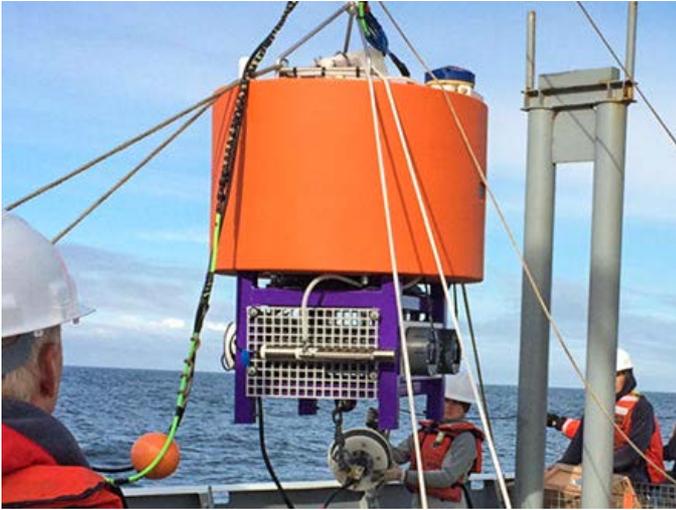




NANOOS: Climatology app

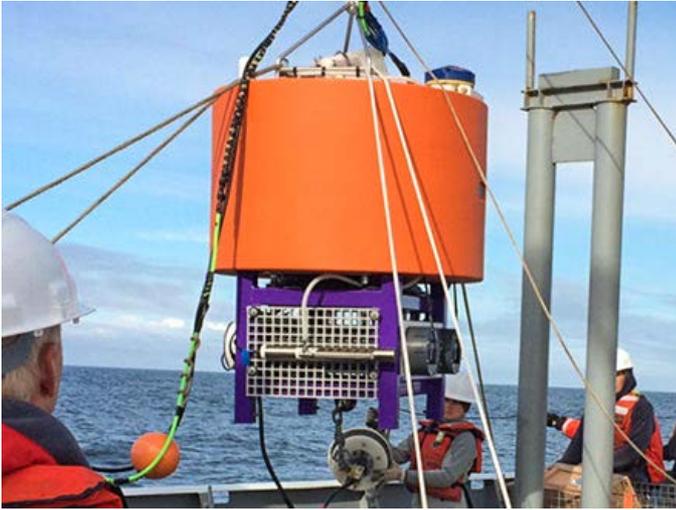
<http://nvs.nanoos.org/Climatology>



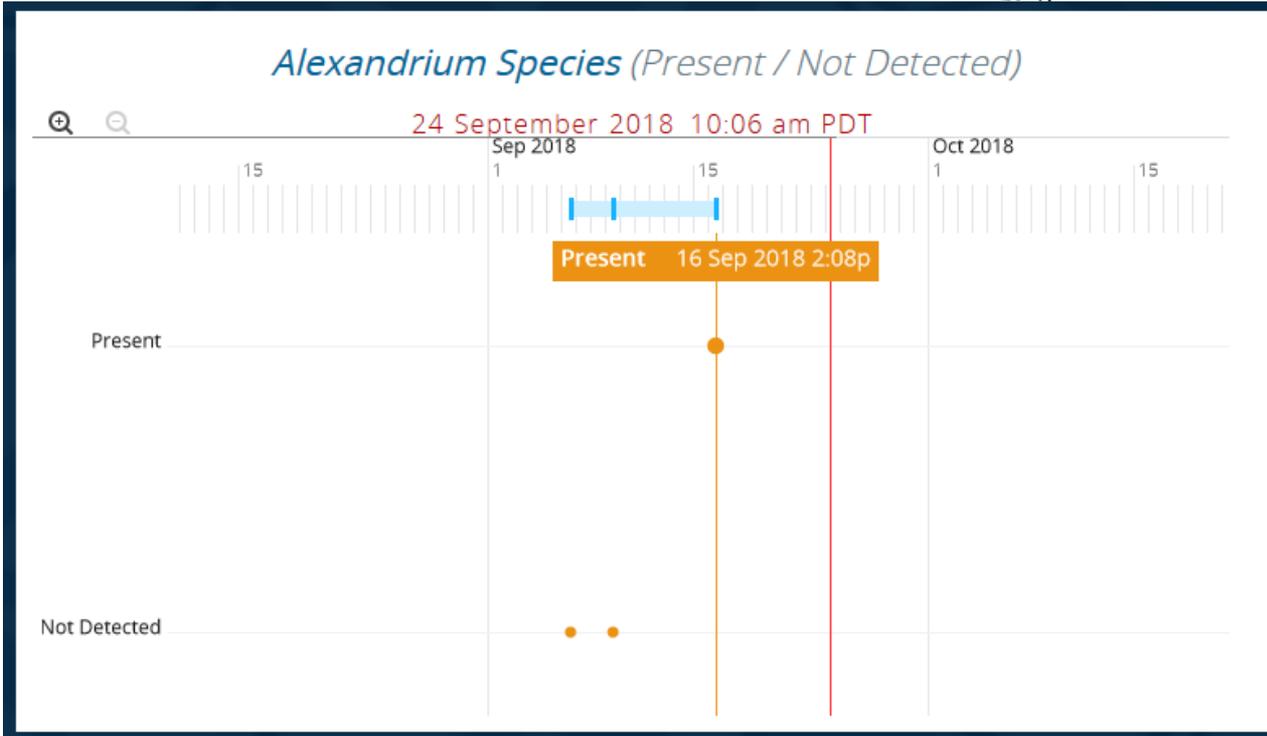
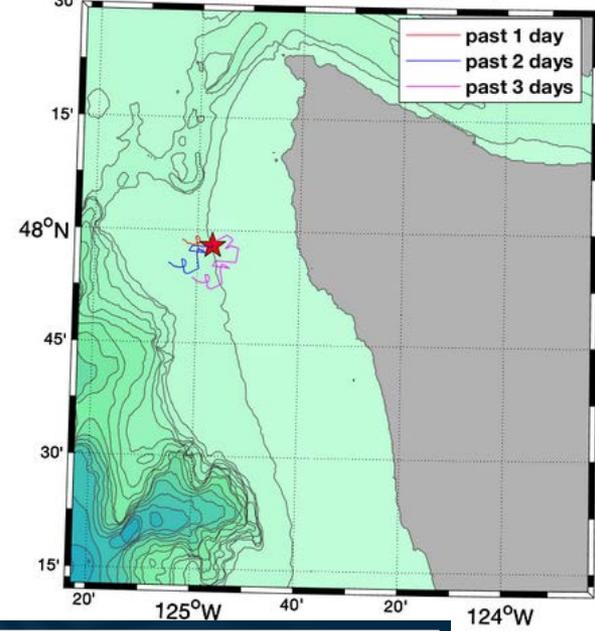


NANOOS: Real-Time HABs product

http://www.nanoos.org/products/real-time_habs/



Progressive Vector Diagram of Velocity avgd. over 2-4 m

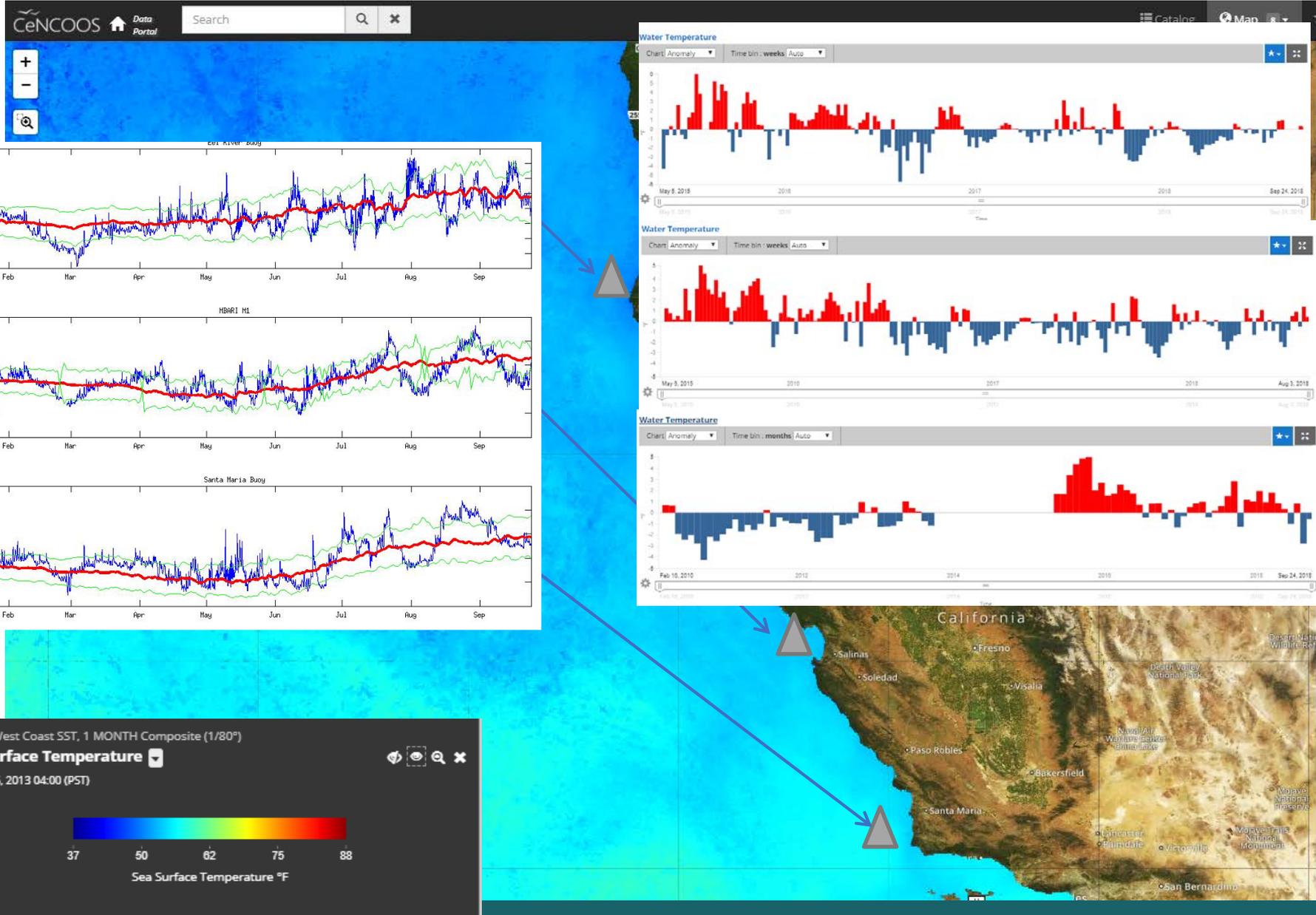




NOAA West Watch Update: Central & Northern California Update

Presented by: Alex Harper, CeNCOOS Program Manager

CeNCOOS Climatology

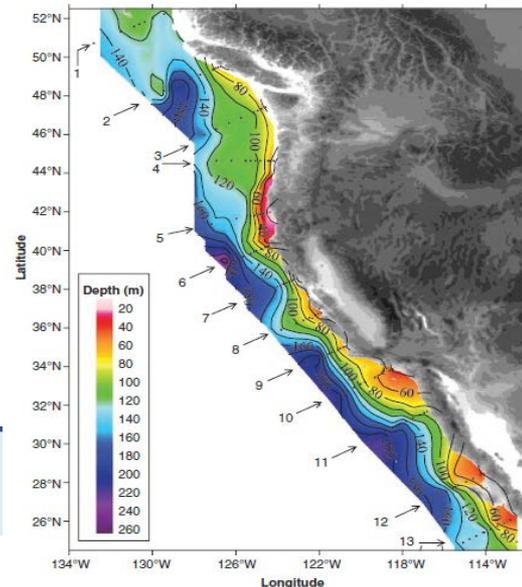


OAH Drivers in CA: Upwelling and CO2 Emissions

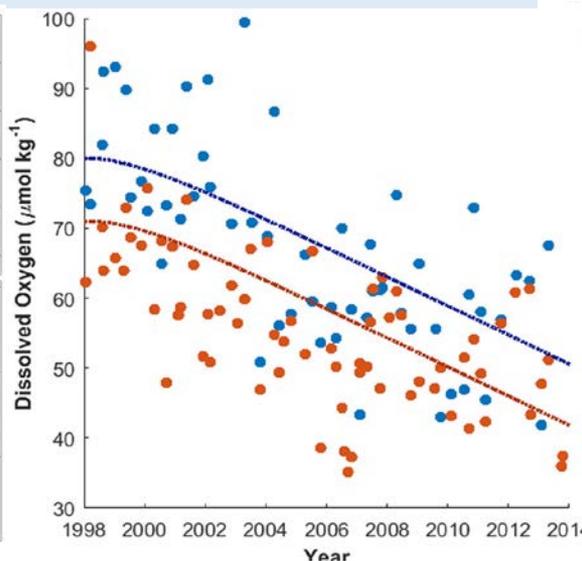
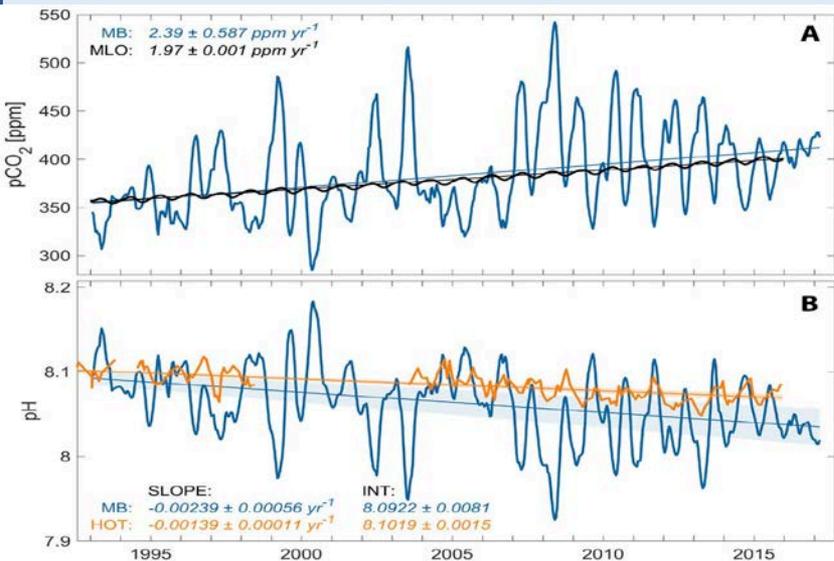
Upwelling draws more corrosive (low pH, low DO) water upward from depth into shallow, coastal regions.

Undersaturated waters (arag. Sat. <1; pH less than 7.75) extends to very shallow depths along the West Coast.

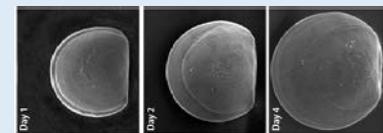
Distribution of the depths of the undersaturated water (pH < 7.75). Feely et al., 2008



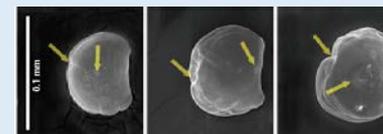
California Current is Acidifying & Losing O2



Oyster larvae in: normal seawater



Oyster larvae in: acidified seawater

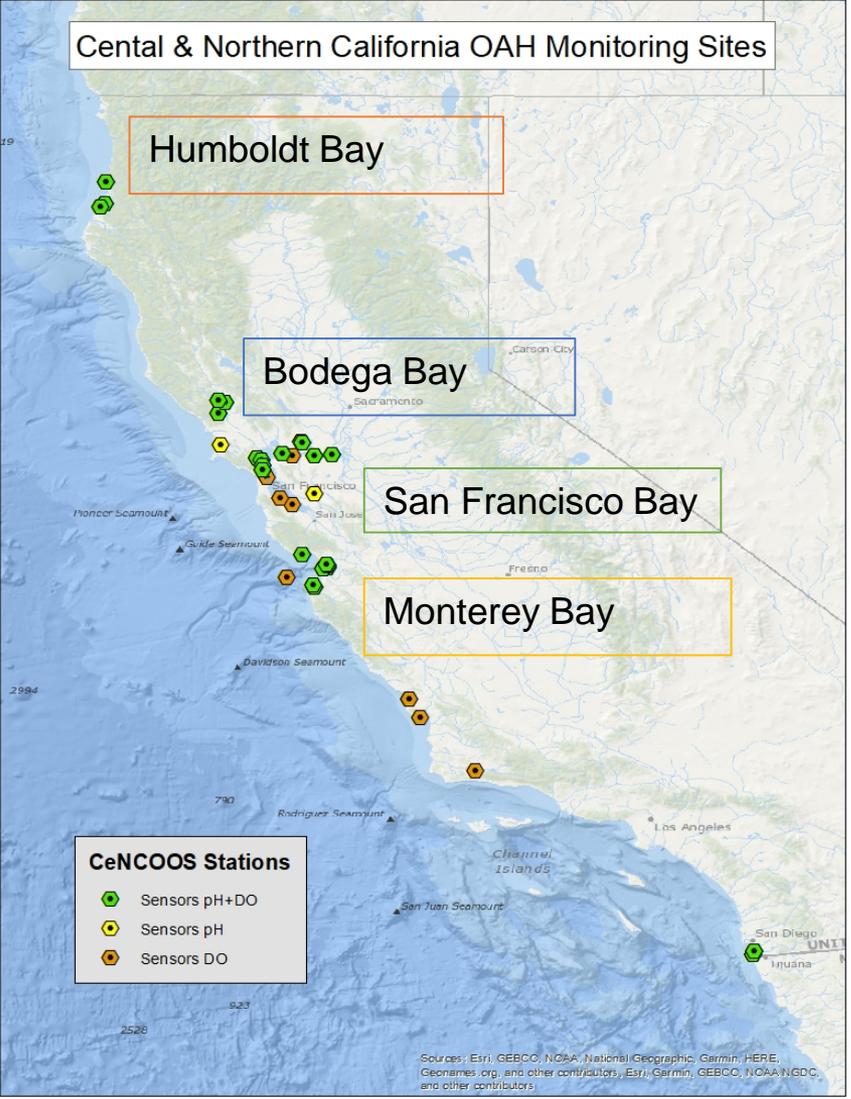


(E. Brunner & G. Waldbusser, OSU)

Time series of surface pCO2 and (B) surface pH estimated from (A) and TA derived from salinity (Chavez et al., 2017)

Inshore (orange) and offshore (blue) dissolved oxygen from Line 67 glider observations (Ren et al., 2018)

CeNCOOS observations support shellfish aquaculture

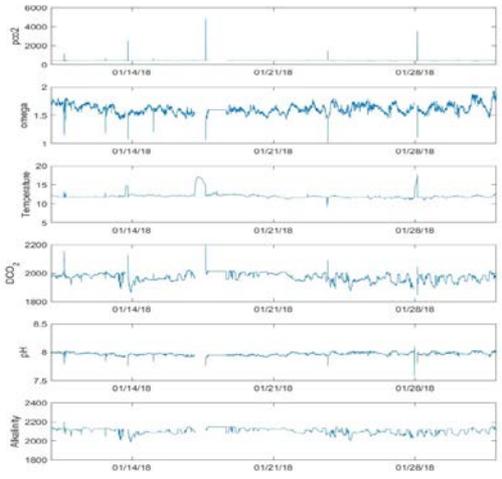


Innovations to combat OAH impacts

'Headlights' Project



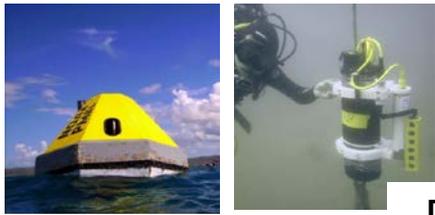
'Burke-o-lator'



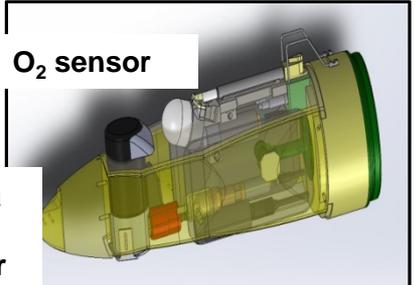
Seagrass Mitigation to OA?



New SF Bays Buoys



Spray Gliders with pH Sensors



Deep-Sea DuraFET pH sensor

HAB Health Advisory and Closures in Humboldt Bay

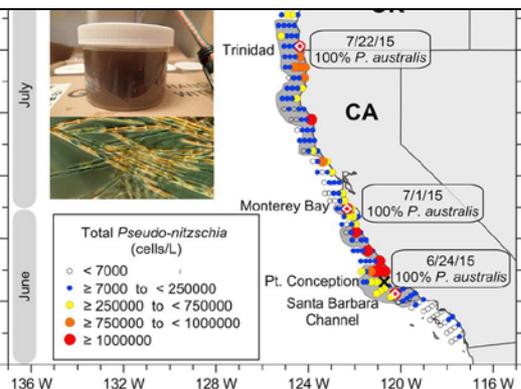
- The California Dept. of Public Health (CDPH) is advising consumers not to eat recreationally harvested mussels, clams or whole scallops from Humboldt County (Sept 13, 2018).
- Dangerous levels of domoic acid have been detected in mussels from this region (tDA = 537,238 ng/L (537 ug/L), mussels jumped from less than 2 ppm to 25.75 ppm)
- The CDPH warnings against eating any sport-harvested bivalve shellfish from Del Norte County
- This warning does not apply to commercially sold clams, mussels, scallops or oysters from approved sources.
- Shellfish sold by certified harvesters and dealers are subject to frequent mandatory testing to monitor for toxins.

The screenshot shows the California Department of Fish and Wildlife website. The main heading is "Health Advisories and Closures for California Finfish, Shellfish and Crustaceans". Below this, there is a paragraph explaining the routine monitoring program for mussels and other shellfish. To the right, there is an illustration of a crab and some fish. A "News Releases" section on the right lists two advisories: "CDPH Warns Consumers Not to Eat Sport-Harvested Bivalve Shellfish from Humboldt County" (dated 9/14/2018) and "CDPH Warns Consumers Not to Eat Sport-Harvested Bivalve Shellfish from Del Norte County" (dated 9/17/2018).

<https://www.wildlife.ca.gov/fishing/ocean/health-advisories>

The screenshot shows the California Department of Public Health website. The main heading is "OFFICE OF PUBLIC AFFAIRS". Below this, there is a "Contact:" section with the following information: "Office of Public Affairs", "(916) 440-7259", and "CDPH Warns Consumers Not to Eat Sport-Harvested Bivalve Shellfish from Humboldt County". The date is "September 13, 2018", the number is "18-046", and the contact is "Corey Egel | 916.440.7259 | cdphpress@cdph.ca.gov". A paragraph of text follows, stating: "SACRAMENTO - The California Department of Public Health (CDPH) is advising consumers not to eat recreationally harvested mussels, clams or whole scallops from Humboldt County. Dangerous levels of domoic acid have been detected in mussels from this region. This naturally occurring toxin is also referred to as Amnesic Shellfish Poisoning (ASP) and can cause illness or death in humans."

<https://www.cdph.ca.gov/Programs/OPA/Pages/NR18-046.aspx>



HAB hotspot in Humboldt
Pseudo-nitzschia abundance
in surface seawater in 2015.
 McCabe et al., Geophysical
 Research Letters
 10.1002/2016GL070023.



Thank you!

Email Alex Harper at aharper@mbari.org





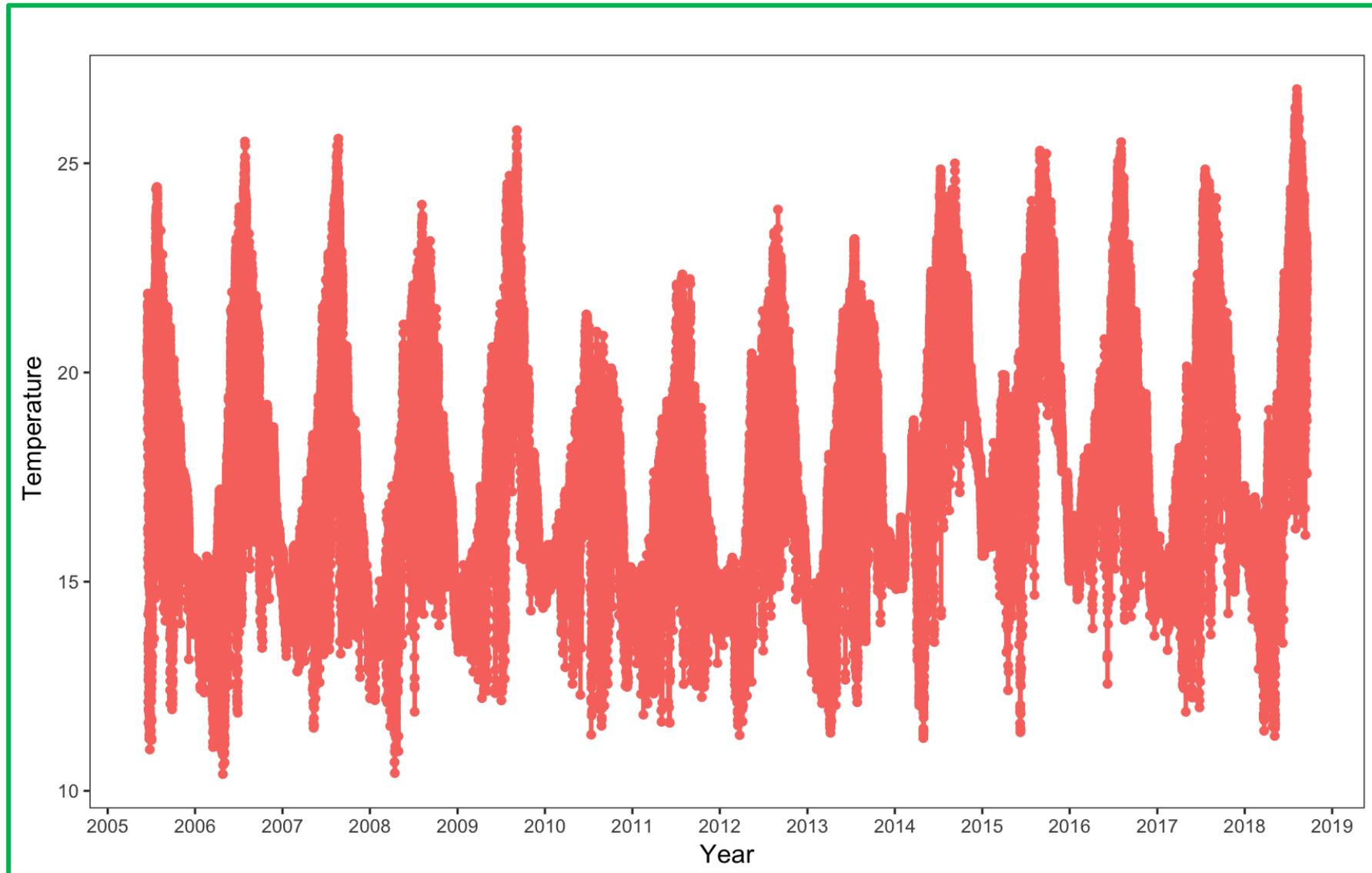
NOAA West Watch Update: Southern California

Clarissa Anderson and Megan Hepner

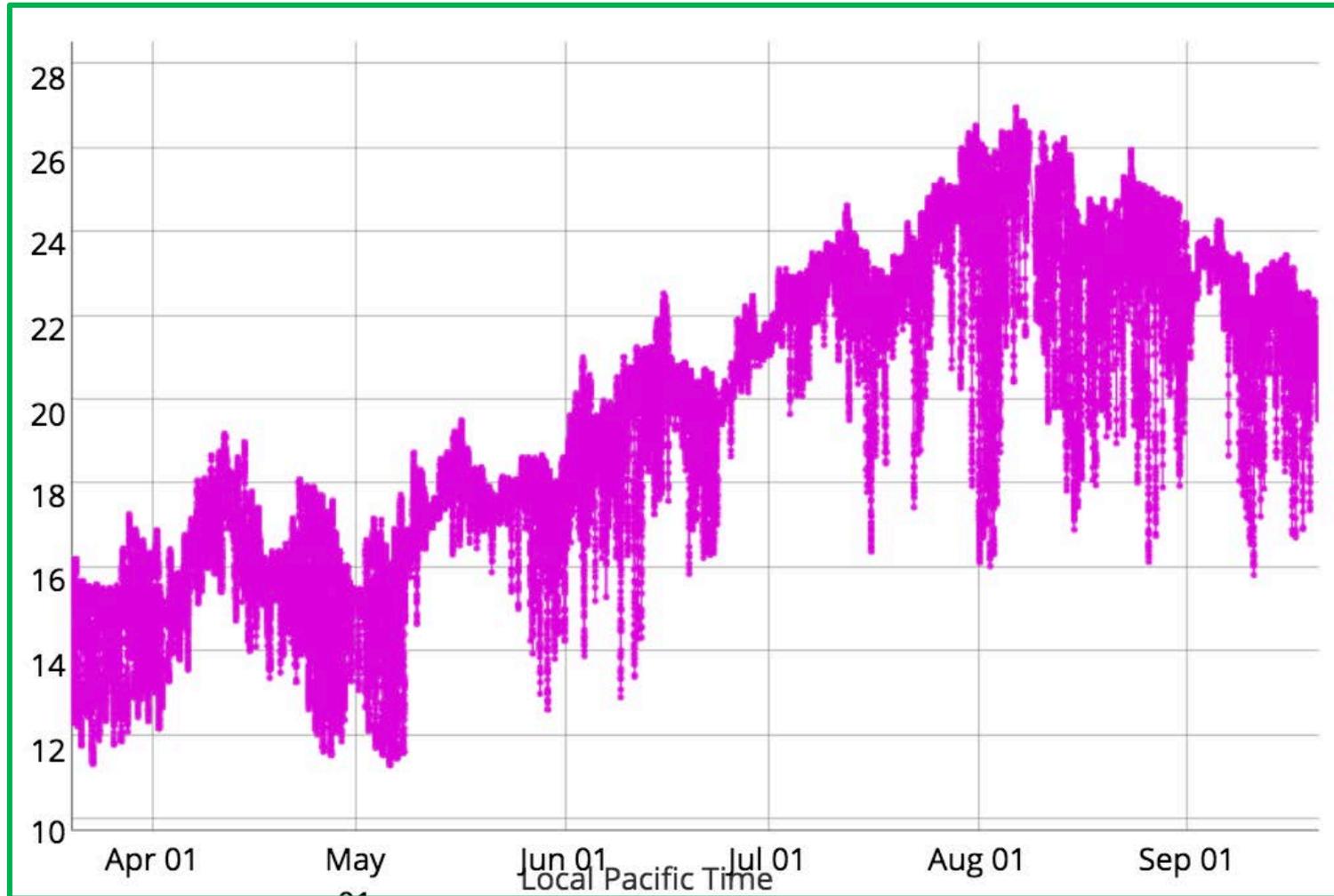
September 25th, 2018

www.sccoos.org

Scripps Pier Shore Station Temp.



Scripps Pier Shore Station Temp.



August 1st Record 25.9°C (78.6°F)



News Coverage



Ocean Temperatures in La Jolla Measure Highest in Over 100 Years



San Diego Researchers Measure The Highest Ocean Surface Temperature In A Century



Record-shattering warm ocean waters creating rare humidity across San Diego



San Diego's Scripps Pier records highest ocean temperature in its 102-year history



Warm ocean water sets records in San Diego

Scripps Pier Record High SST



VIA SKYPE
SAN DIEGO

TOO HOT??

OCEAN SURFACE TEMPERATURE HITS 78.6°F IN CALIFORNIA

Clarissa Anderson | Exec. Director, Southern California Coastal Ocean Observing System

3:37 ET

HLN

A video frame showing a woman with long, dark, wavy hair speaking. She is in a room with bookshelves filled with books. The video has a green border.

SCCOOS Director reports on San Diego Ocean Temperature Record Highs

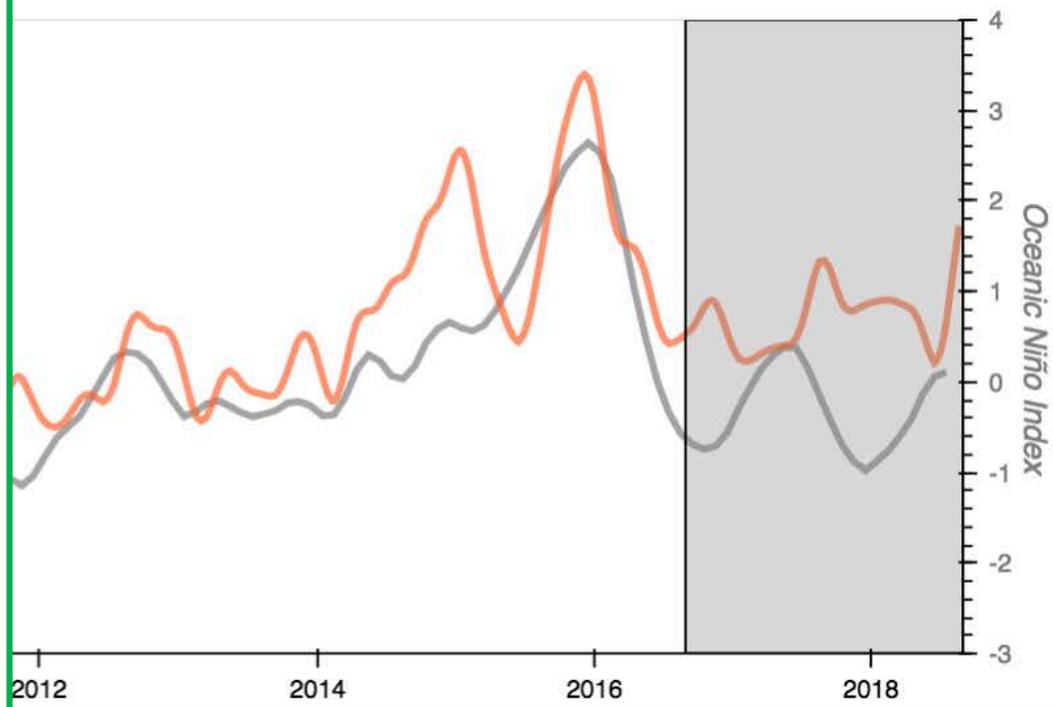
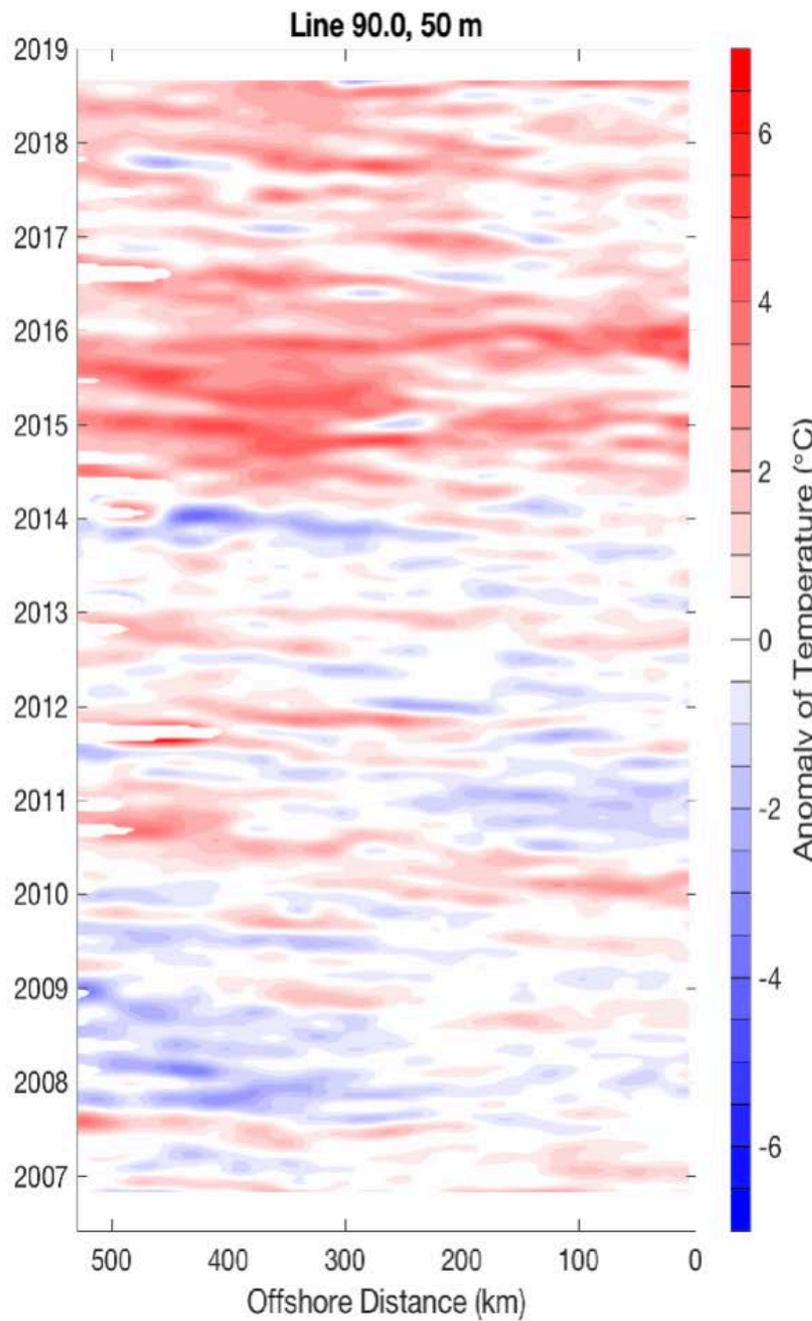
Like Comment Share

 Southern California Coastal Ocean Observing System

26 10 Comments 7 Shares

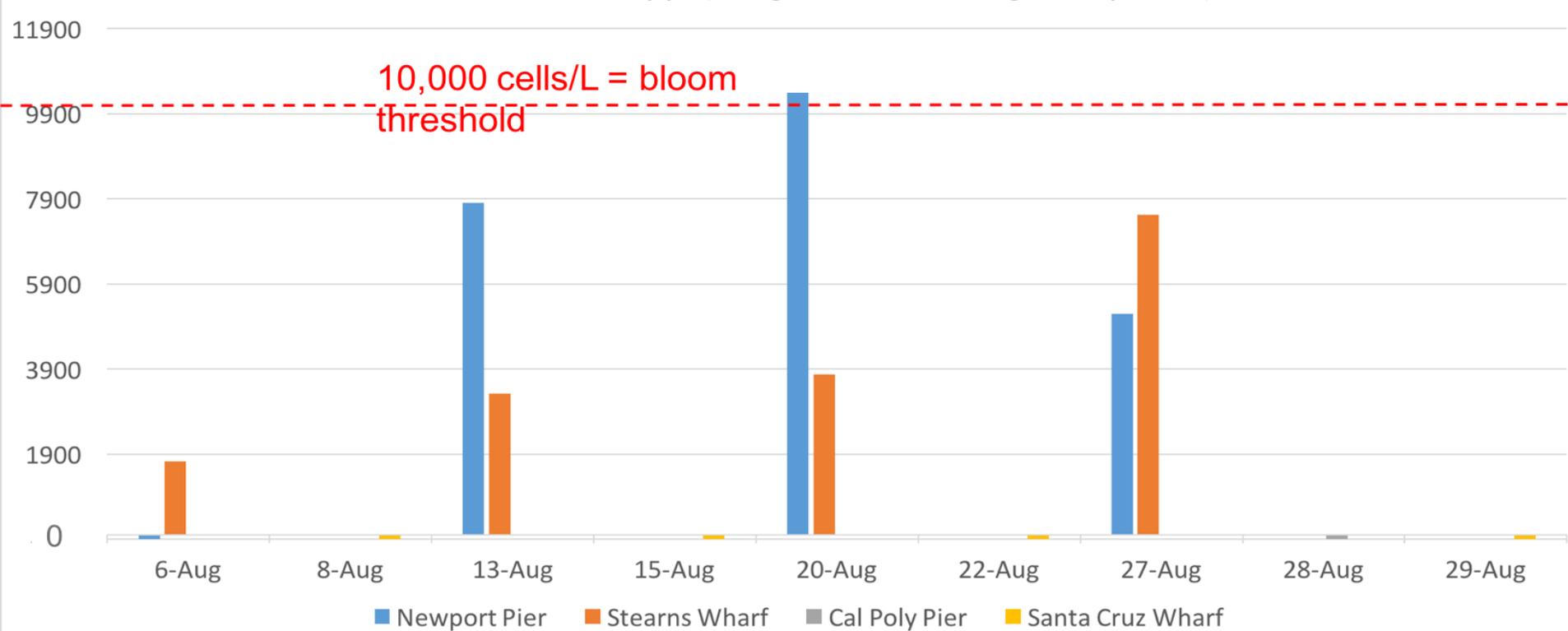


SoCal Index



HABMAP Monitoring

HABMAP Monitoring Data, CeNCOOS + SCCOOS
Pseudo-nitzschia spp. (toxigenic + non-toxigenic species)



Pseudo-nitzschia populations were well-represented at Newport Pier and Stearns Wharf in Santa Barbara with toxigenic species levels in mid-August

California HAB Monthly Bulletin

SCCOOS

Southern California Coastal Ocean Observing System: A Science-Based Decision Support System



California HAB Bulletin: August 2018

[C-HARM Model](#)

[HABMAP](#)

[CDPH
Phytoplankton Data](#)

[TMMC
Strandings Data](#)

C-HARM Model

Model runs stalled out on 8 August due to an upstream issue with the ROMS model servers. This has now been resolved, and we are working to back-fill the August predictions. Please stay tuned.

HABMAP Observations

While the full *Pseudo-nitzschia* population was well-represented at southern sites (Newport Pier and Stearns Wharf in Santa Barbara) and even at "bloom" levels around Aug 20, there was not much action at Cal Poly Pier and Santa Cruz Wharf throughout August. If we isolate just the very large *Pseudo-nitzschia* most likely to be toxigenic species, we see that this group dominated at Newport Pier in mid-August, albeit still at levels below the 10,000 cell/L bloom threshold. Note that there are not yet updated cell counts from Scripps Pier, Santa Monica Pier, and Monterey Wharf in the HABMAP archive for the month of August. Unlike *Pseudo-nitzschia*, *Alexandrium* spp. were well-represented at the more northern sites, with abundances building at Santa Cruz Wharf over the course of the month (consistent with CDPH sampling shown below), culminating in fairly high cell counts at Santa Cruz Wharf, Cal Poly Pier, and even Stearns Wharf by the end of August.

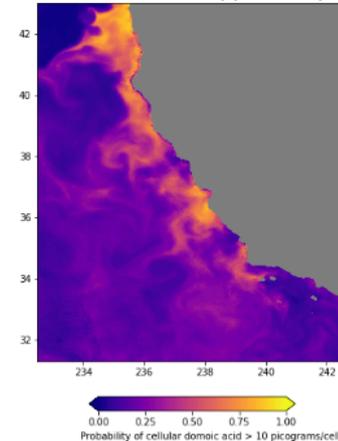
Monthly CA HAB Bulletin

[August 2018 Bulletin](#)

[July 2018 Bulletin](#)

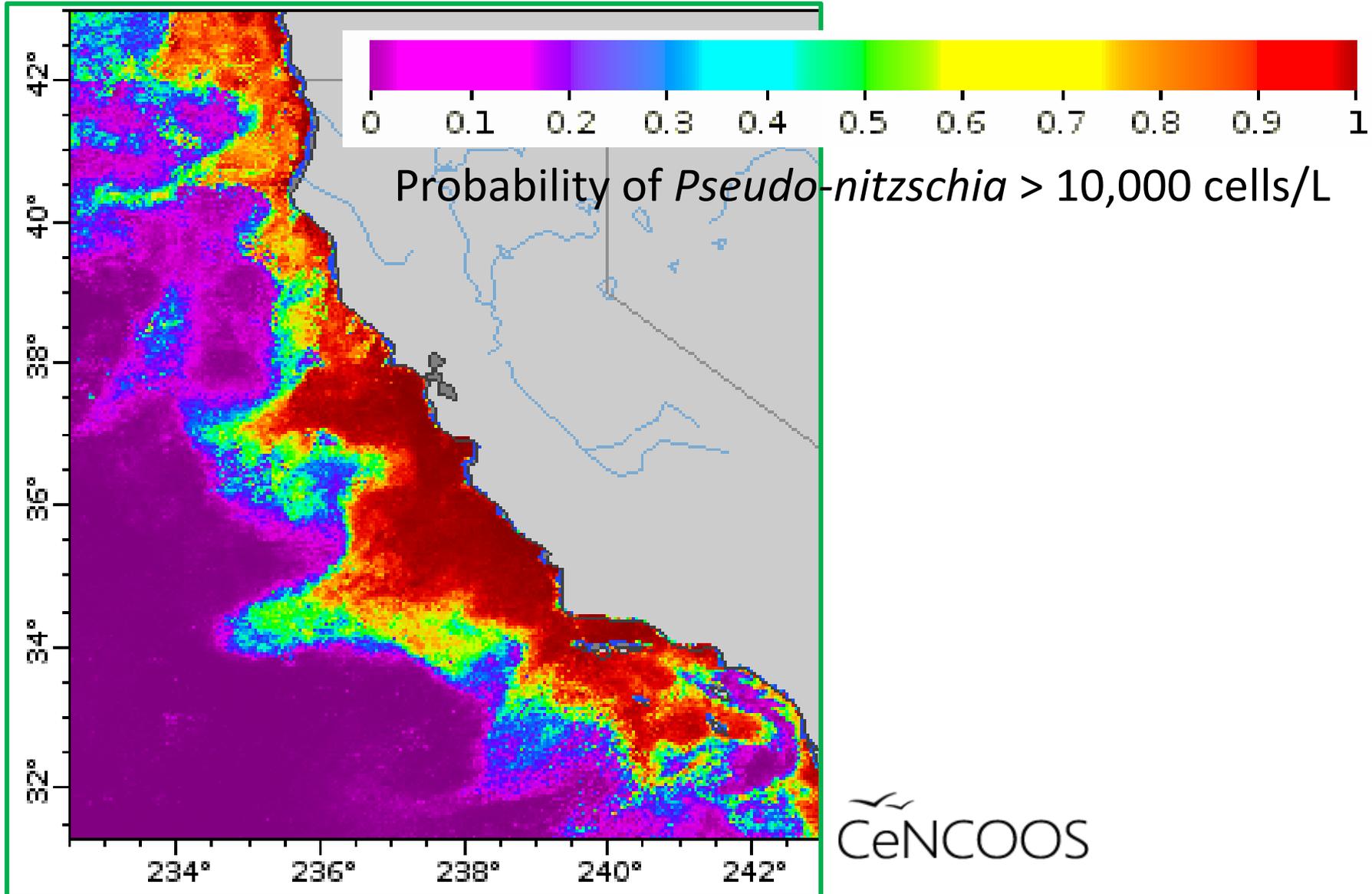
[Bulletin Archives](#)

Mean Cellular Domoic Acid Probability: Jul-01-2018 to Jul-31-2018

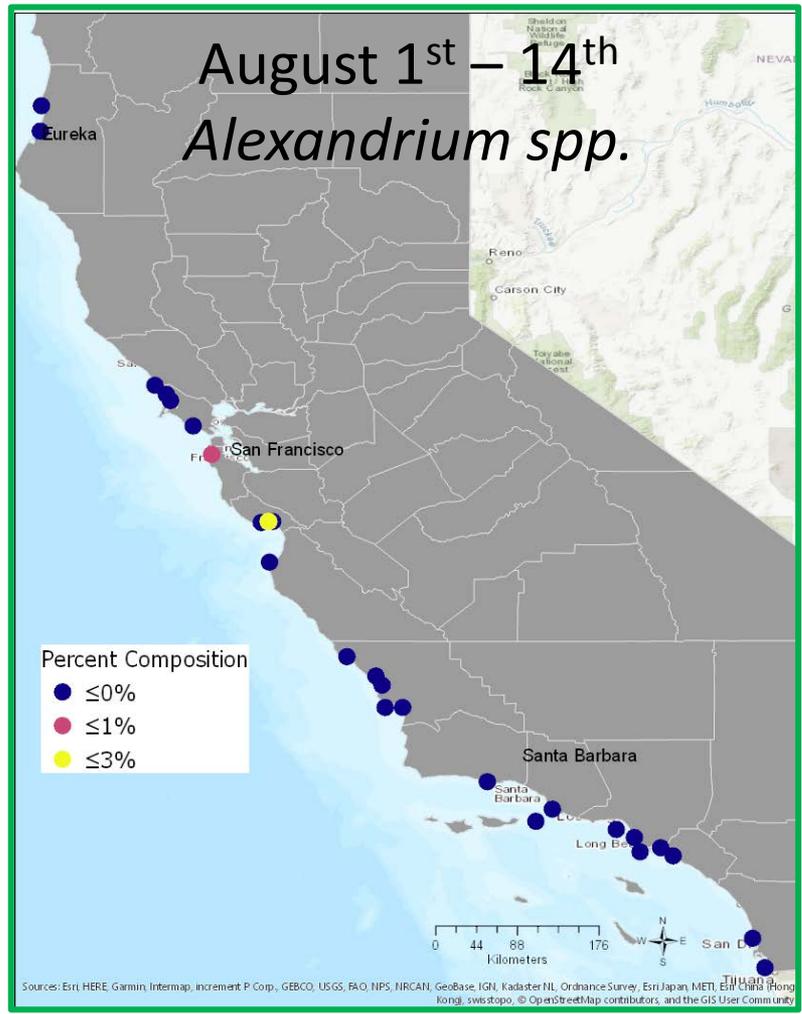
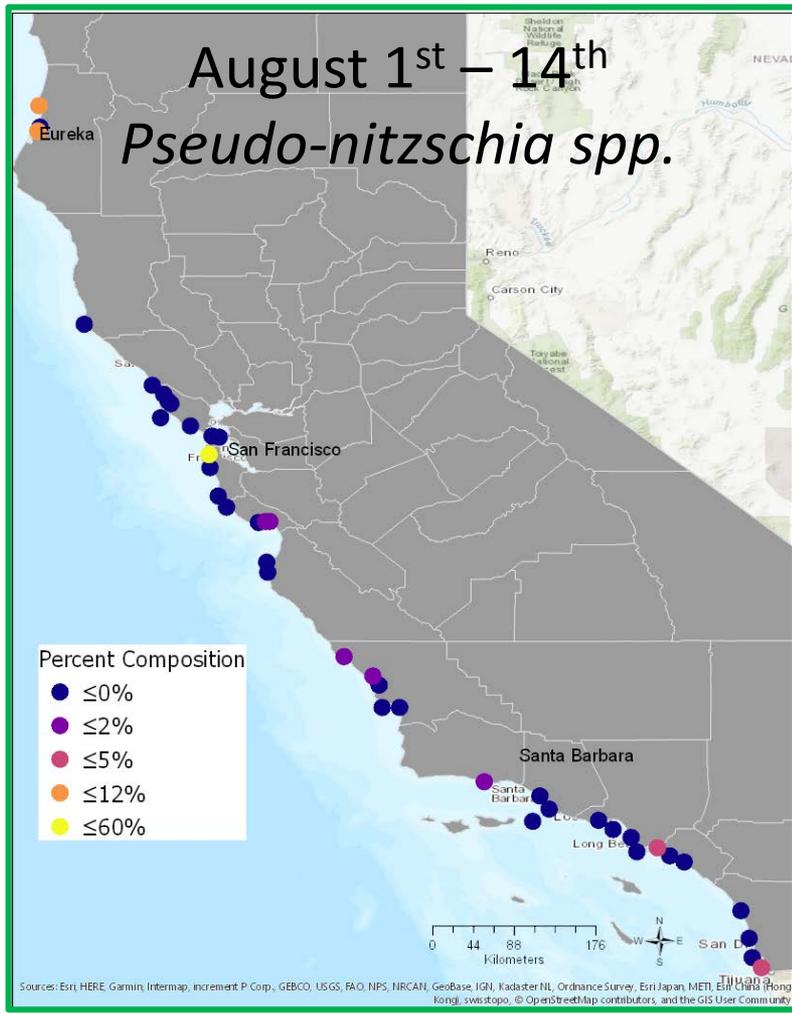


Please provide comments, feedback, and questions regarding the HAB Bulletin.

C-HARM Nowcast 09-18-2018

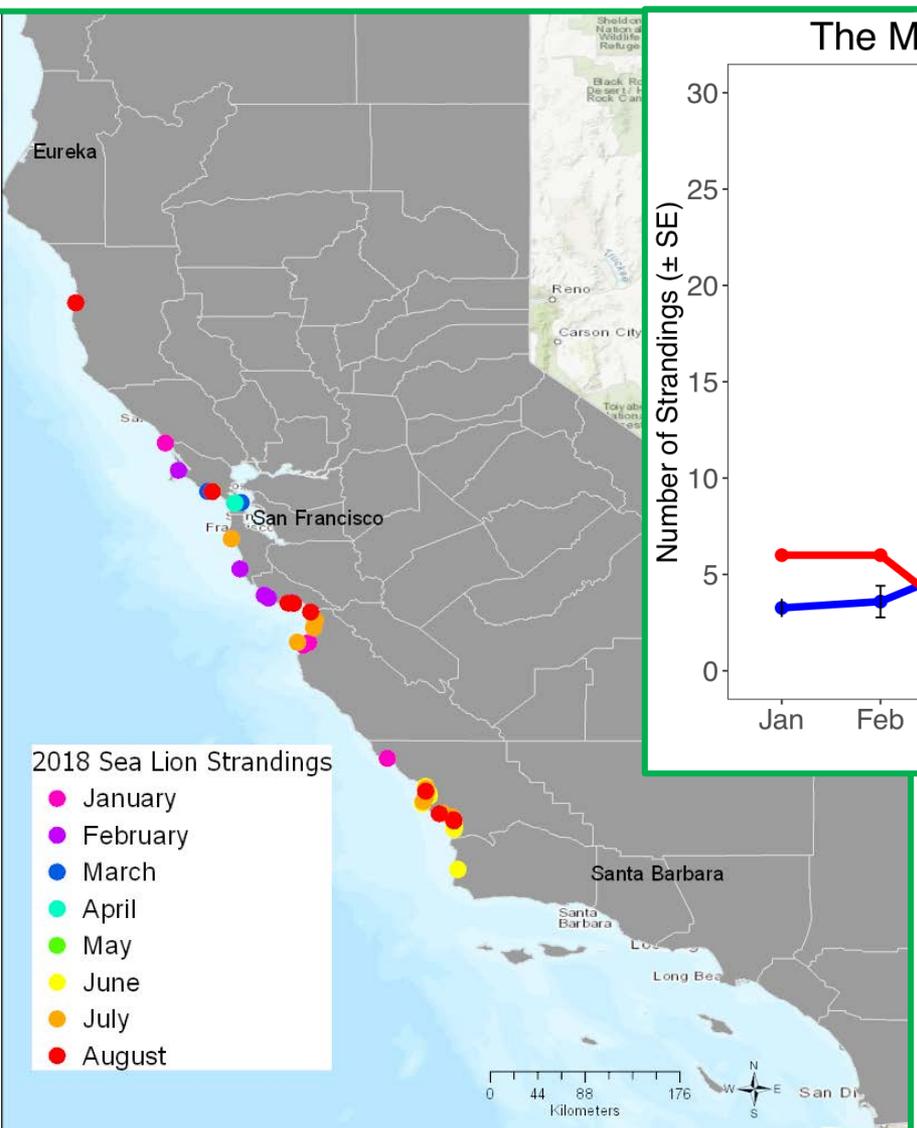


CA Department of Public Health

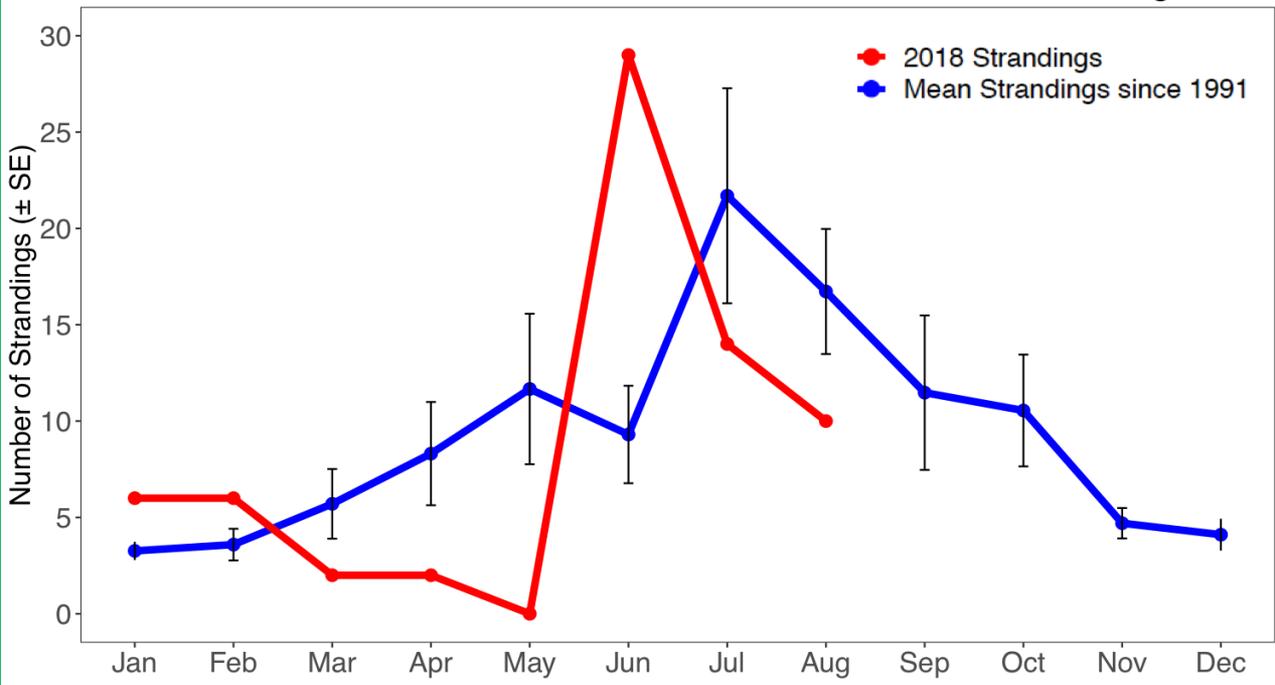


CDPH closed recreationally harvested mussels, clams, and scallops from Humboldt County.

Sea Lion Strandings



The Marine Mammal Center California Sea Lion Strandings



TMMC reported 11 sea lion strandings due to DA Toxicosis in the month of August



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community



NOAA West Watch Update: Southern California

Clarissa Anderson and Megan Hepner

September 25th, 2018

www.sccoos.org

Call Agenda



- Project Recap & Updates (Timi Vann)
- El Niño and Regional Climate brief (Dan McEvoy)
- IOOS Nearshore Conditions brief (Jan Newton, Alex Harper, Megan Hepner)
- **Discussion - Environmental conditions and impacts reporting (All)**
 - Additional impacts to share?
 - Online evaluation survey to be disseminated in a few weeks by researchers at Oregon State University - if you receive, please complete
 - Future guest speaker or thematic issue of interest?

Regional Impacts Summary



Environmental Conditions

- Flooding
- Extreme Hail
- Poor air Quality
- Fires
- Record heat
- Monsoon
- Severe Thunderstorms
- Drought conditions

Human & Environmental Impacts

- Property damage/Loss of property
- Impacts to recreational access (+/-)
- Evacuations
- Increased human health risks
- Protected species impacts (fisheries & marine mammals)
- Power outages
- Road Closures

Headlines (E&E News Org)



NATIONAL PARKS

Protected lands are warming faster than rest of U.S.

TOURISM

Less snow prompts push to lengthen Grand Canyon visit season

MARINE MAMMALS

Ailing orca declared dead, but feds to keep looking

TEMPERATURES

Reno sets record for hottest summer 2nd year in a row

OCEANS

The blob is gone, but Alaska's cod haven't come back

WILDFIRES

Blazes break records, but worse yet to come

WILDFIRES

Smoke deaths could double by 2100 — study

NOAA

More records set for warmth, sea-level rise in 2017

CALIFORNIA

Coastal Commission warns oceans could be 10 feet higher

Impacts in Pictures



Smoke from the multitude of fires in the west choked the western United States in smoke, creating hazardous air quality conditions for many locations. Deaths could double (to 40,000) by 2100 from inhaling wildfire smoke, according to a study published in *GeoHealth*, a journal of the American Geophysical Union.



Photo: A fire near Duchesne, Utah, is seen in July
Matt Kieffer/Flickr

Impacts in Pictures



Severe hailstorms pummeled Colorado this monsoon season. One particular storm rocked the Cheyenne Mountain Zoo in Colorado Spring. The storm injured at least 14 people, killed multiple animals, caused significant damage to zoo infrastructure, severely damaged 400 guest vehicles, and caused the evacuation of all 3,400 guests. Some of the hailstones were of softball size.



Photo: Hail Damage
Denver 7 – Denver Post



Photo: Damaged Cars
Sky9 – 9 News

Impacts in Pictures



Monsoon storms in Arizona created many haboobs this season. One particular storm hammered the Phoenix metro area with heavy rain, extremely high winds, and nearly 8000 lightning strikes. But, it was the haboob that swept through that caused the most dramatic scenes. According to NWS Phoenix, the dust storm traveled "clear across the Sonoran Desert", ultimately traveling 200 miles.



Photo: Haboob in Arizona
Mike Olbinski

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THANK YOU!