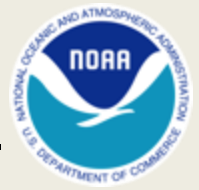




Regional Environmental Conditions & Impacts Coordination

NOAA West
May 25, 2016

Call Agenda



- Welcome
- El Niño and Regional Climate brief (D. McEvoy)
- Climatology Application (NANOOS)
- Environmental conditions and impacts update (T. Vann)
- NOAA West Watch Update (M. Milstein/T. Vann)
- Project Survey & Wrap – Discussion (T. Vann)

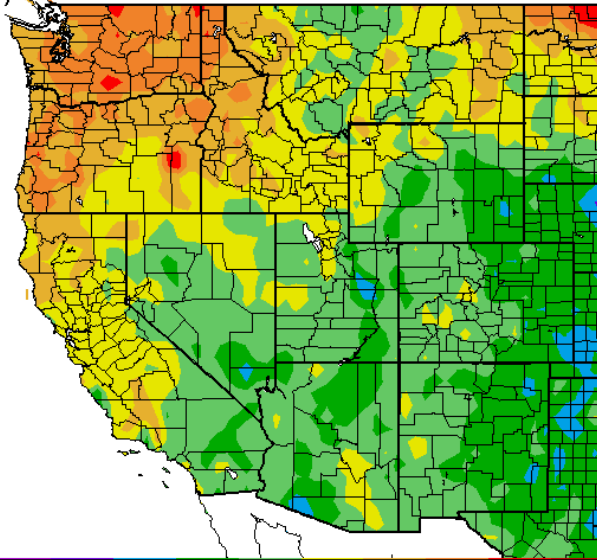
Temperature



May 1 – May 23, 2016

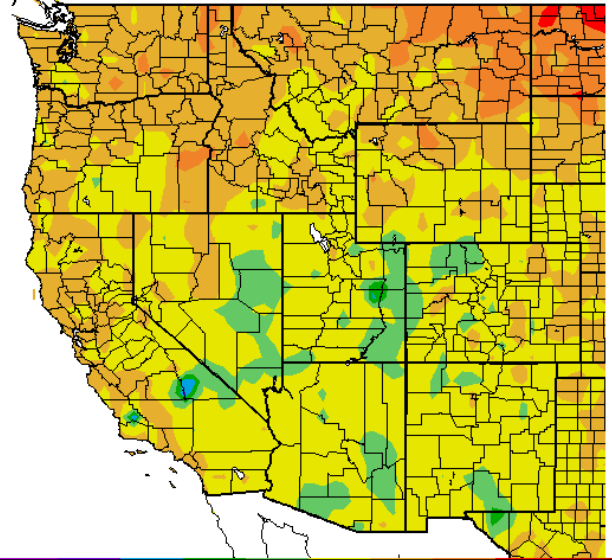
Oct 1, 2015 – May 23, 2016

Ave. Temperature dep from Ave (deg F)
5/1/2016 – 5/23/2016



Generated 5/24/2016 at WRCC using provisional data.
NOAA Regional Climate Centers

Ave. Temperature dep from Ave (deg F)
10/1/2015 – 5/23/2016



Generated 5/24/2016 at WRCC using provisional data.
NOAA Regional Climate Centers

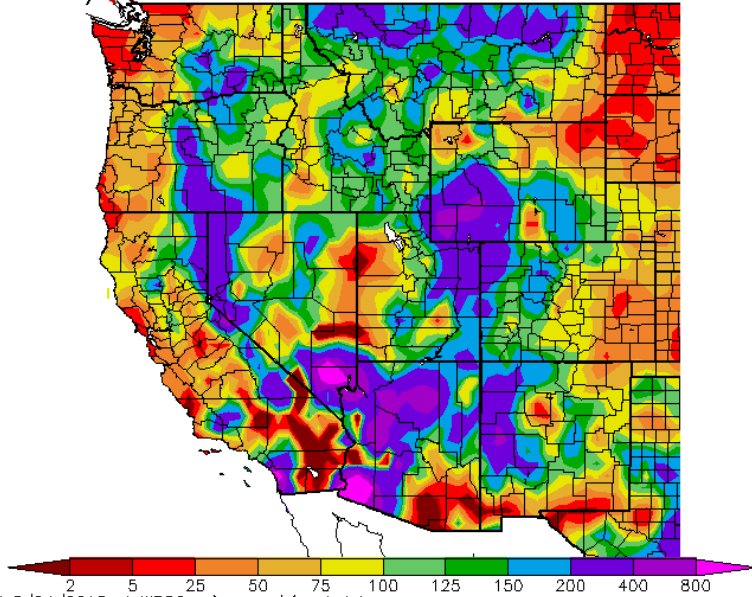
water year to date

Precipitation



May 1 – May 23, 2016

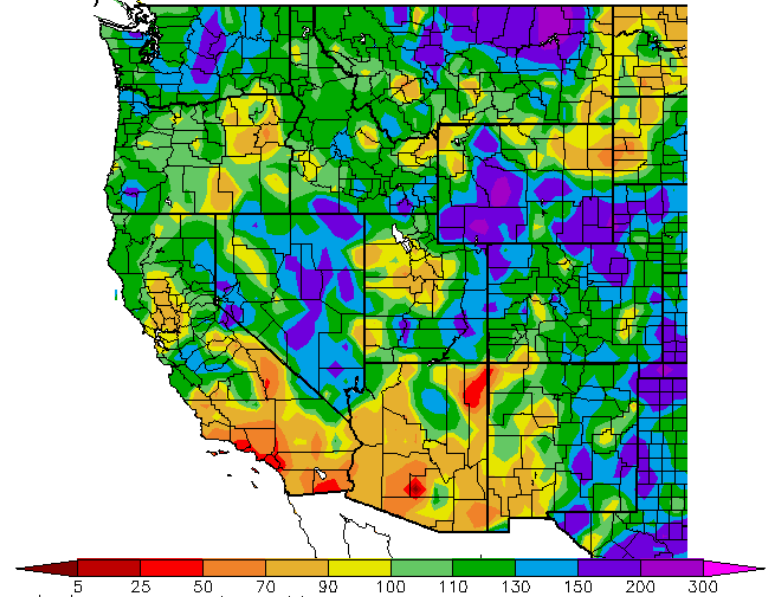
Percent of Average Precipitation (%)
5/1/2016 – 5/23/2016



Generated 5/24/2016 at WRCC using provisional data.
NOAA Regional Climate Centers

Oct 1, 2015 – May 23, 2016

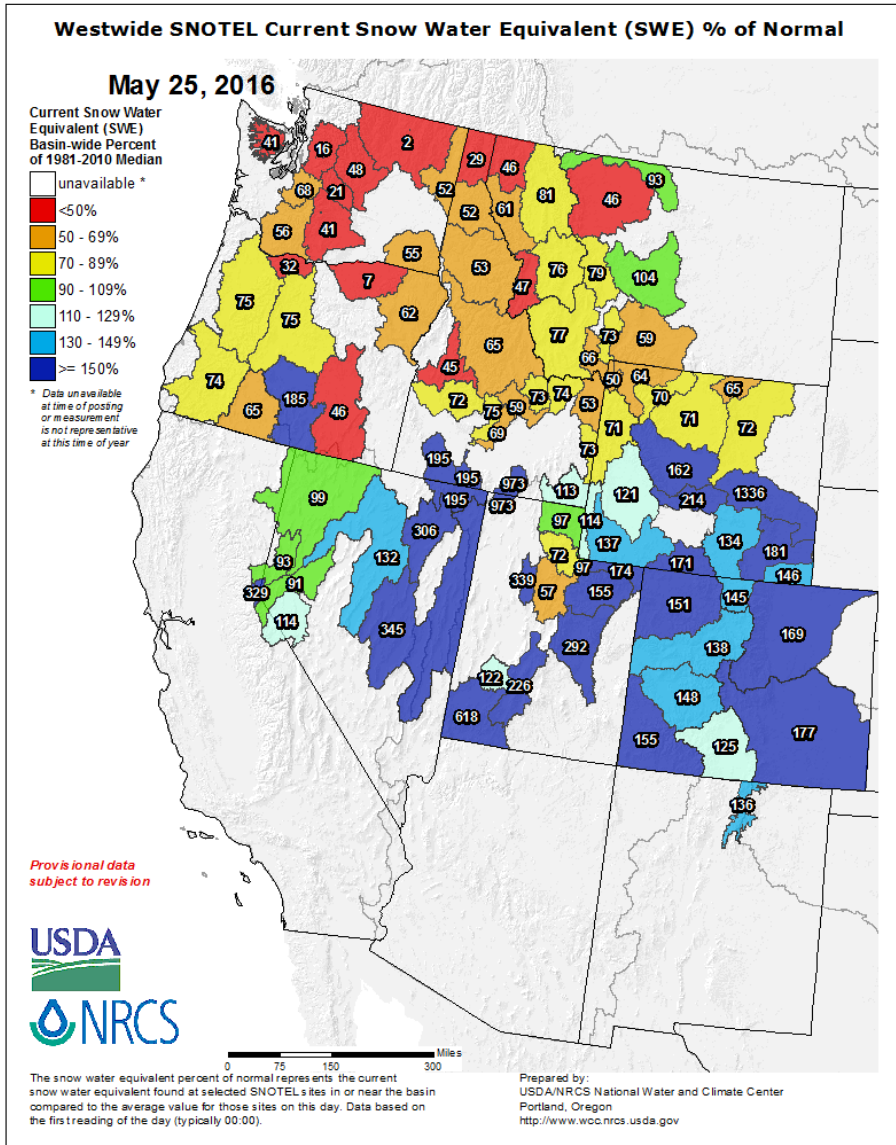
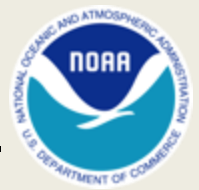
Percent of Average Precipitation (%)
10/1/2015 – 5/23/2016



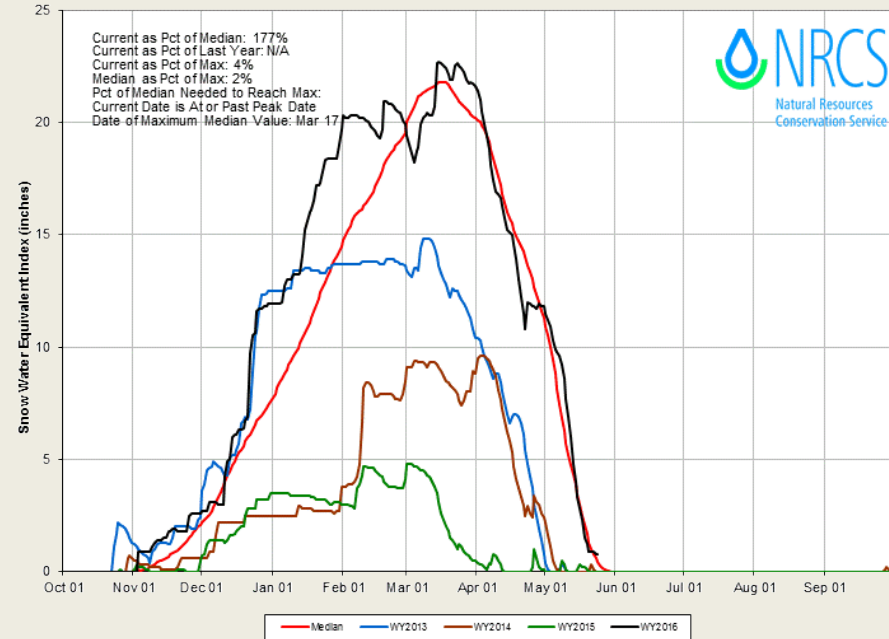
Generated 5/24/2016 at WRCC using provisional data.
NOAA Regional Climate Centers

water year to date

Snow Water Equivalent



LAKE TAHOE Time Series Snowpack Summary
Based on Provisional SNOTEL data as of May 24, 2016

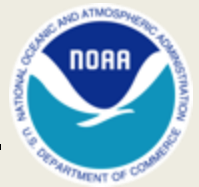


- % of average SWE less meaningful late in the snow season

Example:

Lake Tahoe Basin: 177% of normal
May 24 normal: slightly above zero (<1 inch)
May 24 value: ~1 – 1.5 inches

Snow Water Equivalent



% of April 1 Average / % of Normal for This Date



Statewide Average: 12% / 29%

NORTH	
Data as of May 25, 2016	
Number of Stations Reporting	29
Average snow water equivalent (Inches)	2.8
Percent of April 1 Average (%)	10
Percent of normal for this date (%)	31

CENTRAL	
Data as of May 25, 2016	
Number of Stations Reporting	40
Average snow water equivalent (Inches)	4.6
Percent of April 1 Average (%)	16
Percent of normal for this date (%)	37

SOUTH	
Data as of May 25, 2016	
Number of Stations Reporting	27
Average snow water equivalent (Inches)	2.6
Percent of April 1 Average (%)	10
Percent of normal for this date (%)	21

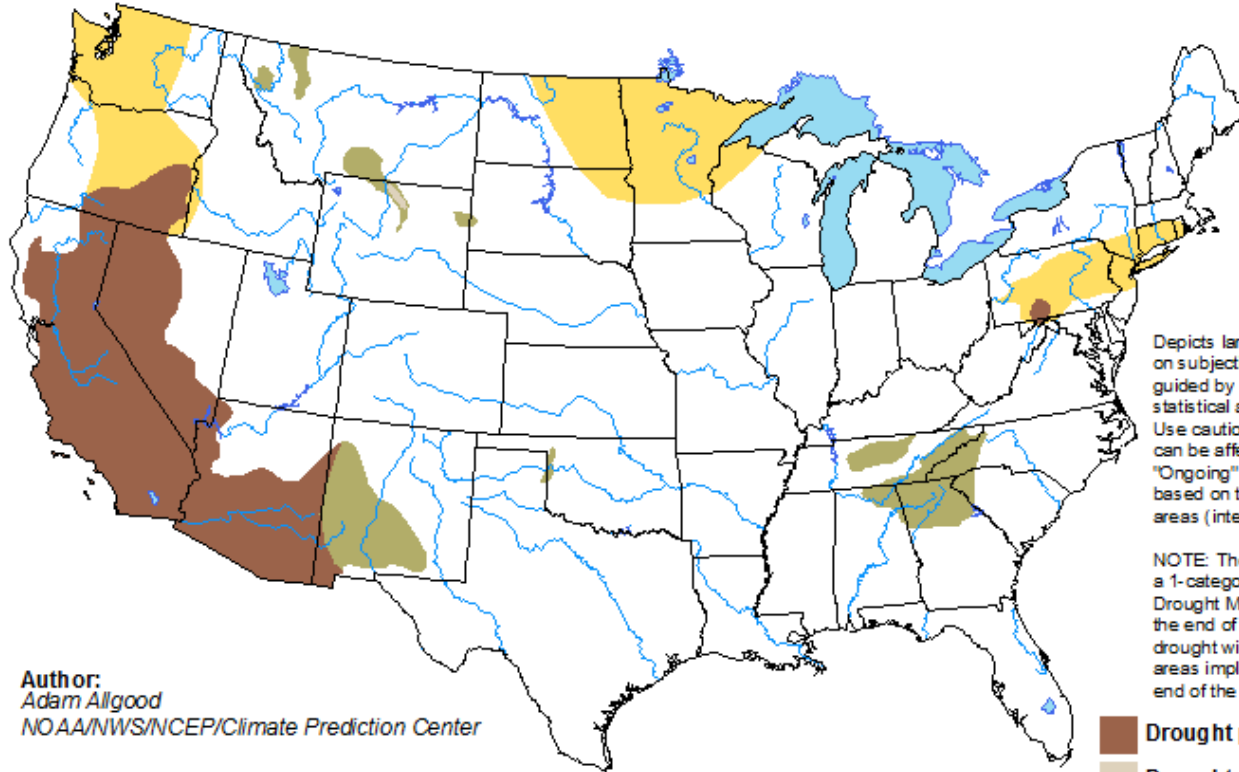
STATE	
Data as of May 25, 2016	
Number of Stations Reporting	96
Average snow water equivalent (Inches)	3.5
Percent of April 1 Average (%)	12
Percent of normal for this date (%)	29

Seasonal Drought Outlook



U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period

Valid for May 19 - August 31, 2016
Released May 19, 2016

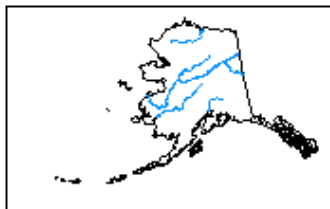


Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

Author:
Adam Allgood
NOAA/NWS/NCEP/Climate Prediction Center

- Drought persists
- Drought remains but improves
- Drought removal likely
- Drought development likely

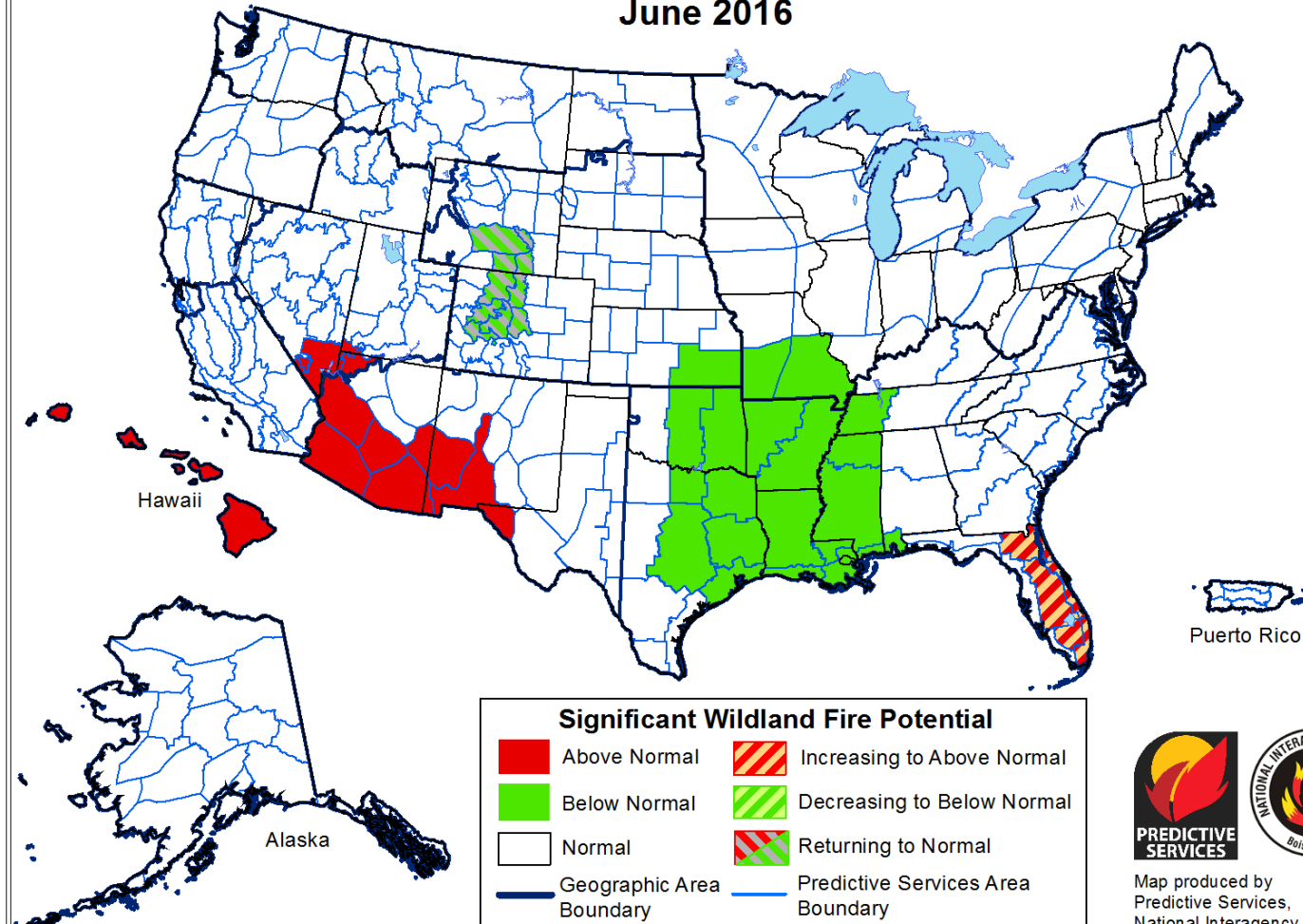


<http://go.usa.gov/3eZ73>

Significant Wildland Fire Potential Outlook



Significant Wildland Fire Potential Outlook June 2016



Above normal significant wildland fire potential indicates a greater than usual likelihood that significant wildland fires will occur. Significant wildland fires should be expected at typical times and intervals during normal significant wildland fire potential conditions. Significant wildland fires are still possible but less likely than usual during forecasted below normal periods.

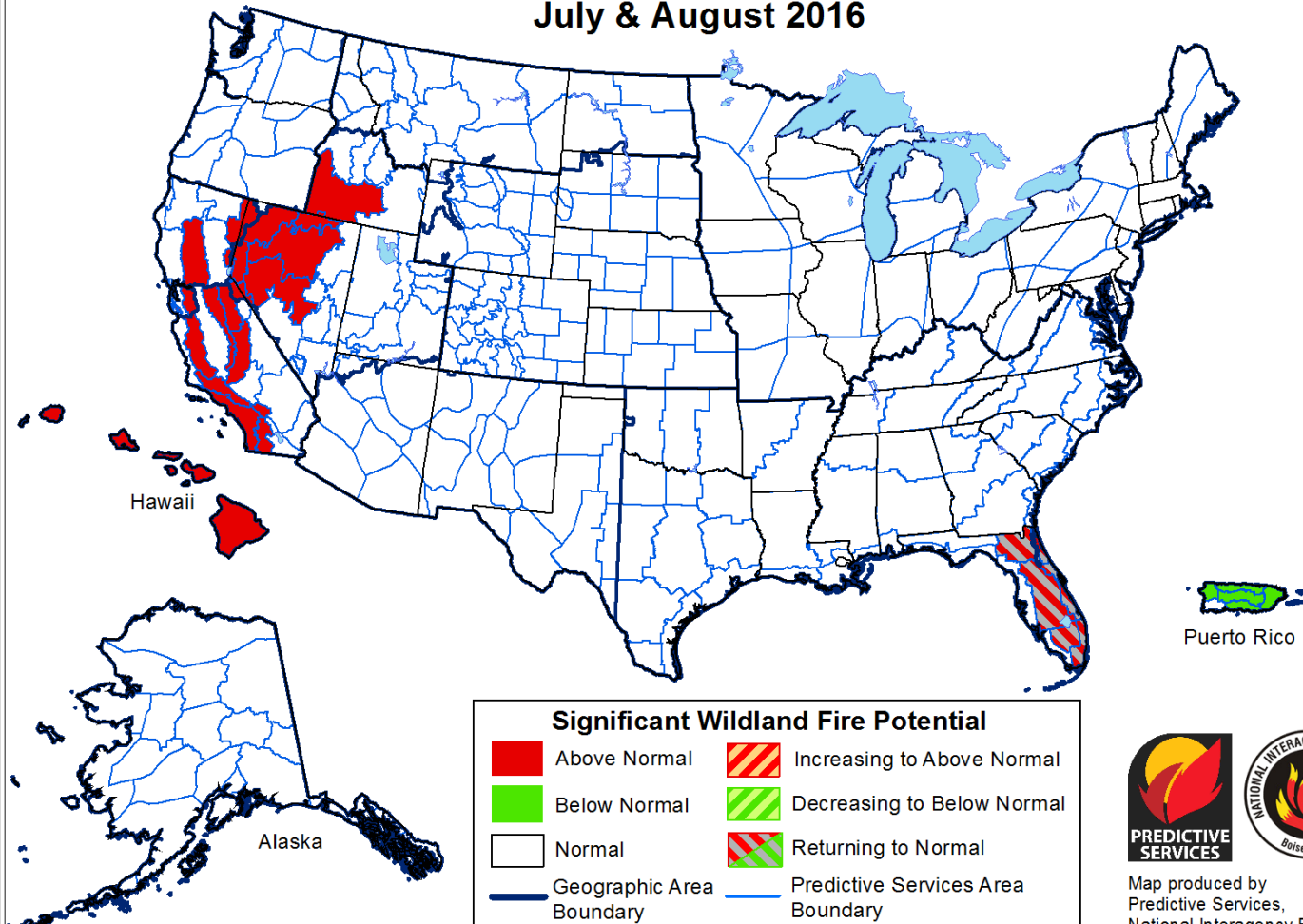


Map produced by
Predictive Services,
National Interagency Fire Center
Boise, Idaho
Issued May 1, 2016
Next issuance June 1, 2016

Significant Wildland Fire Potential Outlook



Significant Wildland Fire Potential Outlook July & August 2016



Above normal significant wildland fire potential indicates a greater than usual likelihood that significant wildland fires will occur. Significant wildland fires should be expected at typical times and intervals during normal significant wildland fire potential conditions. Significant wildland fires are still possible but less likely than usual during forecasted below normal periods.



Map produced by
Predictive Services,
National Interagency Fire Center
Boise, Idaho
Issued May 1, 2016
Next issuance June 1, 2016

“A massive die off of heavy timber is occurring in the high country, especially the Sierra Foothills where over 50 percent of the old growth long needle pines are dying or are dead.”
-Predictive Services

El Nino Status



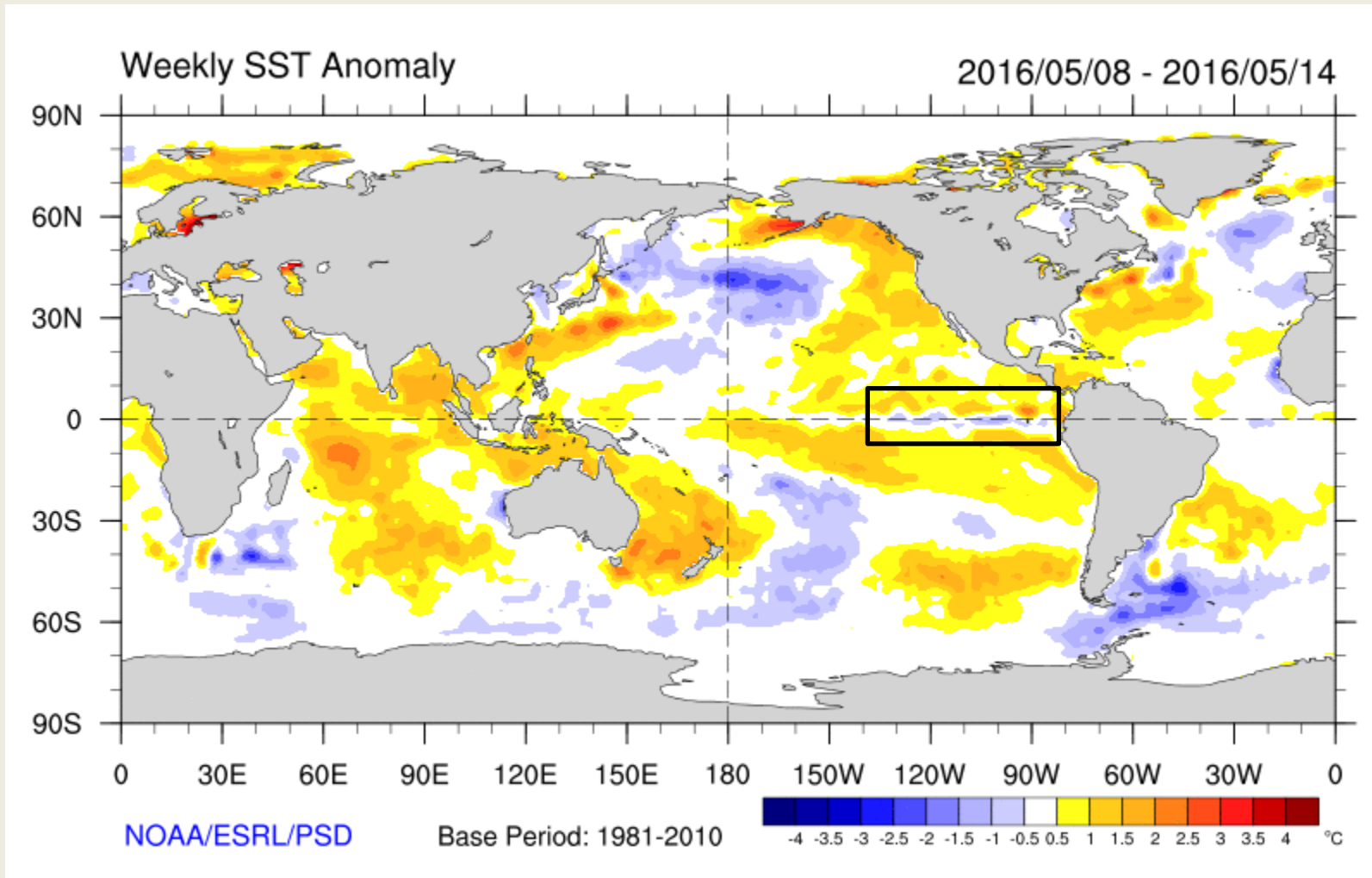
- ENSO Alert System Status: El Niño Advisory/La Niña Watch
- El Niño is weakening
- Positive equatorial sea surface temperature (SST) anomalies are diminishing across the equatorial Pacific Ocean.
- La Niña is favored to develop during the Northern Hemisphere summer 2016, **with about a 75% chance of La Niña during the fall and winter 2016-17.***

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/.

Current Sea Surface Temperatures

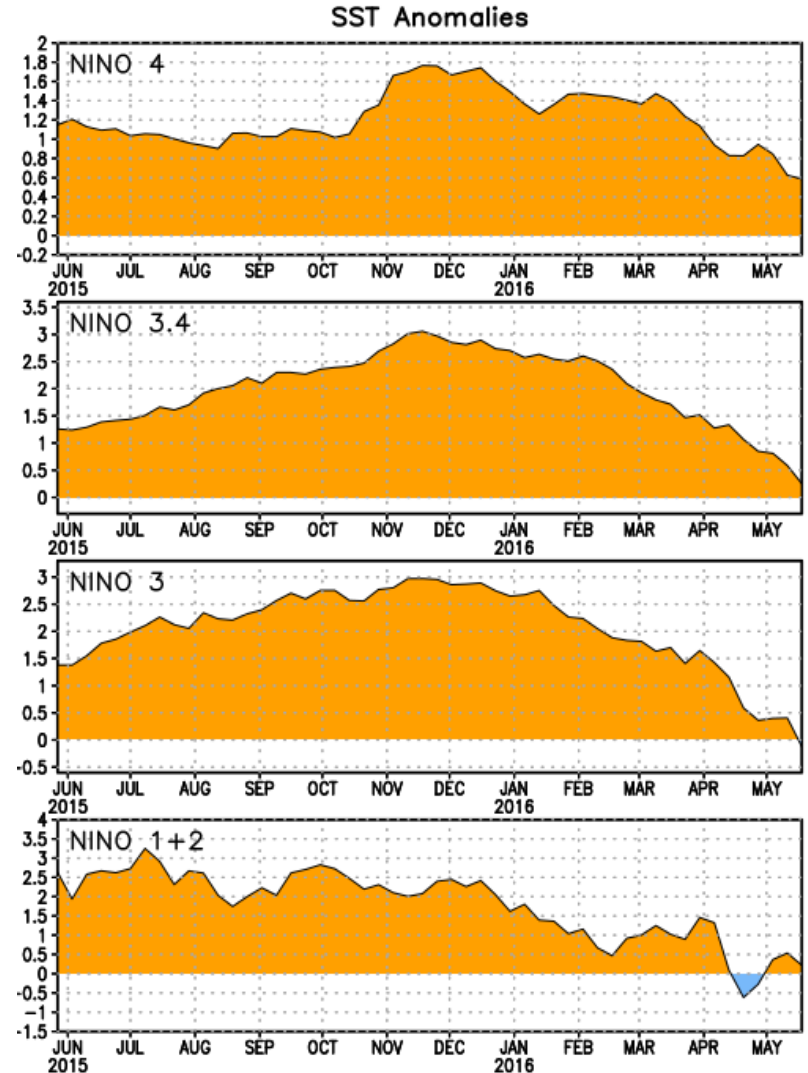
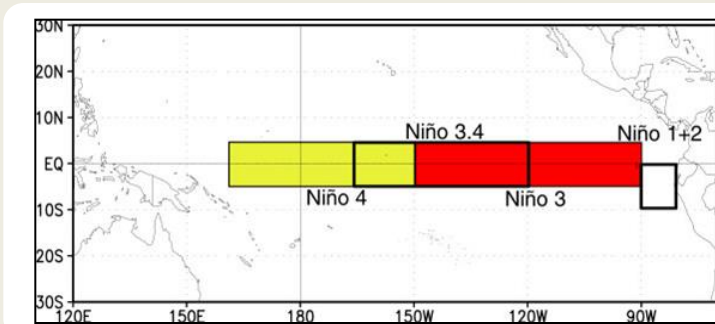


Niño Region SST Departures (°C) Recent Evolution

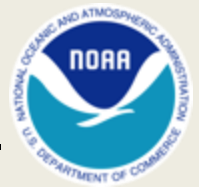


The latest weekly SST departures are:

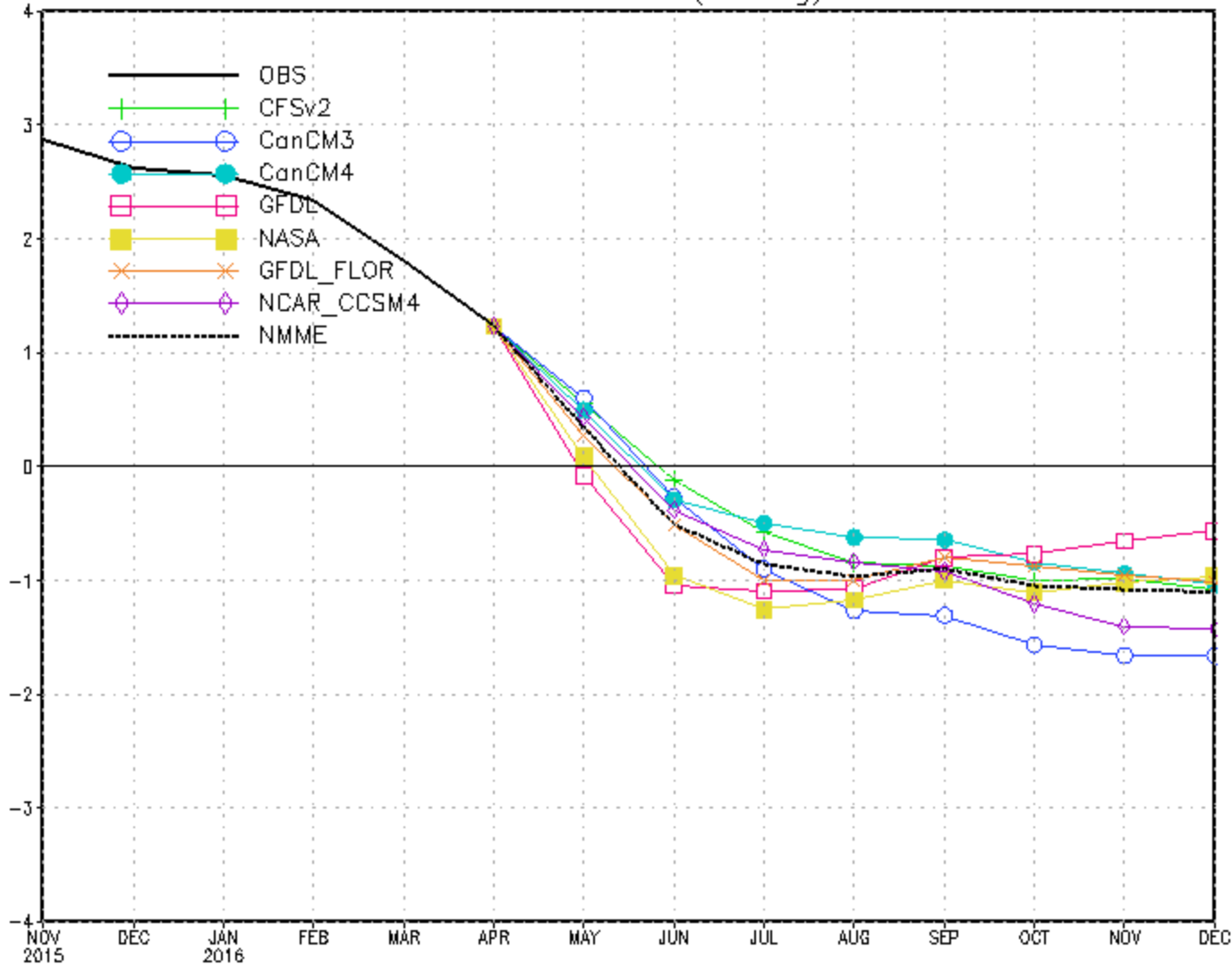
Niño 4	0.6°C
Niño 3.4	0.2°C
Niño 3	-0.1°C
Niño 1+2	0.2°C



ENSO Forecasts



NMME Forecast for Nino 3.4 (scaling) IC= 201605

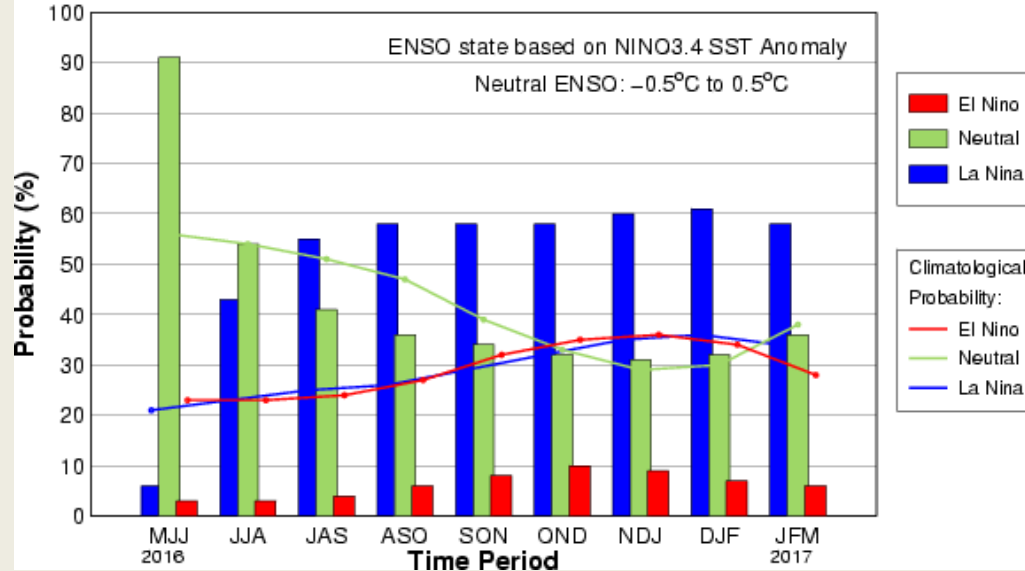


Source: NOAA/CPC

ENSO Forecasts



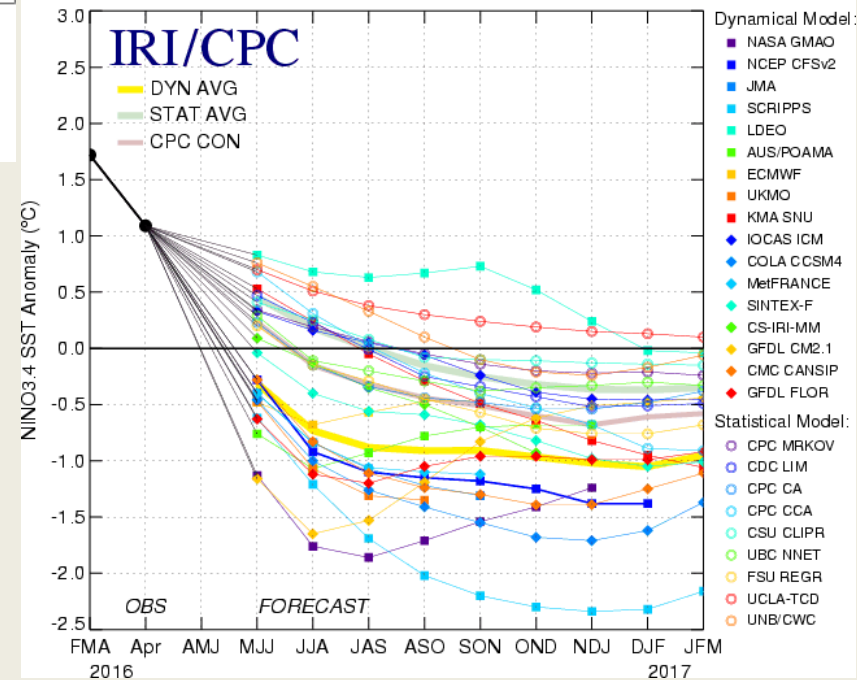
Mid-May IRI/CPC Model-Based Probabilistic ENSO Forecast



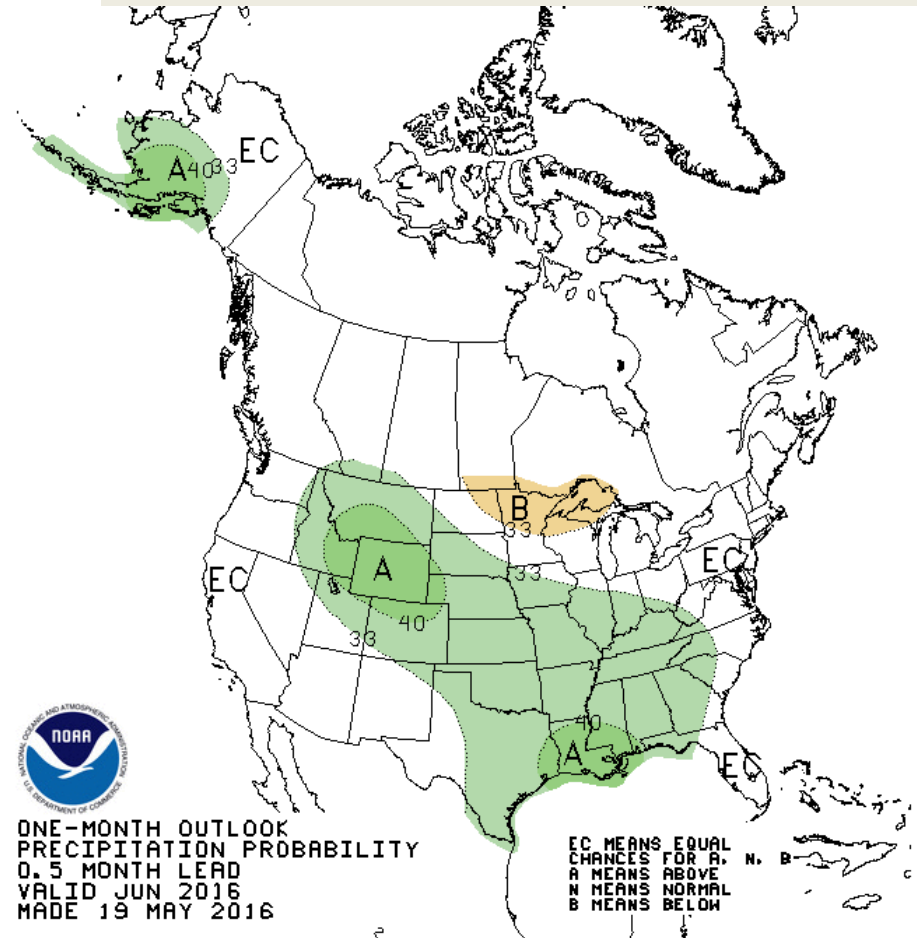
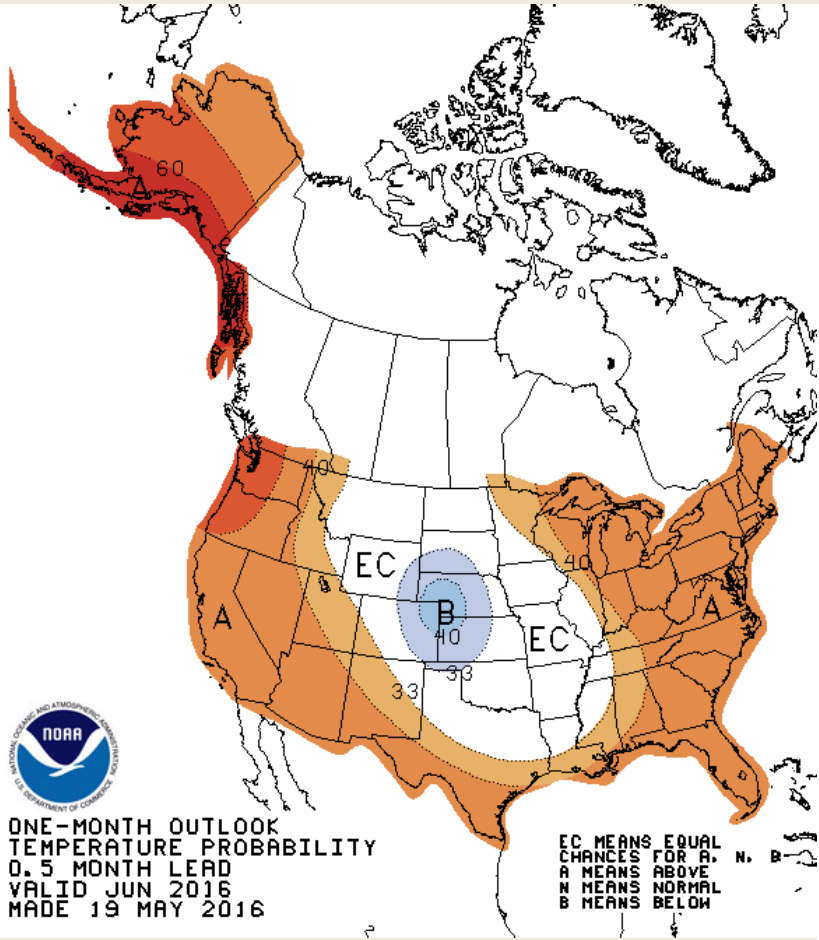
CPC/IRI El Nino forecast:

NMME models + other dynamical models + statistical models

Mid-May 2016 Plume of Model ENSO Predictions

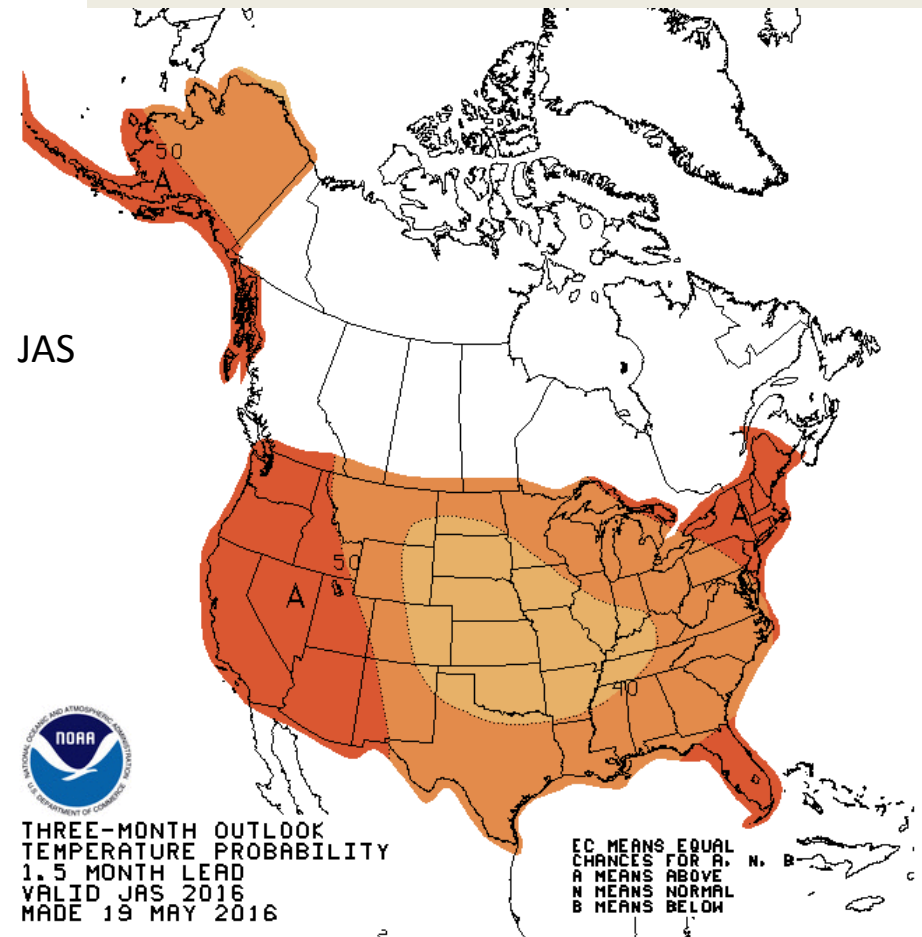
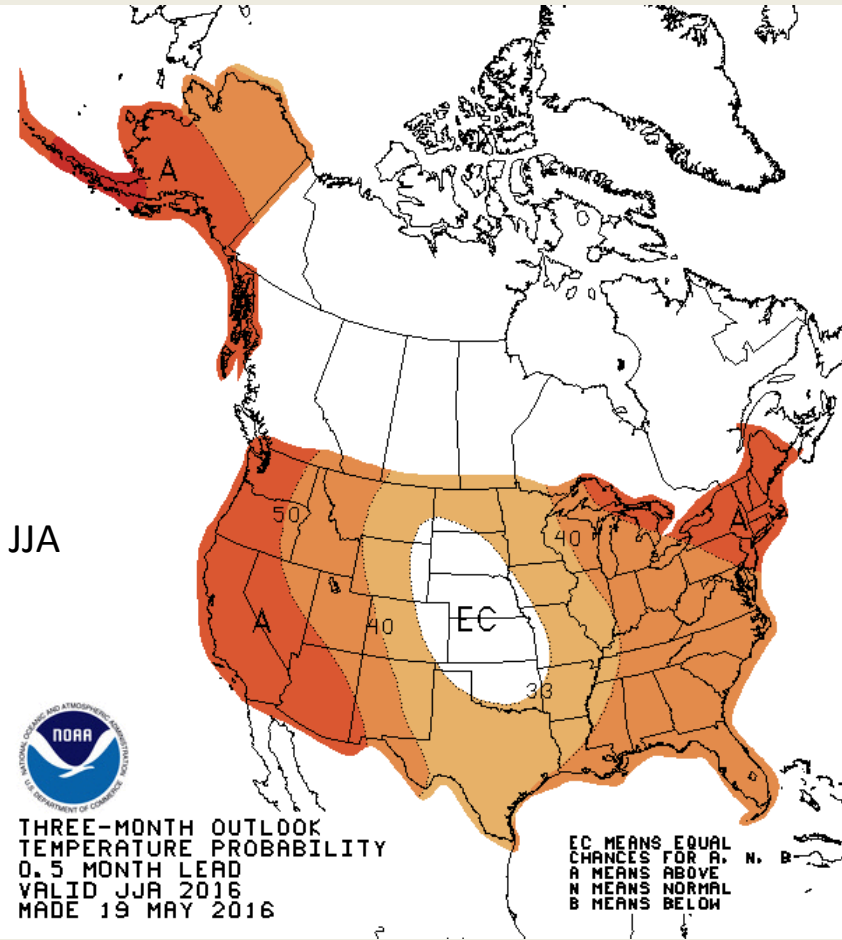


June U.S. Forecasts

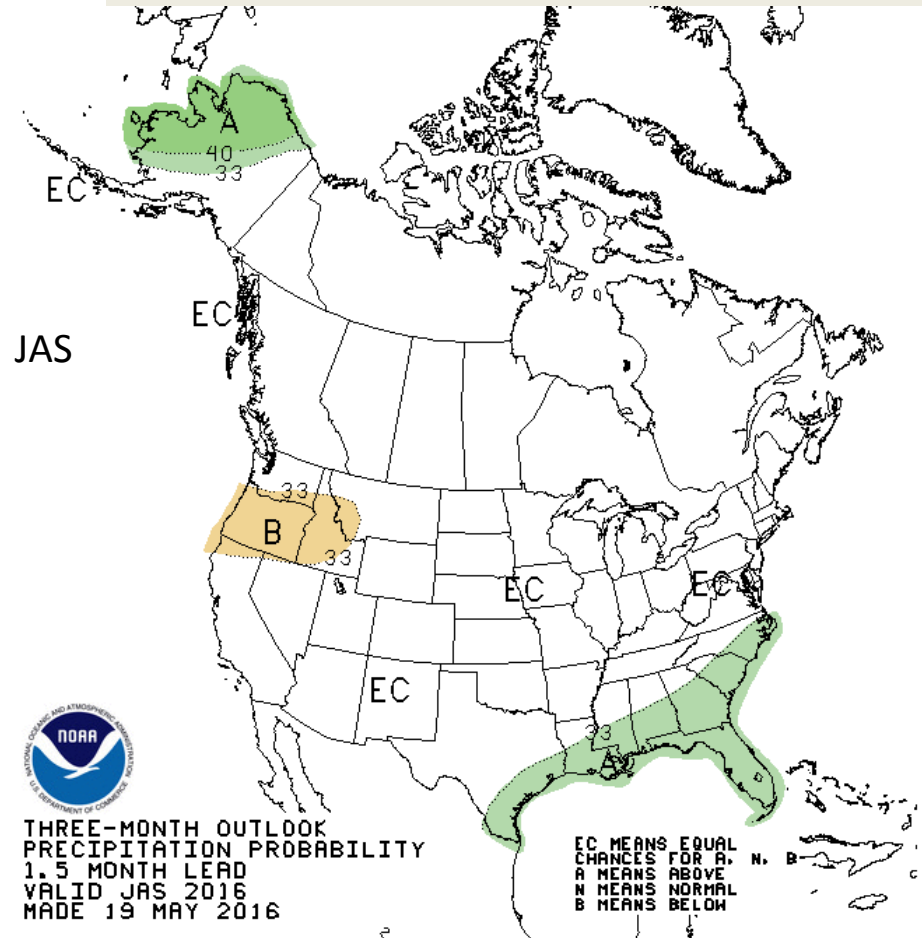
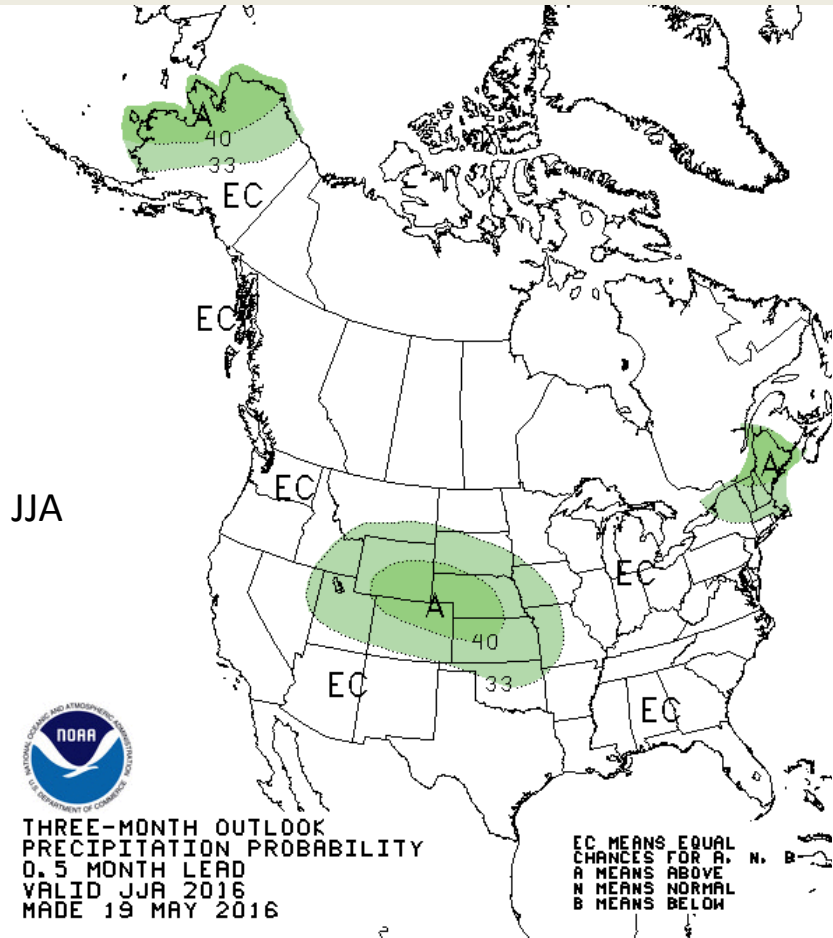


Source: NOAA/CPC

U.S. Temperature Forecasts



U.S. Precipitation Forecasts



Source: NOAA/CPC



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NVS CLIMATOLOGY

Map Overview Help

Lat: -7.0137 Lon: 108.1055

Expand All Collapse All

- In-Situ
 - NODC Ocean Atlas
 - Atlantic Salinity (Climate)
 - Pacific Salinity (Climate)
- Satellite
 - NCDC OI SST
 - Water Temp. (Climate)
 - Water Temp. (Anomaly)**
 - OSU AVISO Climate
 - Sea Level (Climate)
 - Sea Level (Anomaly)
 - OSU MODIS Climate
 - Chlorophyll (Climate)
 - Chlorophyll (Anomaly)
 - Water Temp. (Climate)
 - Water Temp. (Anomaly)

Water Temp. Legend: -4 to 4 Water Temperature (°C)

Map data ©2016 Google, INEGI 1000 km Terms of Us

24 April 2016 6:00 am PDT

11 2012 2013 2014 2015 2016

Water Temp. [Timeline visualization]



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NVS CLIMATOLOGY

v4.6 Contact NANOOS

Map Overview Help

Remote Sensing Lat: -22.2688 Lon: 160.1367 Terrain

Expand All Collapse All

- In-Situ
 - NODC Ocean Atlas
 - Atlantic Salinity (Climate)
 - Pacific Salinity (Climate)
- Satellite
 - NCDC OI SST
 - Water Temp. (Climate)
 - Water Temp. (Anomaly)
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 - Sea Level (Anomaly)
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 - Chlorophyll (Anomaly)
 - Water Temp. (Climate)
 - Water Temp. (Anomaly)

Map data ©2016 Google, INEGI 1000 km Terms of U

24 April 2016 6:00 am PDT

2011 2012 2013 2014 2015 2016

Sea Level

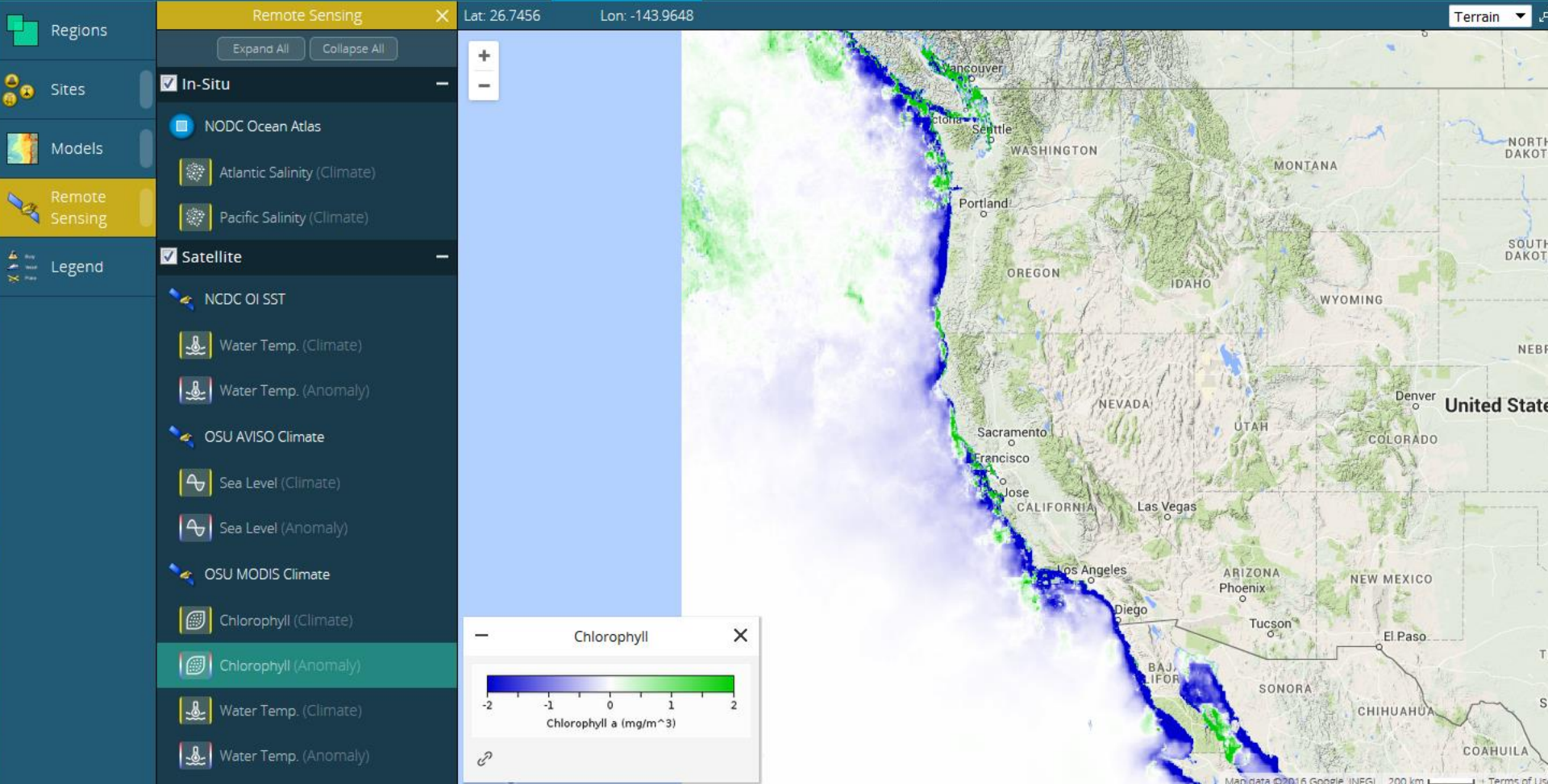


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NVS CLIMATOLOGY

v4.6 Contact NANOOS

Map Overview Help

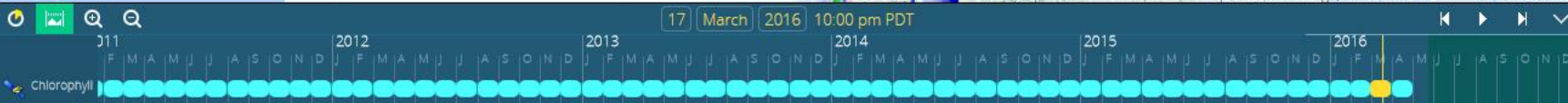
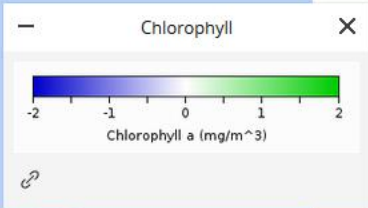




Lat: 27.4888 Lon: -140.2295

Terrain

- Regions
- Sites
- Models
- Remote Sensing
- Legend



New ESP in coastal ocean for HABs!!



New ESP in coastal ocean for HABs!!



New ESP in coastal ocean for HABs!!



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Map Asset List Help

Lat: 49.0919 Lon: -126.9800

Regions Filters Fixed Platforms Mobile Platforms Remote Sensing Models Retired Platforms Legend

23 May 2016 With funding from the IOOS Ocean Technology Transition project, the Subsurface mooring was modified to integrate a real-time harmful algal bloom detection system called the Environmental Sample Processor (ESP).

Domoic acid

pDA concentration (ng/L)

1000
100
1

<LLOD
5/23/2016, 3.6

5/2... 5/2... 5/2... 5/3... 6/3/... 6/6/... 6/9/... 6/1... 6/1... 6/1... 6/2... 6/2... 6/2... 6/3... 7/3/... 7/6/... 7/9/... 7/1... 7/1...

Date

■ <LLOD

WU/NANOOS NEMO Subsurface profiler with NOAA ESP, near La Push

Observations Details History Credits

No Data Available Provider: APL-UW

HYDROGRAPHIC

Oxygen Concentration (-17 m)

Pressure (-17 m)

Salinity (-17 m)

Water Temperature (-17 m)

BIOLOGICAL

Alexandrium Species (-18 m)

Domoic Acid Concentration (-18 m)

Heterosigma akashiwo (-18 m)

Pseudo-nitzschia australis (-18 m)

Pseudo-nitzschia fraudulenta (-18 m)

Pseudo-nitzschia multiseries (-18 m)

Pseudo-nitzschia pungens (-18 m)

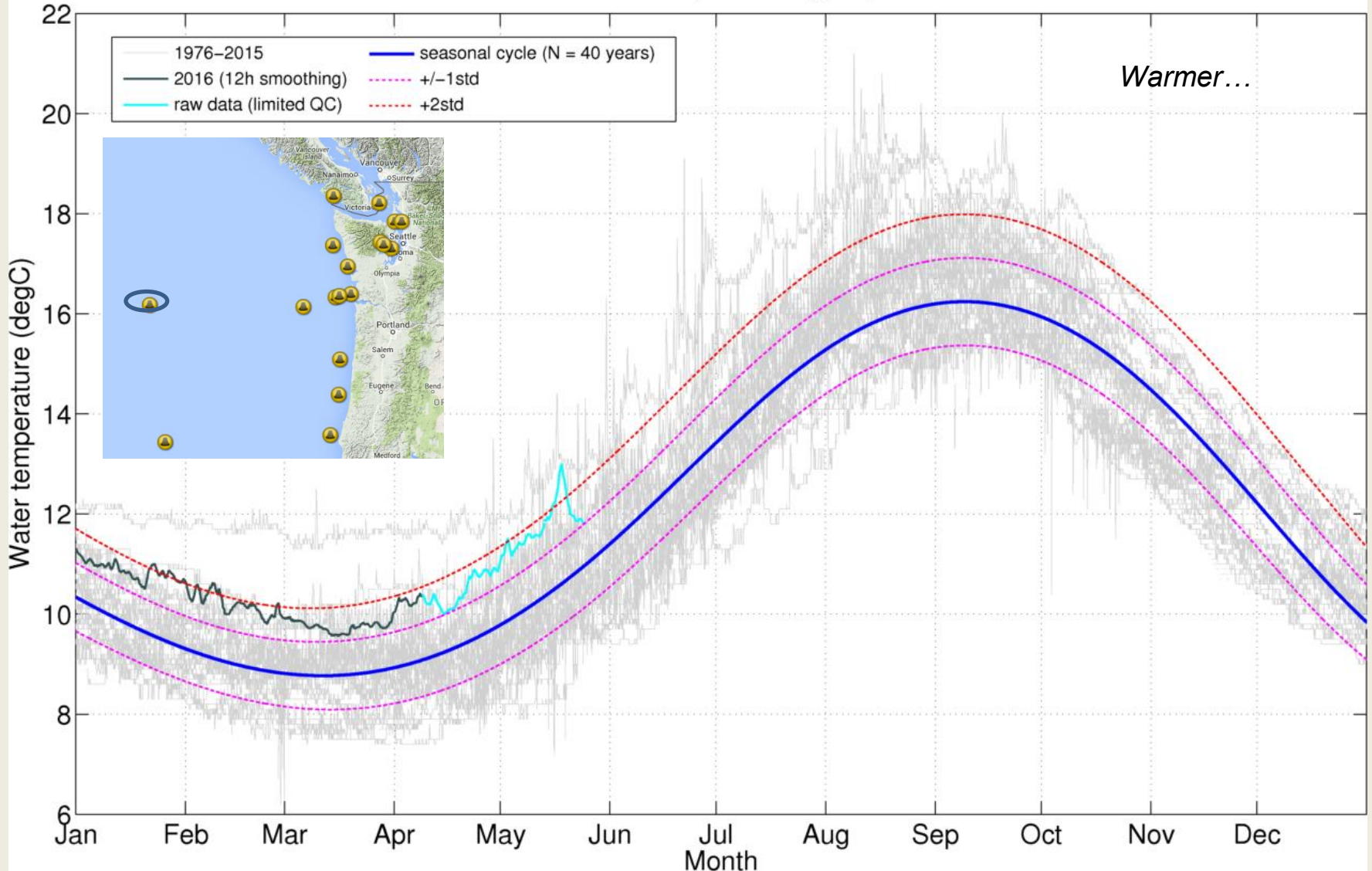
Credits: IOOS, NOAA, UW, NANOOS, etc.

Link

24 May 2016 4:28 pm PDT

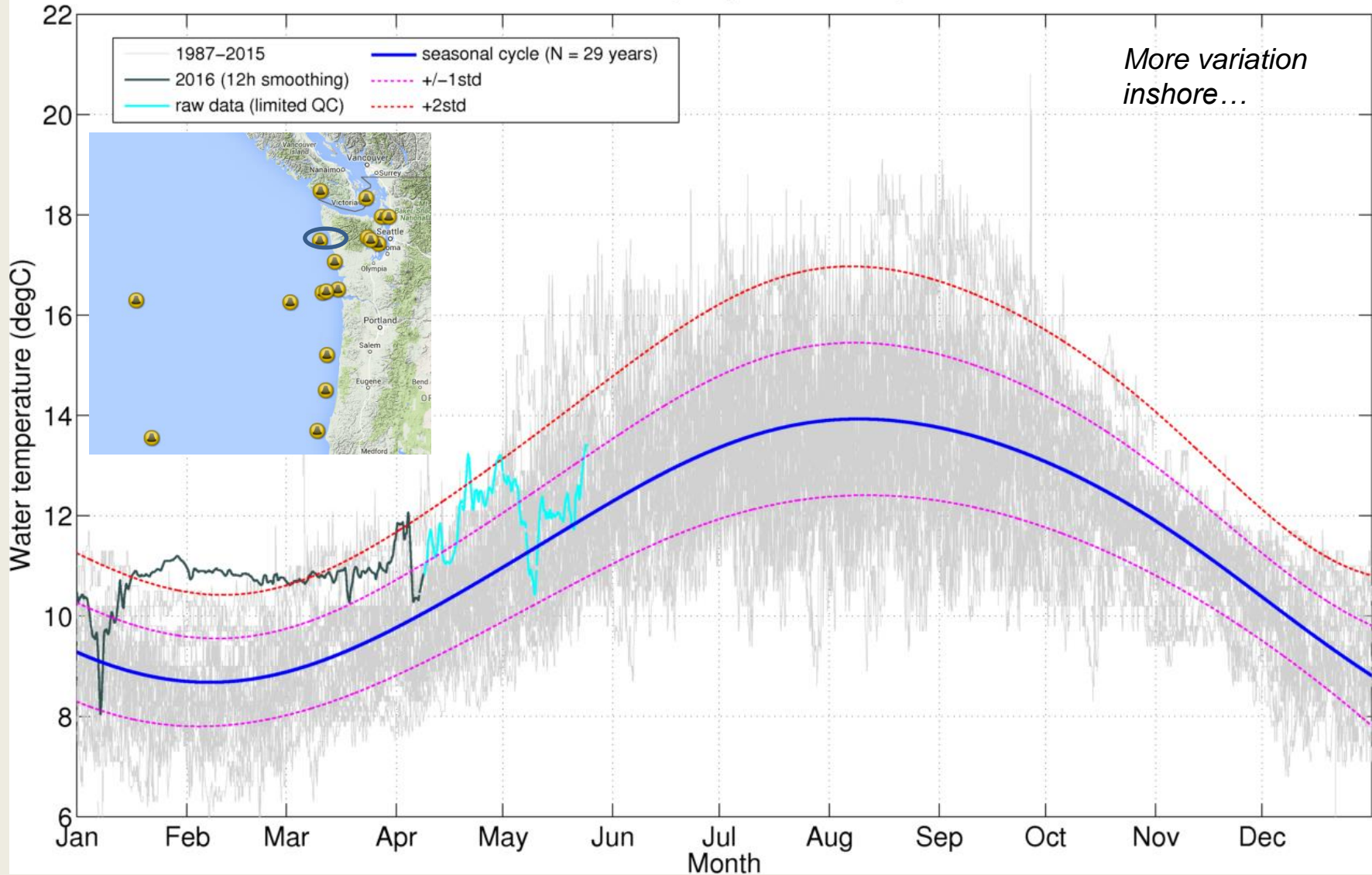
Sea Surface Temps

NDBC 46005, Washington, Wa



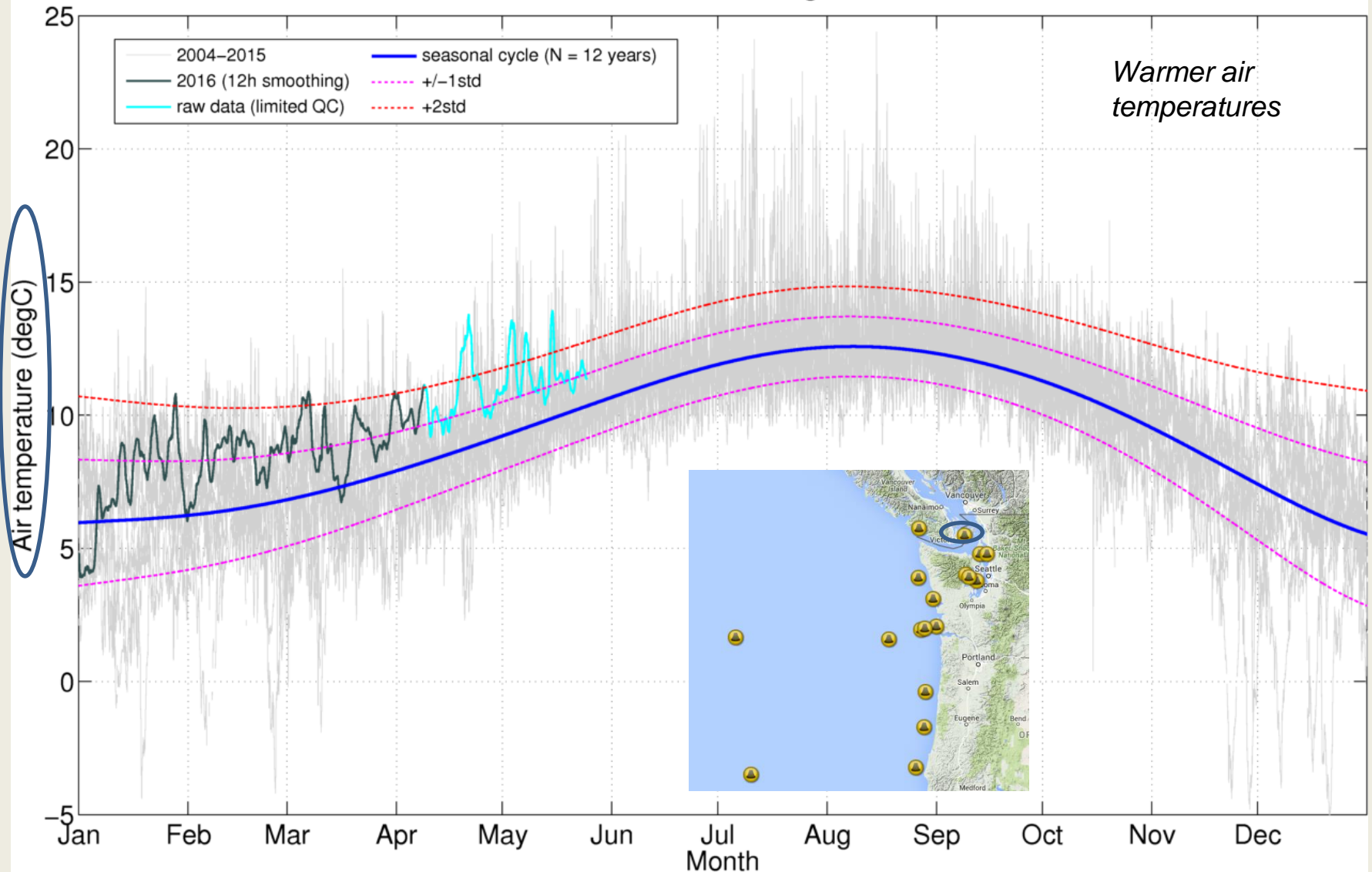
Sea Surface Temps

NDBC 46041, Cape Elizabeth, Wa



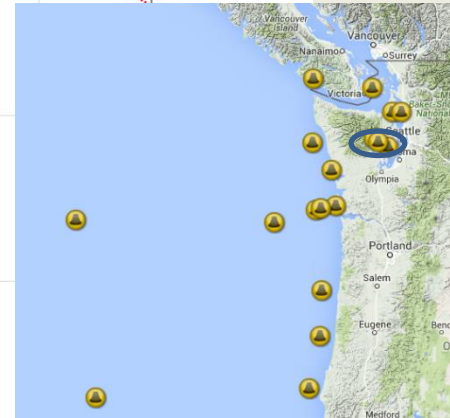
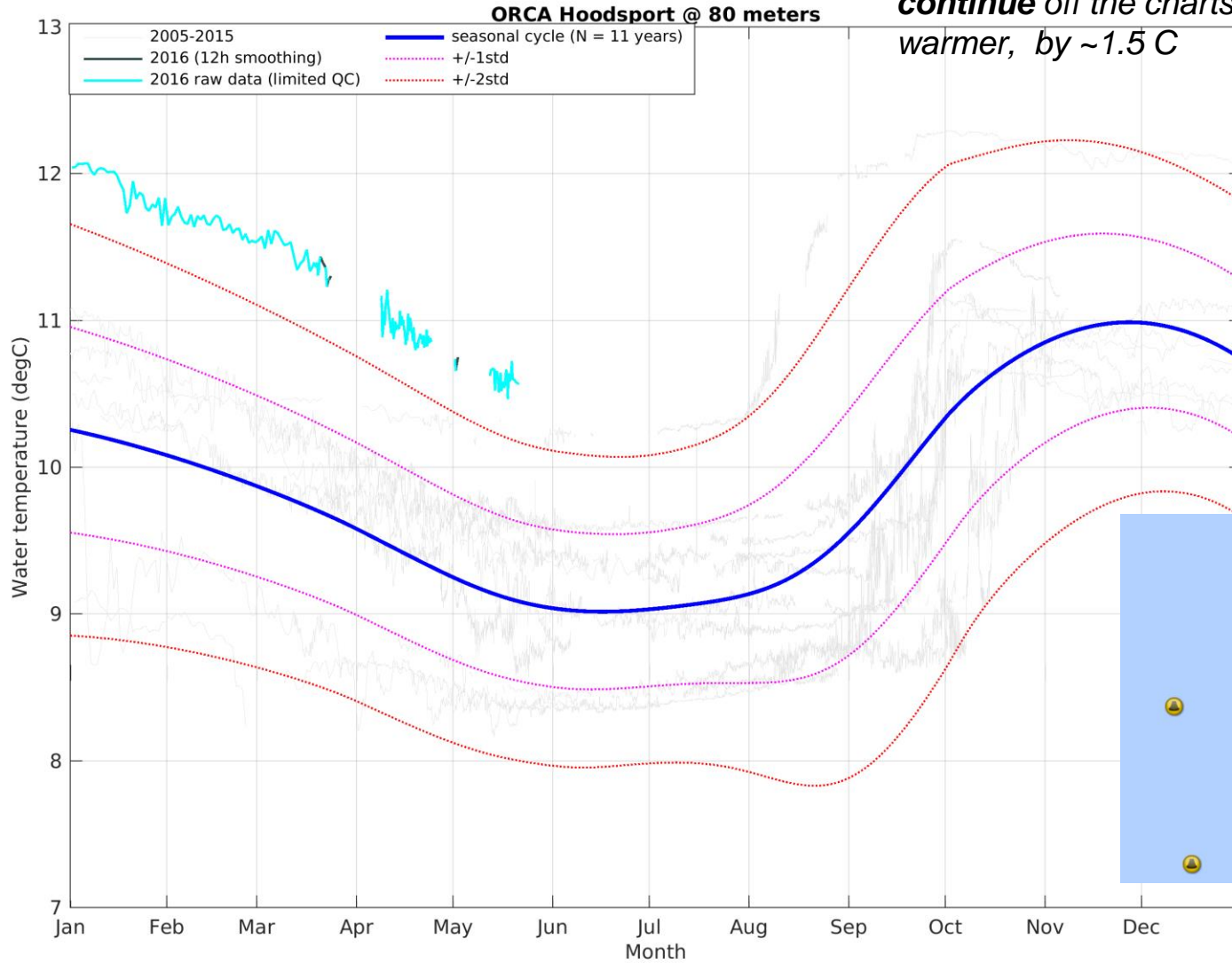
Air Temps

NDBC 46088, New Dungeness, Wa

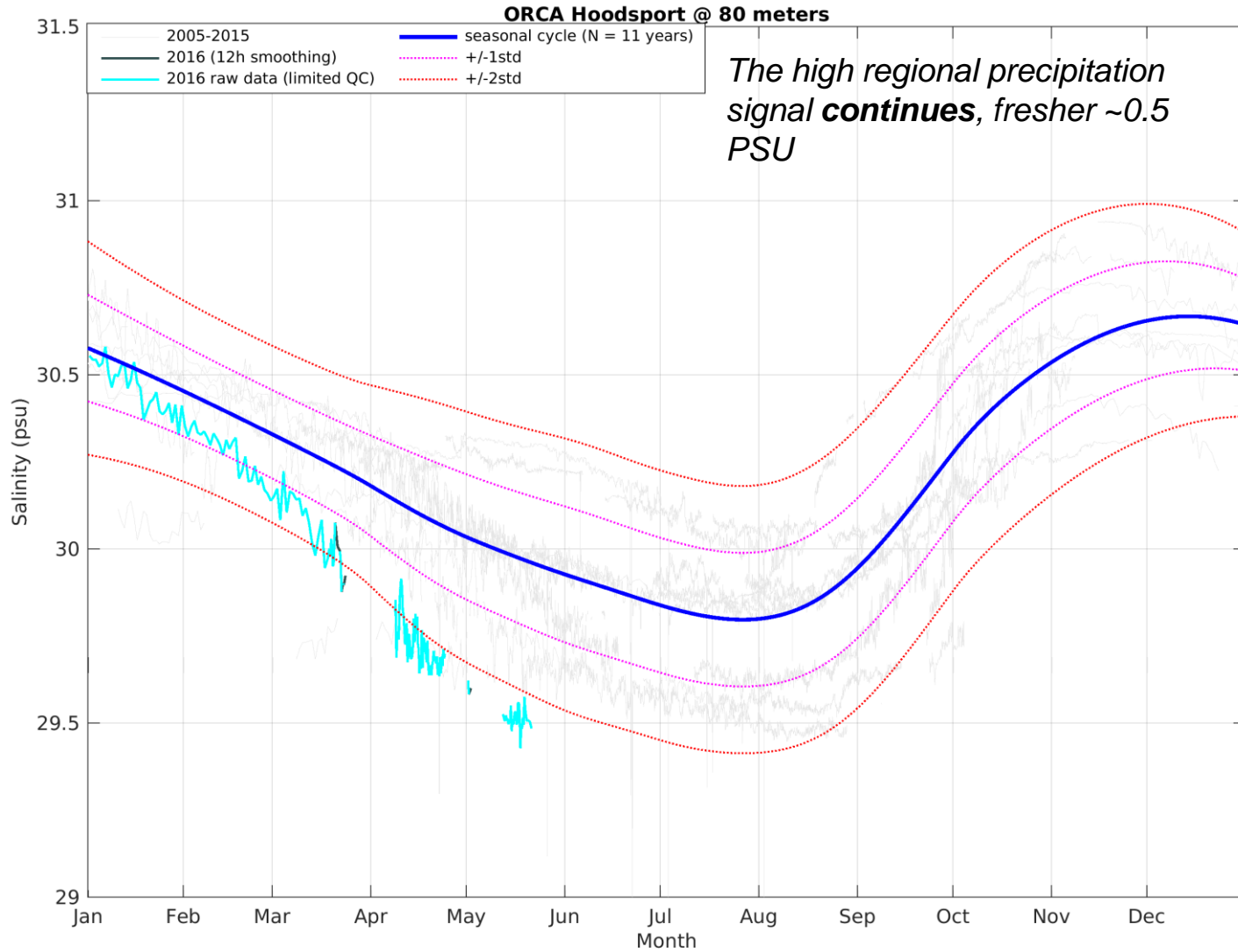
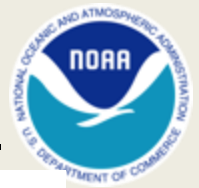


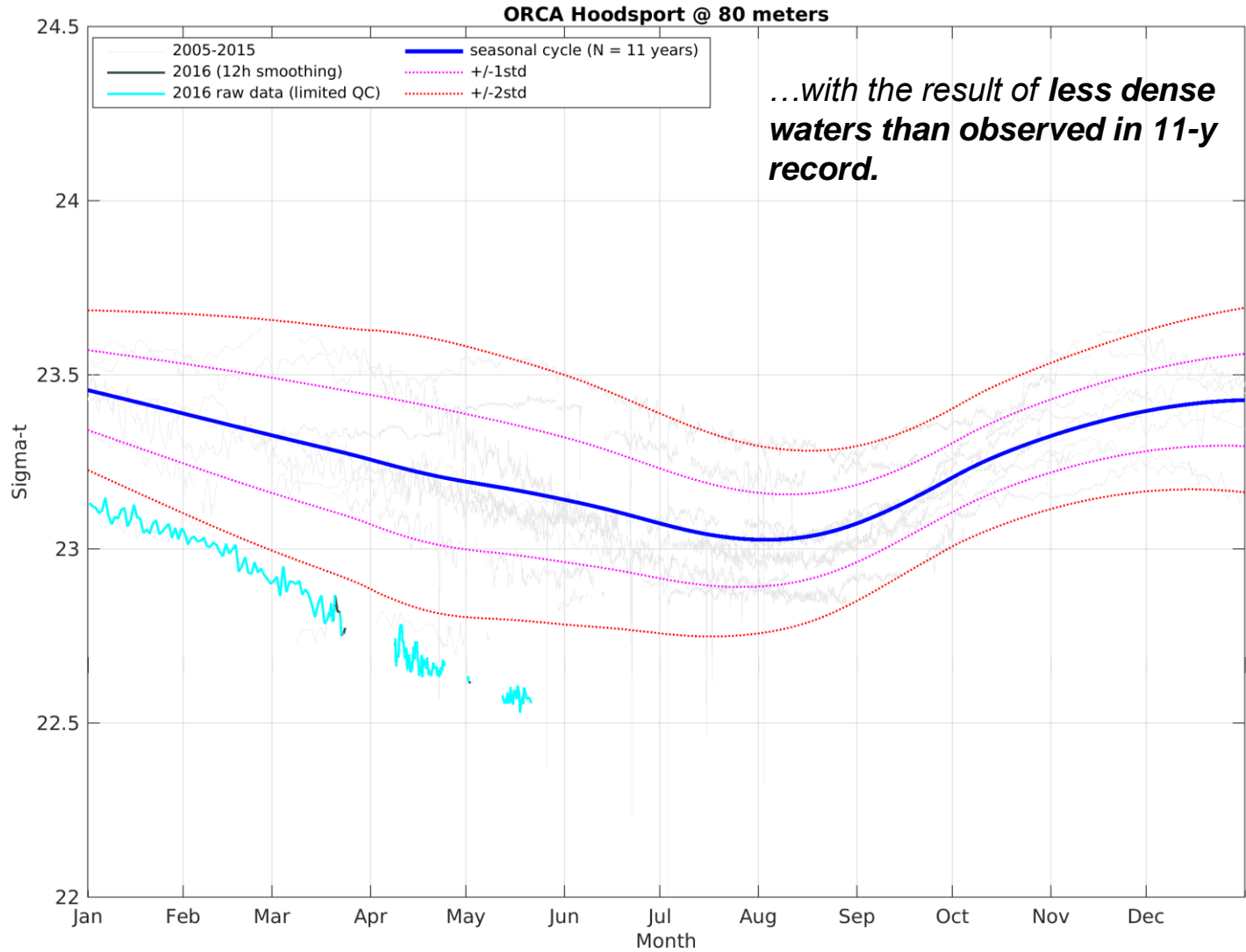
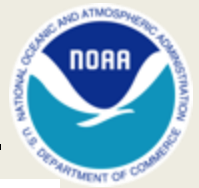


*Puget Sound deep waters
continue off the charts
warmer, by ~1.5 C*



Estuarine conditions





Regional Impacts Summary – 04/21 to 05/22



Reporting Status:

- 284 entries since July 1, 2015
- Last reporting period: 21 environmental conditions & regional impacts reported

Environmental Conditions Capture:

- El Niño
- Warm ocean temperature
- Domoic acid
- Record air temperatures
- Drought

Human & Ecosystem Impacts Capture:

- Energy sector - “normal” water year
- CA increases water allocations
- West Coast kelp forest collapse (coverage down 93%)
- Adverse impacts to ocean salmon productivity
- Salmon fishery closures (Puget Sound)
- Tribal fishery closures (Yurok)
- Shellfishery closures (razor clam)
- Changes to marine food web
- Species displacement
- Accelerated seasonal snowpack melt
- Tree mortality

Headlines - May



PD Editorial: The alarming emergence of 'urchintopia'

Warm Pacific continues to chop salmon numbers, affecting Idaho, Northwest

Razor clam fishery closed

Sick Animals Again Crowd Marine Center

SeaWorld releases 9 rehabilitated sea lions

Warmer waters bring loggerhead turtles to Southern California

CALIFORNIA:

Tiny crabs invade state beaches

Humpbacks in San Francisco Bay give whale watchers a rare thrill

"Normal" Water Year So Far In The Northwest

Snowpack hit hard by record warmth
Seasonal melt begins weeks earlier than normal

WESTERN WATER:

Calif. hikes deliveries to highest level in 4 years

Water regulations ease, but drought still dominates in California

State Water Project increases allocations to 60 percent

Dry La Niña period likely to follow El Niño

Tree deaths rise steeply in Sierra; drought and insects to blame

Yuroks widen fishing closures

La Niña is coming! Forecasts reveal massive pool of deep water moving across the Pacific could cause fall weather chaos

- NOAA animation shows pool of deep, cool water moving east in Pacific
- Researchers say this 'slow-motion wave' could signify developing La Niña
- La Niña brings unusually cold temperatures in the Equatorial Pacific
- Could create higher chance of dry winter in drought-stricken California

Impacts in Pictures



NOAA scientists look at a juvenile loggerhead turtle found in the Loggerhead Conservation Area off the coast of Southern California. (NOAA)



Humpback whales have been swimming into San Francisco Bay in unprecedented numbers during the past two weeks.



Tuna crabs washed up onto the beach at Shaw's Cove in Laguna Beach, Calif. Pelagic red crabs are usually found off Baja California but currents that are part of the El Nino weather pattern are sweeping them north



Intense ponderosa pine mortality is seen in the Bass Lake area from an aerial survey by the U.S. Forest Service in August 2015. The trees likely died in 2014 but the mortality became evident a year later. U.S. Forest Service.

Telling Regional Stories – NOAA West Watch

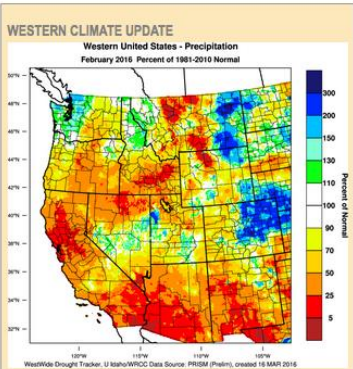


Second issue

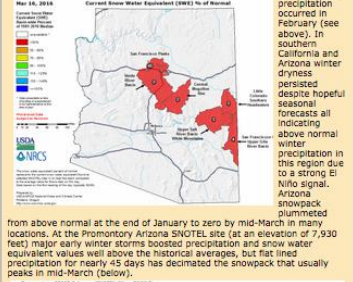
This is the second edition of NOAA-West Watch, a periodic collection of stories documenting how environmental change is affecting people and places in the western United States. If you have a story suggestion, please contact Michael Mistein (michael.mistein@noaa.gov) or Tim Vann (tim.vann@noaa.gov).

In this issue:

- Western Climate Update
- El Niño storms boost California ski areas
- Record waves batter West Coast shorelines
- Rough conditions slow Columbia ship traffic
- Distant algae bloom drives up salmon prices



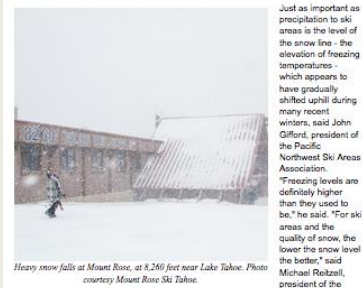
An abrupt transition from active, wet weather in December and January to mild and dry in February was found over much of the western United States. This change was most dramatic over central and northern California, the northern Great Basin, and parts of the northern Rockies where less than 25% of normal precipitation occurred in February (see above). In southern California and Arizona winter dryness persisted despite hopeful seasonal forecasts all indicating above normal precipitation in this region due to a strong El Niño signal. Arizona snowpack plummeted from above normal at the end of January to zero by mid-March in many locations. At the Promontory Arizona SNOTEL site (at an elevation of 7,930 feet) major early winter storms boosted precipitation and snow water equivalent values well above the historical averages, but fast tired precipitation for nearly 45 days has decimated the snowpack that usually peaks in mid-March (below).



El Niño storms boost California ski areas

Western ski areas are showing the best ski season they have recorded in three to four years, with crowds early on boosted by the buzz of El Niño-fueled snowpack and subsequently by some of the greatest snowfall totals for this point in the season in several years. California's Mammoth Mountain recorded more than eight feet of snow in less than a week in early March, and has already attracted more skiers than it did in all of last season. Skiing is expected to last into the June or even July.

The nine largest ski resorts in the Lake Tahoe area contribute \$624 million to the economy in a good year, according to a 2014 assessment, and California ski areas together generate more than \$1.3 billion in economic activity each year, a statewide assessment found. A good snow year boosts California ski area business by more than \$100 million, according to a 2012 study.



Heavy snow falls at Mount Rose, at 9,260 feet near Lake Tahoe. Photo courtesy Mount Rose Ski Tahoe.

Just as important as precipitation to ski areas is the level of the snow line - the elevation of freezing temperatures - which appears to have gradually shifted uphill during many recent winters, said John Gifford, president of the Pacific Northwest Ski Areas Association. "Freezing levels are definitely higher than they used to be," he said. "For ski areas and the quality of snow, the lower the snow level the better," said Michael Rabasali, president of the California Ski Industry Association.

Higher elevation resorts such as Mount Bachelor in Oregon, Mount Rose in the Lake Tahoe area and mountain resorts in Colorado have had some of the most reliable snow because they experience cold temperatures more frequently. Many resorts at lower elevations have aggressively diversified their recreational offerings and invested in sophisticated snowmaking so they are less dependent on snowfall to attract visitors throughout the winter, ski industry officials said.

Record waves batter West Coast shorelines

Some of the largest waves recorded on the West Coast have battered and flooded shorelines, including some populated areas and homes, and eroded beaches in the last few months. The waves are riding on elevated sea levels that remain heat from the "warm blob" combined with El Niño temperatures already pushed roughly a third to a half-foot higher than usual, with the sea level increase especially pronounced off California.

That has translated into approximately 45 percent more wave energy than normal hitting West Coast beaches, with about 40 percent more erosion than the average for the similar winter time frame, said Patrick Barnard, a U.S. Geological Survey researcher who tracks erosion on the West Coast. "Everything is in line with what we expect during strong El Niño conditions like we're experiencing," he said. In a few anecdotal cases a few beaches have largely been swept clean of much of their sand.



High waves at La Jolla Shores, Calif., March 8, 2016. Photo courtesy Randy Bucciarilli.

Barnard is leading an interagency effort to survey the entire Pacific Coast from the Mexican border north to Canada with Lidar, a precision mapping system that uses airborne lasers to very accurately measure elevations. NOAA, USGS and the U.S. Army Corps of Engineers are helping to fund the effort. The goal is to document the topography of West Coast beaches when they are at or near minimum levels because of El Niño-driven erosion, so scientists can then track subsequent changes.

In February NOAA's National Oceanic Survey deployed a NOAA aircraft to collect more than 3,000 geo-referenced oblique images of the West Coast from the Mexican border to Cape Flattery, Wash. The imagery will help assess impacts of El Niño through comparison with earlier baseline images collected in September 2015. Oblique imagery provides views of a wider area and improves the visibility of vertical structures, such as the sides of buildings. The oblique imagery is publicly available online, and will support assessments and decisions by NOAA agencies and mission partners such as the U.S. Geological Survey, U.S. Army Corps of Engineers, Federal Emergency Management Agency and other state, local and academic interests.

Weblink:

<http://campaign.r20.constantcontact.com/render?m=1113800373012&ca=8b476ef2-9b94-4107-98de-437421865cd2>

Rough conditions slow Columbia ship traffic

Strong December storms powered by El Niño repeatedly shut down commercial shipping traffic into and out of the Columbia River west of Portland, according to the pilots that guide ships across the treacherous Columbia River Bar where the river meets the sea near Astoria, Oregon.

"The frequency of the fronts through December was really something," said Dan Jordan of the Columbia River Bar Pilots and a pilot himself. "They just kept coming day after day. It seemed like every other day we'd have to suspend service because the bar was so rough." He said the pilots suspended shipping traffic across the Columbia River Bar nearly 10 times in the month of December, among the most closures in a single month that most pilots could remember. Conditions were not nearly as rough in January and February, with only a few scattered closures.

According to the Merchants Exchange of Portland, the bar has been closed 15 times so far this winter, compared to nine closures in the winter of 2014-15, nine in 2013-14, six in 2012-2013 and 14 times in 2011-12.



A cargo ship crosses the Columbia River Bar in high seas. Photo courtesy Columbia River Bar Pilots.

All large commercial ships crossing into or out of the Columbia River must be guided between the open sea and Astoria by a Columbia River Bar pilot, and pilots may suspend service when conditions become too rough for a safe transit across the Columbia Bar. At times when the weather forced closures in December, as many as eight large ships remained in a holding pattern offshore while they waited for a pilot to guide them inland, Jordan said. About \$24 billion worth of cargo transits the Columbia each year and past estimates have put the cost of river closures at about \$10 million for three days.

Ships traveling down the river from Portland may take close to eight hours to reach Astoria, and conditions on the bar can change so quickly that bar pilots sometimes have to close the bar while the ships are still in transit, Jordan said the pilots often consult with National Weather Service forecasters and use NOAA's online weather, real-time buoy data and other forecasting resources to advise departing ships whether they should start the trip downriver or hold back in Portland if threatening conditions are likely to close the bar before they can cover the distance to the river mouth.

Distant algae bloom drives up U.S. salmon prices

A long-distance impact of the unusually warm ocean conditions associated with El Niño is driving up salmon prices in the United States.

El Niño warmth has fueled an especially severe algae bloom that is wreaking havoc on salmon farms in Chile, killing more than 27 million fish at an estimated cost of close to \$500 million and putting pressure on salmon prices worldwide. A Nordic bank predicted the losses will lead to a global supply shock in salmon, according to Undercurrent News. Chile is by far the largest source of salmon imported to the United States, accounting for more than a third of U.S. salmon imports worth more than \$1 billion last year.

Salmon farming officials in Chile estimate that the bloom will depress salmon production in Chile by 20 percent or more, depending on how long the algae bloom lasts. Seafood wholesalers in the United States said prices for both farmed and wild salmon have risen as much as 20 percent in recent weeks as the impacts of the Chilean algae bloom became increasingly apparent.

Thanks for reading NOAA-West Watch

This is a project of NOAA's Western Regional Collaboration Team (NOAA West) with contributions from many regional partners. The 10-month project will document changing environmental conditions in the Western U.S. and how they are affecting the public and NOAA mission. We invite suggestions and contributions. These reports will be consolidated into a season end wrap-up. For submissions, questions or comments, please contact Michael Mistein at michael.mistein@noaa.gov or Tim Vann at tim.vann@noaa.gov.

Western Climate Update graphics provided by West Wide Drought Tracker, North American Freezing Level Tracker, and NCEP Snow Telemetry and Snow Course Data and Products.

Issue #3 in Draft.

Themes:

- Shrinking Western Snowpack
- Wildfire connections
- Stressed & dying forests
- Insects
- Fire potential

Survey Results



WRECIC Webinar Average Monthly Attendance (August – April): 26

Survey Distribution: 88

Survey Respondents: 28

- NOAA: 10
 - 7 NMFS
 - 2 OAR
 - 1 NOS
- Partner: 8
- Industry: 1
- No Info: 10

How many monthly WRECIC webinars did you attend?

	Webinar Attendance		
	1-3	4-6	7-9
NOAA	2	3	5
PARTNER & INDUSTRY	5	3	1
UNIDENTIFIED	5	3	1

Monthly Webinar

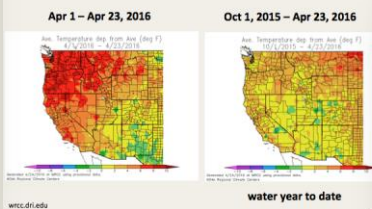


- 10 monthly briefings (Aug-May)
- Distribution list ~ 88. Average monthly attendance: 26

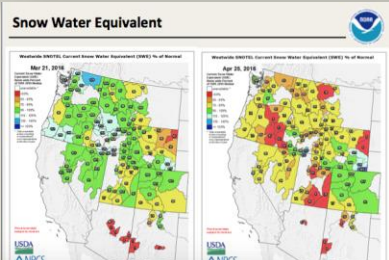
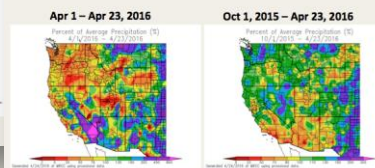
Regional Environmental Conditions & Impacts Coordination

NOAA West
April 25, 2016

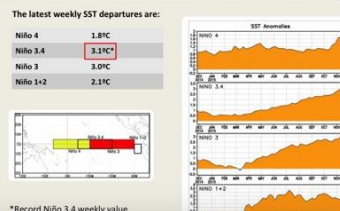
Temperature



Precipitation

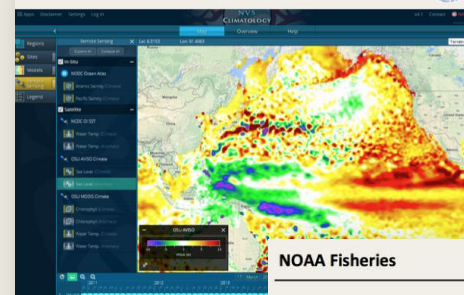


Niño Region SST Departures (°C) Recent Evolution



NANOOS: www.nanoos.org Climatology app

Mean Sea Level: March 2016



NOAA Fisheries

State of the California Current 2014-15: Impacts of the Warm-Water "Blob"

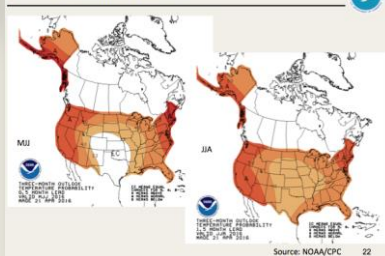
Bill Peterson
Oceanographer and Senior Scientist
Northwest Fisheries Science Center
Newport OR



Significant Wildland Fire Potential Outlook



U.S. Temperature Forecasts



4 Elements: Regional climate summary; Regional impacts summary; special highlights; open discussion

Monthly Webinar



Source (IME or News)	Date	Environmental Condition or Human Impact Description	Environmental Condition	Disturbance/Impact	Regional Geography	Reference Link
NOAA/CES	7/1/2015	Warm temperatures anomalies observed across the western US. Most climate divisions in the Pacific Northwest reported their warmest June on record. In the southwest, climate anomalies resembled the record of the warmest season on record.	Warm Temperature	Fisheries	Columbia River/Oregon	http://www.weather.gov/psd/2015062901
E&E NewsWire	7/17/2015	States first access to drought-relief money. Drought and warming temperatures are increasingly forcing agencies across the Columbia River Basin. A report issued by the Oregon Department of Fish and Wildlife (ODFW) says that the state's first access to the federal money for drought-relief is set to be used to help pay for the cleanup of the Columbia River Basin. The money will be used to help pay for the cleanup of the Columbia River Basin. The money will be used to help pay for the cleanup of the Columbia River Basin.	Drought; Warm Water Temperature; Fish mortality	Fisheries	Columbia River/Oregon	http://www.oregon.gov/DFW/Pages/2015071701.aspx
Seattle Times	7/20/2015	Migrating salmon on the Columbia River face the odds to survive as the sea of unrelenting water and soaring summer heat have set water temperatures soaring. Their journey has been short-circuited by a steady supply of water temperatures that have kept the Columbia into a kill zone where salmon fry systems are weakened and the odds of infections. At Grays Harbor, fish have water temperatures more than 75 degrees, nearly 8 degrees higher than the 10-year average for this time of year.	Warm Water Temperature; Oceanic Fish	Fisheries	Columbia River/Oregon	http://www.seattletimes.com/archive/2015/07/20/2015072001
E&E NewsWire	7/20/2015	Warm waters help impeding Chinook recovery. Warm water has helped slow recovery of the sockeye salmon making their way up the Columbia River in the Pacific Northwest, an Oregon wildlife official said. Until 2010, 70% of more than 500,000 sockeye salmon spawned in rivers in the state were adults of the river. Columbia River. Oregon Department of Fish and Wildlife fisheries manager John North said. "We've never had sockeye adults in the state," North said. "Hot and low-oxygenated water has increased water temperatures this year. Many river officials say warm air is at least partially to blame for more than 400,000 salmon deaths this year."	Warm Water Temperature; Low Sockeye; Fish mortality	Fisheries	Columbia River/Oregon	http://www.oregon.gov/DFW/Pages/2015072001.aspx
E&E NewsWire	7/20/2015	Record rainfall eases out much of New Mexico's drought. While most of the West struggles with ongoing drought, New Mexico just had its fourth-wettest first half of a year on record, and nearly half the state is out of drought conditions. New Mexico received 7.53 inches of rainfall from June 1 through June 15, compared with an average of 4.86 inches. The year also set a record for precipitation. June 15th, which the state received a record rainfall of nearly 12 inches. "Through the excess rain has had by just about nothing, it has been a boon to agriculture overall in the state, especially livestock grazing. Lower the heat throughout the state, and no water has been released from the El Niño and Niño reservoirs this year."	Record rainfall	New Mexico	New Mexico	http://www.oregon.gov/DFW/Pages/2015072001.aspx
E&E NewsWire	7/31/2015	Drought threatens future of Native American culture. Native American tribes that have relied on the Columbia River to sustain and enrich the Pacific Northwest's beach drought impact the very future of the nation that are fundamental to their culture and way of life. Fishing traditions have been established and have been the heart of the spring spawning run – an estimated quarter-million salmon – have died this year in much warmer than average water. The sun has melted and left the... The sun has melted and left the... communities living along the river, they are an essential food source and cultural symbol. "I grew up doing fishing salmon," said Leonard Loring, chairman emeritus for the Stevedore Union in the community north of Seattle. Instead of fishing, the Stevedore now makes \$1,000 to \$1,500 more per year to keep them from the state of the river. Loring said climate change is only making the problem worse, reports say, as far as we're looking out could be another year. Other are already, according to the river species of waters about go extinct.	Drought; Warm Water Temperature; Fish mortality	Fisheries; Native American	Columbia River; Washington & Oregon	http://www.oregon.gov/DFW/Pages/2015073101.aspx
Seattle Times	7/30/2015	The B&E may warn Puget Sound's waters, but marine life. Scientists say they are concerned about the possible ecological effects of the unusually warm days in the Puget Sound region this summer. "I wasn't expecting the conditions to be this warm," said a scientist of Washington's center for environmental science. "I thought it would be dry and warm, but I wasn't expecting this." Scientists from county, state and federal agencies said. "Probably they are concerned about the ecological impact of the Puget Sound from the unusual conditions, which are forecast to persist as a strong El Niño develops. They are warning to understand the impact of warming waters that already has."	Warm Water Temperature	Marine Ecosystem	Puget Sound	http://www.seattletimes.com/archive/2015/07/30/2015073001

Conditions and Impacts Reporting Status

- 284 entries since July 1, 2015
- ~ 27 entries per month
- Primary source is E&E Newswire, followed by a review of NMFS media clips for impacts gaps

Headlines

WEATHER:
L.A. sees record heat, rain, in February

Holy El Niño! It's possible Shasta Lake will flip up this month

'Atmospheric river' running through Marin

S. California Fisheries Hit Hard By Warming Water

West Coast sardine populations, long sinking, look even worse in forecast

California Sardine Fishery Continues Collapse, Likely Won't Reopen This Year

Sea Lion Strandings Remain Above Average

Sea lion pups are starving because their moms are eating 'junk food'

California sea lion strandings down because warming coast has already killed pups

DROUGHT:
Western tribes struggle to adapt as reservoirs shrivel

Reservoirs are getting a big boost from 'Miracle March' – but the drought isn't over yet

California storms send billions of gallons of water into reservoirs

Drought Update: California water concerns continue despite filling reservoirs

Northern California highway crumbles as storm-soaked hillsides collapse

Low numbers of ocean salmon raise specter of no commercial fishing in 2016

Stillaguamish Tribe calls for coho protection

Officials consider drastic step to boost coho: no fishing this year

Did El Niño bring this rare Pacific seahorse to Long Beach waters?

Regional Impacts Summary – 02/27 to 03/18



- Reporting Status:**
- 231 entries since July 1, 2015
 - Last reporting period: 35 environmental conditions & regional impacts reported

Reminder: To report an impact email Timi Vann or Michael Milstein

Environmental Conditions Capture:

- Changing ocean conditions
- Warm ocean temperatures
- El Niño
- CA dry & hot February but wet March
- Flooding
- Drought

Human & Ecosystem Impacts:

- Adverse marine food web (forage fish) impacts
- Commercial fishery harvests down or closed (sardines, coho, squid)
- Marine mammal strandings & reproduction
- Species displacement
- Water supply; reservoir storage improvements
- Flooding & transportation
 - Train derailments, road closures
- Tribal subsistence impacts:
 - Fallon Paiute-Shoshone (NV) – drought & water supply impacts on hunting & fishing
 - Stillaguamish (WA) – ocean conditions & fishery harvest

Impacts in Pictures



March 10: Sonoma County slides and floods/Press Democrat.



March 11: A Caltrans employee and his dump truck were hit by a mudslide on Highway 1 in Mendocino while responding to a earlier mudslide. Photo: SF Gate



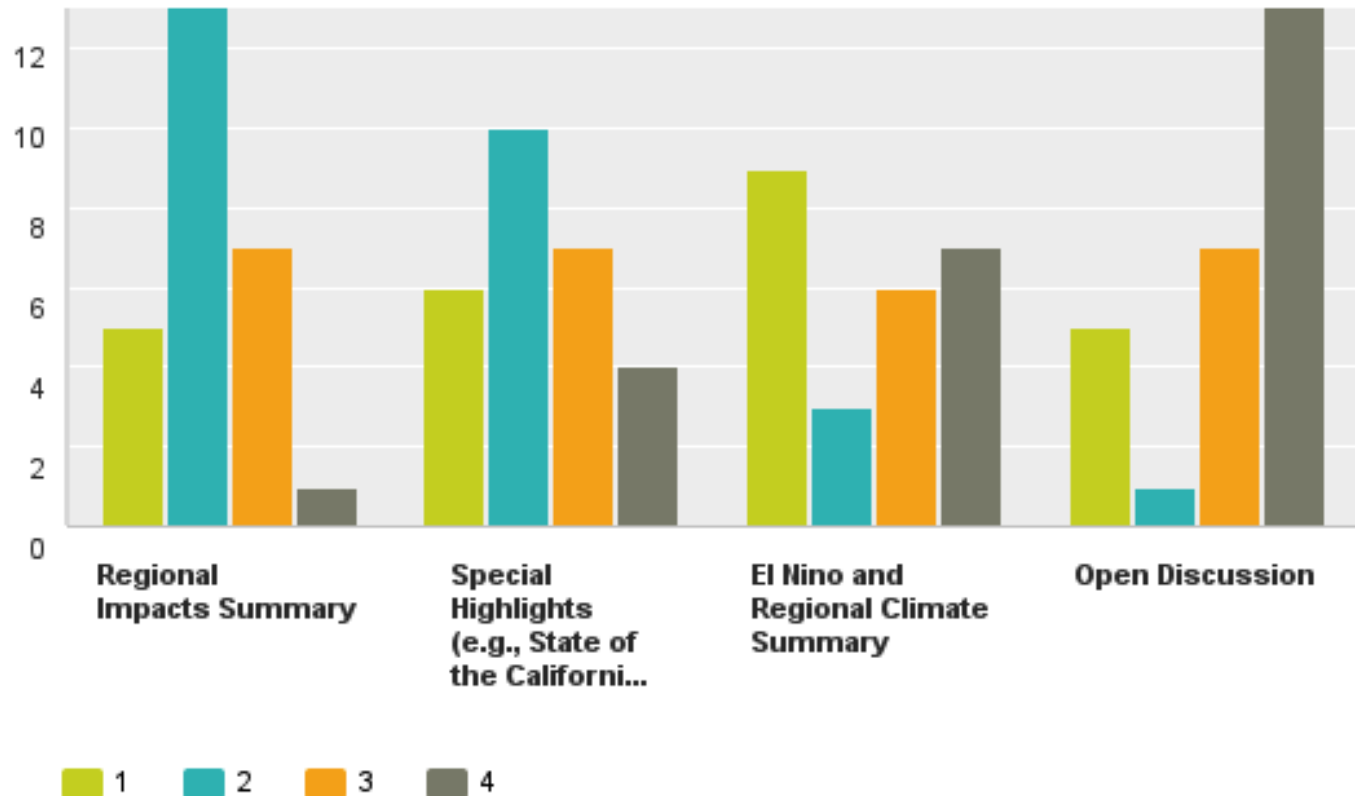
March 16: Northern California highway crumbles as storm-soaked hillsides collapse. Highway 3 near Rush Creek Road just north of Weaverville in Trinity County. Photo: LA Times

**What aspects of the WRECIC webinars are most important to you?
(1 most important; 4 least important)**



Answered: 27

Skipped: 1





Other comments...

I know where to find the regional impacts and ENSO summaries, so I enjoyed any added value provided on these calls. Most of it came from the special highlights or discussion.

I really appreciated the special topics, and the impacts summaries.

I liked the engagement across offices and the development of shared perspective of what was going on.

I like the mix of it all the best. That is, the mix of regional and local. The mix of climate summary and impacts.

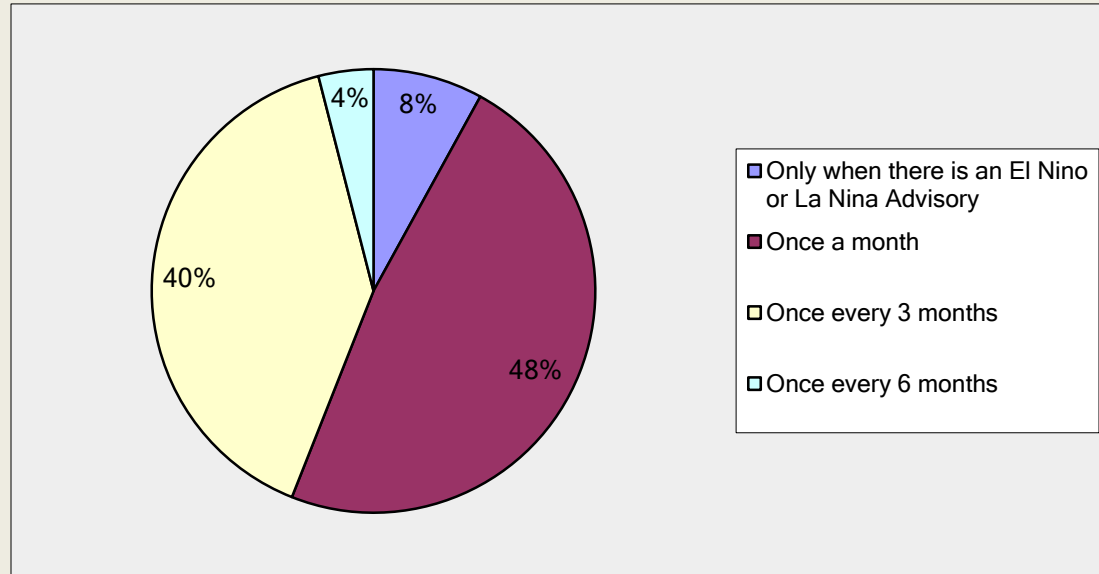
[Liked] People telling the story of their livelihood impacted by environmental changes, AND their approach to adapting, monitoring, and innovating their affiliated industry.



If the WRECIC webinars are continued in the future, how often should they be held?

Answered: 25

Skipped: 3



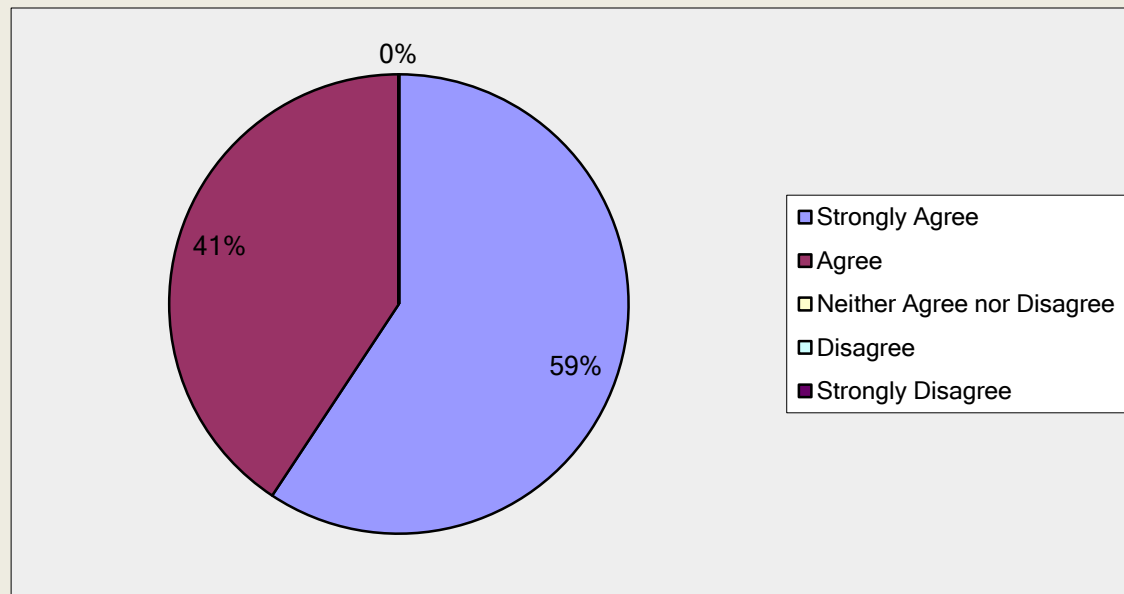
During a time of climate anomalies like the last 1.5 yrs, meeting monthly was extremely helpful as conditions were shifting relatively rapidly. As a member of the side of NOAA where impacts are felt (Fisheries), rather than the side who are observing climate conditions (Weather), it was extremely helpful to have a preview of likely future impacts to the resources.

It is important to tell stories, like those in the NOAA West Watch, that describe how people and places in the region are experiencing changing environmental conditions.



Answered: 27

Skipped: 1

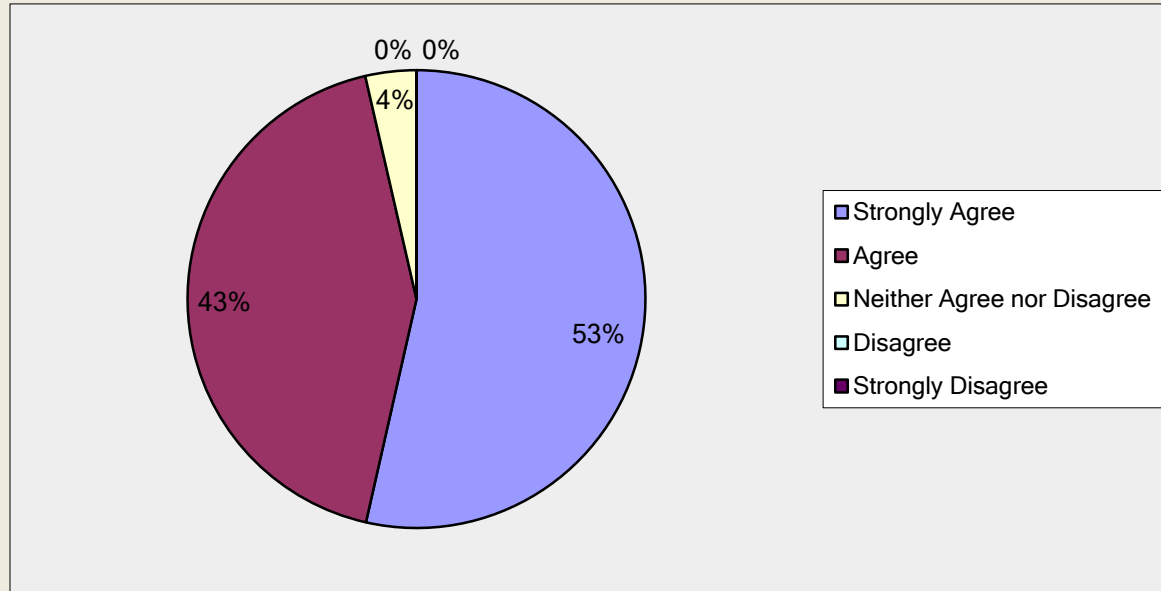


The WRECIC effort to tell stories from the information resulting from this group just short of revolutionary when it comes to NOAA, and I'd love to see the work repackaged and shared with a broader external audience. Videos and infographics would enhance the story telling and describe the value of NOAA, as well as cautionary tales increasing environmental awareness and safety, better than many of our current methods. In my mind this effort was a necessary first step to gain the raw materials for that One-NOAA story telling. Would be visionary to find support to continue this effort.

Overall, the WRECIC project is a good model for improving regional communication and coordination across NOAA and partner networks involved in monitoring and communicating changing environmental conditions and impacts, particularly during significant events.



Answered: 28

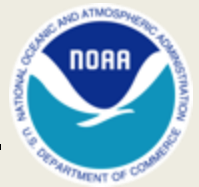


I do hope we're able to find some group within NOAA who has the time, resources, and mission to continue support for this. The demand is evident in how the attendance and content grew over time. I can see this building into an extremely informative venue for internal NOAA staff, and possibly fueling extremely valuable external communications for stakeholders.

Thank you all for organizing/hosting this series. It would be a shame to lose it.

I learned a lot from these webinars and hope they can continue.

Synthesis & Recommendations



Synthesis:

- The El Niño and Regional Climate Summary element is the most important part of the call overall; Open Discussion least important. Rankings differed across attendance groups making clear cut priorities hard to distinguish.
- Most respondents want a monthly webinar.
- NOAA West Watch type stories are relevant and needed.
- There is consensus that the WRECIC is a good model for improved communication in the region.
- Feedback included suggestions to expand outside of NOAA (and partners) to more stakeholders or the general public.

Recommendations:

- Reinstate the WRECIC seasonally, with calls every other month (3 Fall/Winter; 3 Spring/Summer).
- Provide supplemental funding to the Western Regional Climate Center to implement the WRECIC effort.
- Focus on regional climate summaries – particularly departures from normal, and El Niño/La Niña advisories; and region specific special highlights.
- Issue a NOAA West Watch – type communication focused on how people and places are experiencing environmental conditions 2X/year (e.g., Seasonally - 1 Fall/Winter retrospective and 1 Spring/Summer retrospective).
- **Longer-term:** If resources are available, consider increasing webinars to monthly and expanding to broader stakeholder group(s).

It's a wrap!



Questions, Comments or Parting Thoughts?

Housekeeping:

- Project archive: <http://wrcc.dri.edu/data-projects/> or email timi.vann@noaa.gov
- BAMS Essay abstract accepted: *The NOAA Western Region Environmental Conditions and Impacts Coordination: Making Sense of Regional Environmental Change*. Target for draft: end of June.
- NOAA West Watch #3 expected to release by month's end.

THANK YOU FOR YOUR PARTICIPATION!