



# Regional Environmental Conditions & Impacts Coordination

NOAA West  
December 21, 2015

# Call Agenda

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- Project Recap & Updates (Timi Vann)
- El Niño and Regional Climate brief (Dan McEvoy)
- Environmental conditions and impacts reporting and discussion:
  - Media (Timi Vann)
  - Others (NOAA mission lines, partner network reports)
- Discussion

# Regional Coordination Goals

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1. Document and share environmental conditions information and impacts on human systems and NOAA mission at the regional scale.
2. Improve awareness of environmental observations and human system impacts across NOAA mission lines (internal awareness).
3. Improve regional communication and coordination across NOAA mission lines and between NOAA and NOAA-funded regional partners involved in monitoring and communicating changing climate conditions and impacts (internal & external awareness).
4. Improve and tailor external communication of regional impacts from changing environmental conditions, including but not limited to El Niño. Target audiences is regionally connected elected officials and representative groups (e.g., WGA).

# Regional Coordination Action Plan

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## Monthly webinars

- Exchange information on regional climate conditions and forecasts.
  - NWS, NESDIS and OAR report on terrestrial observations;
  - NMFS and NOS report on coastal and marine observations; and
  - Partner network observations (WRCC, IOOS, RISA, Sea Grant, etc)
- There are rich sources of information that can be mined from media, internal reporting channels, and agency operations. Document reported conditions and impacts information via Google spreadsheet

## Monthly communication

- Feed information to existing products such as the [State of the Climate](#) monthly summaries
- Tailored communication – focused on reported NOAA mission & human system impacts.

## Output

- Periodically communicate with in-region elected officials (in coordination with NOAA OLIA).
- Seasonal assessment of regionally specific environmental conditions and human system/NOAA mission impacts over the 2015 Fall and 2016 Winter, as informally reported.
- The summary will not include attribution of impacts, but could serve to inform a retrospective analysis of the human system impacts of environmental phenomena – including ENSO.

# Implementation Updates

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## Climate Capacity:

- We bid farewell and best wishes to Dr. Kevin Werner, who accepted a Senior Executive position with the National Weather Service. ***Thank you Kevin!***
- The NOAA West Regional Team funded dedicated climate expertise for this project through the Western Regional Climate Center. ***Welcome Dr. Dan McEvoy!***

## Communications:

- The NOAA West Regional Team sought communications expertise through the NOAA Rotational Assignment Program to help develop and disseminate conditions and impacts information tailored for target audiences. ***Welcome Michael Milstein!***

## Convergences:

- NOAA West sought policy and external affairs expertise to plan and implement 2-3 in region issue focused Congressional engagements. This could be married to the WRECIC effort to tell a story about human system and NOAA mission impacts and agency & partner response to changing environmental conditions, including El Niño.
- NOAA El Niño Rapid Assessment Tiger Team recommendations.

# Temperature

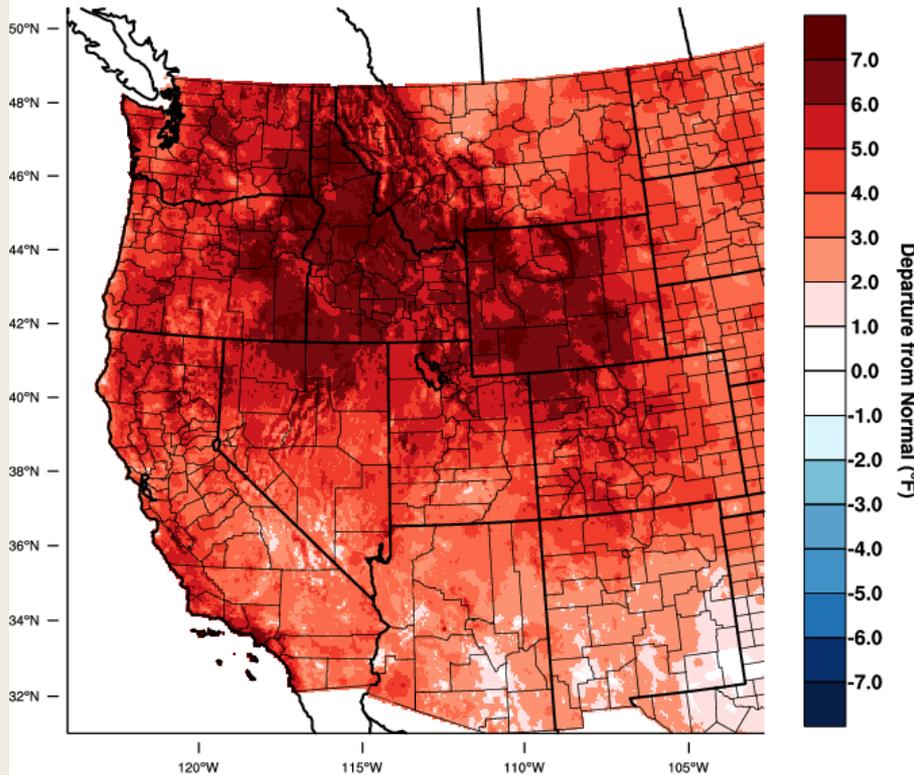


## October 2015

## November 2015

Western United States - Mean Temperature

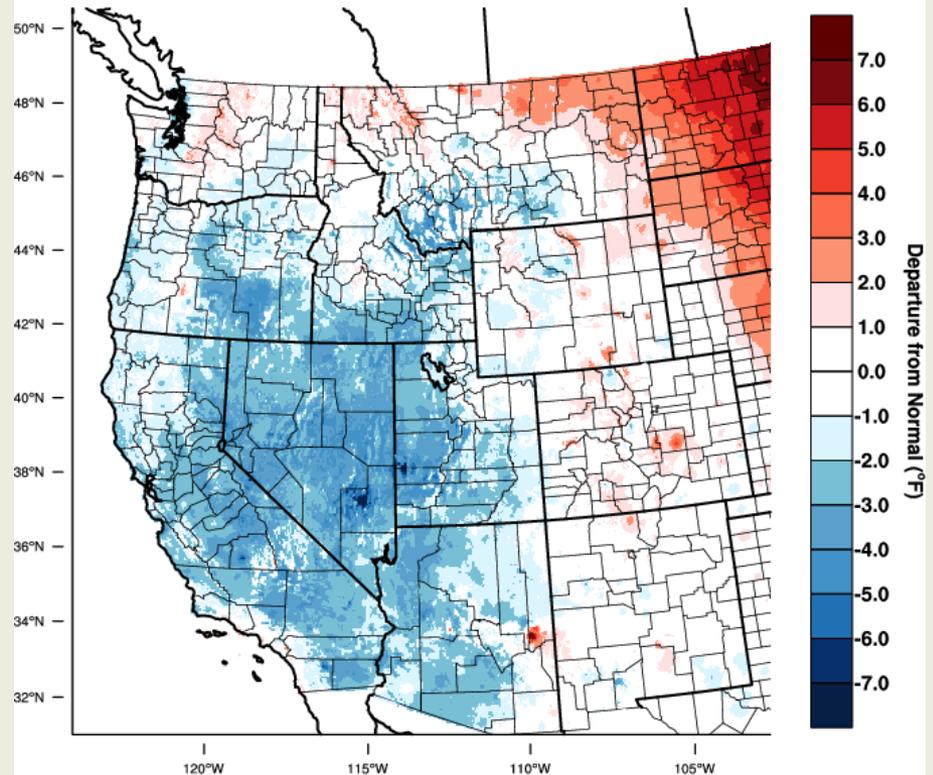
October 2015 Departure from 1981-2010 Normal



WestWide Drought Tracker - UIdaho/WRCC Data Source - PRISM (Prelim), created 16 NOV 2015

Western United States - Mean Temperature

November 2015 Departure from 1981-2010 Normal

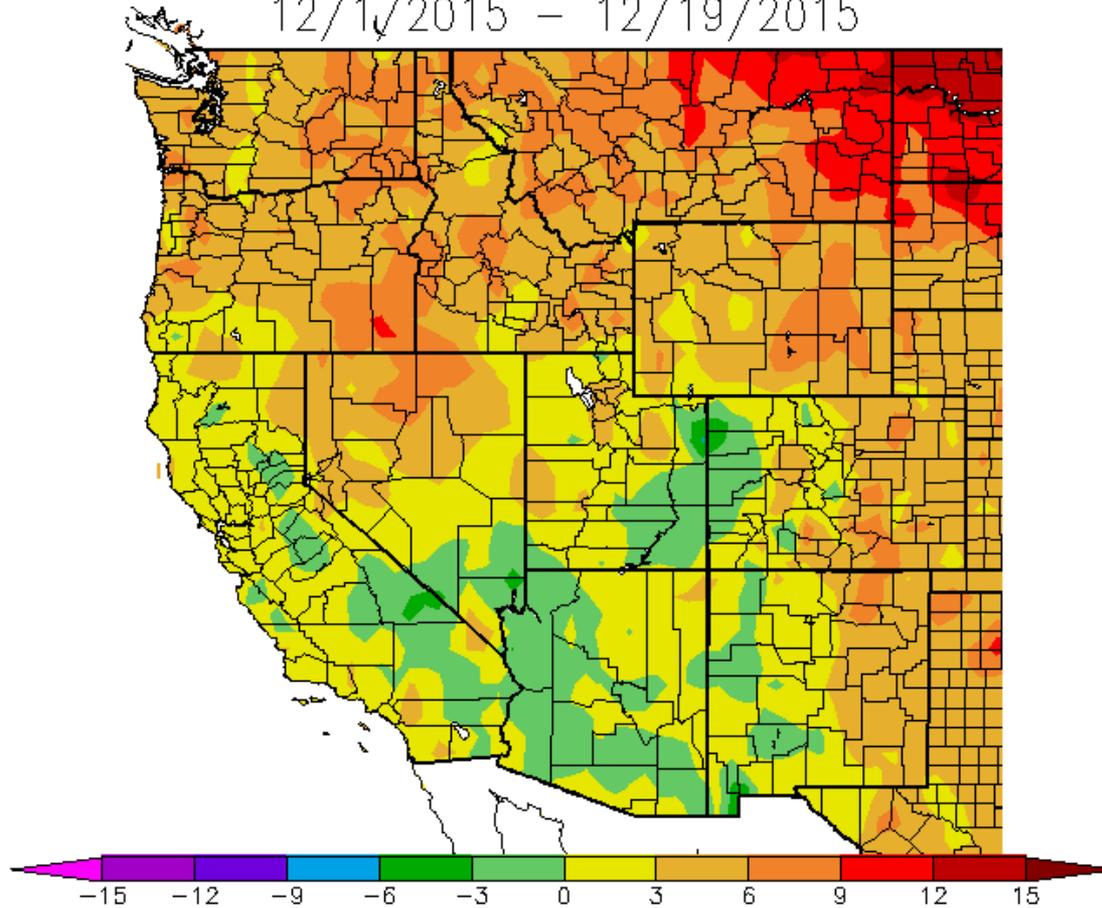


WestWide Drought Tracker - UIdaho/WRCC Data Source - PRISM (Prelim), created 16 DEC 2015

# Temperature



Ave. Temperature dep from Ave (deg F)  
12/1/2015 - 12/19/2015



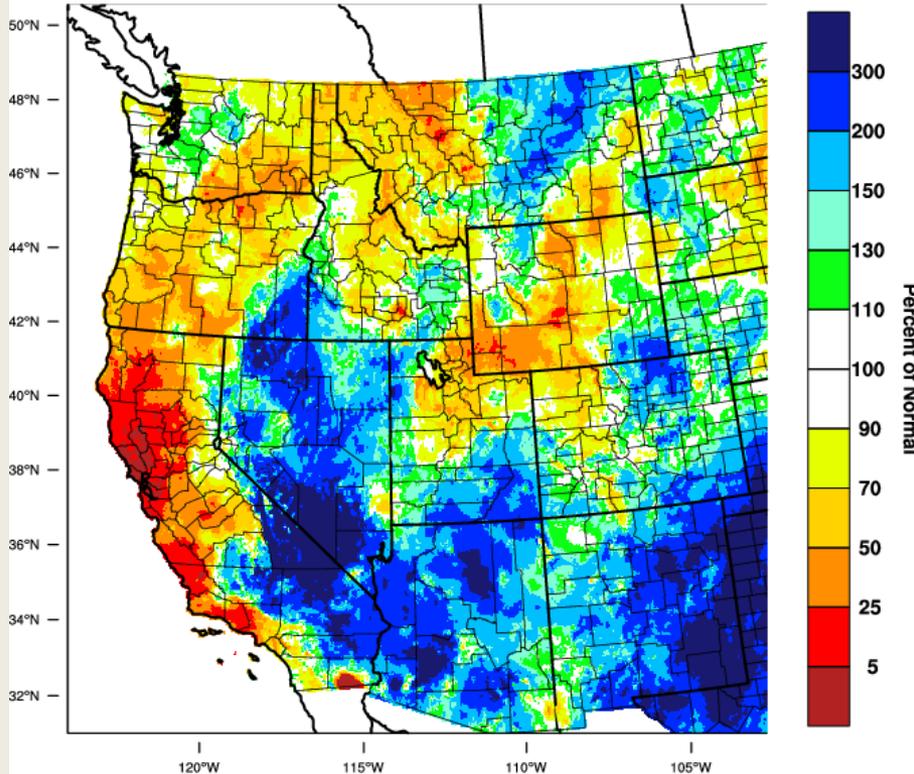
Generated 12/20/2015 at WRCC using provisional data.  
NOAA Regional Climate Centers

# Precipitation



## October 2015

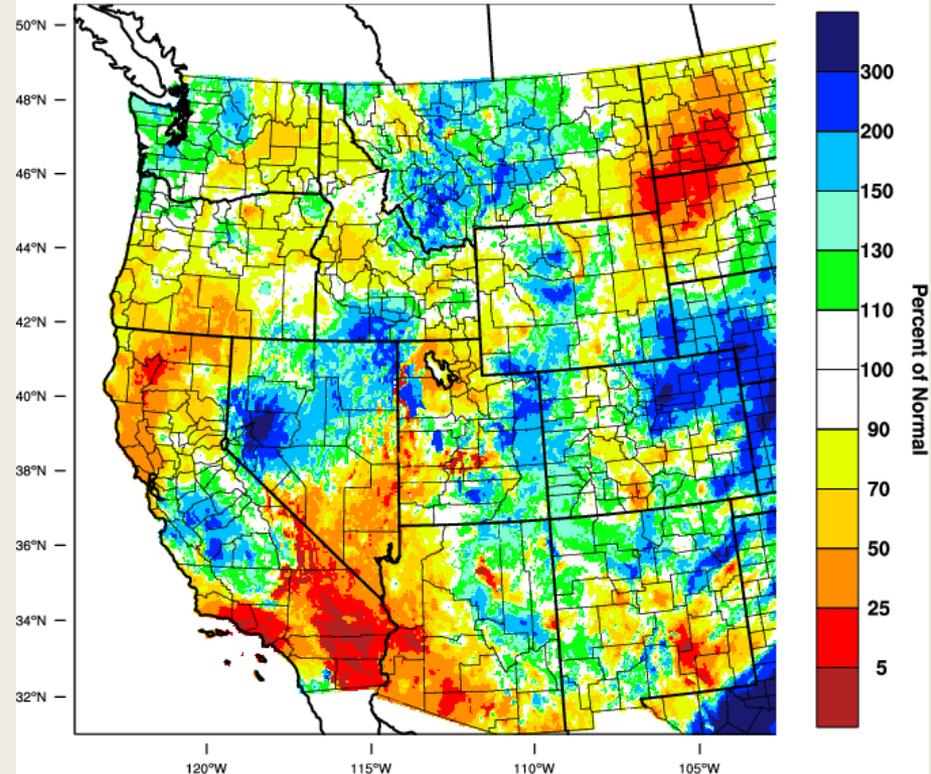
Western United States - Precipitation  
October 2015 Percent of 1981-2010 Normal



WestWide Drought Tracker - UIdaho/WRCC Data Source - PRISM (Prelim), created 16 NOV 2015

## November 2015

Western United States - Precipitation  
November 2015 Percent of 1981-2010 Normal



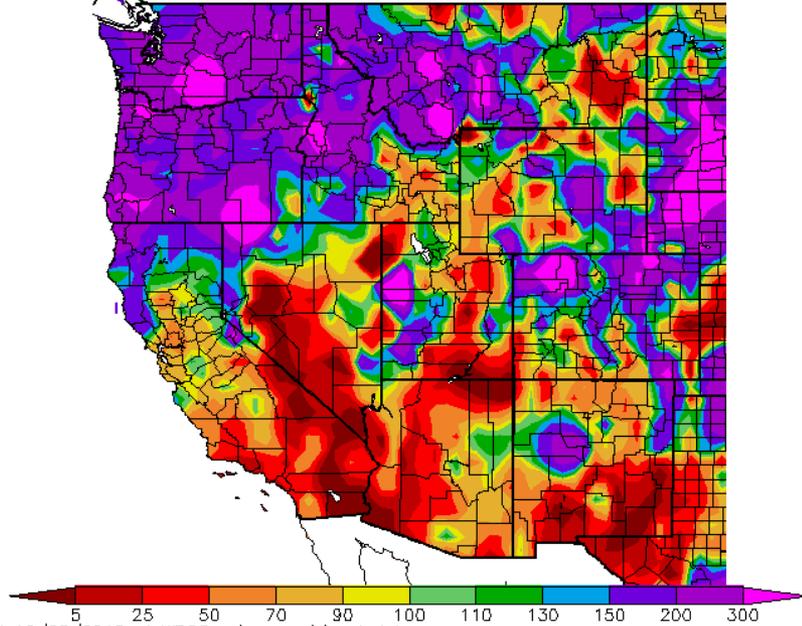
WestWide Drought Tracker - UIdaho/WRCC Data Source - PRISM (Prelim), created 16 DEC 2015

# Precipitation



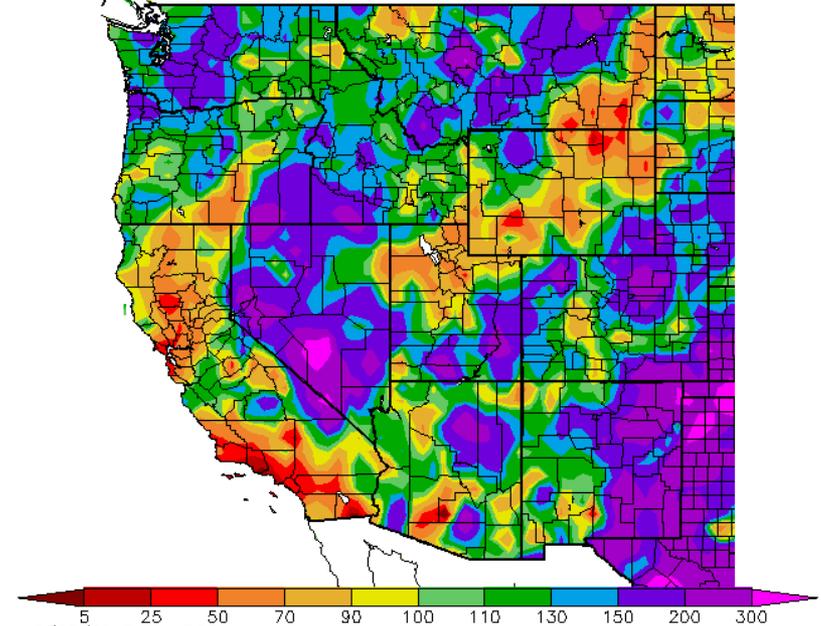
## December 1 – 16, 2015

Percent of Average Precipitation (%)  
12/1/2015 – 12/19/2015



Generated 12/20/2015 at WRCC using provisional data.  
NOAA Regional Climate Centers

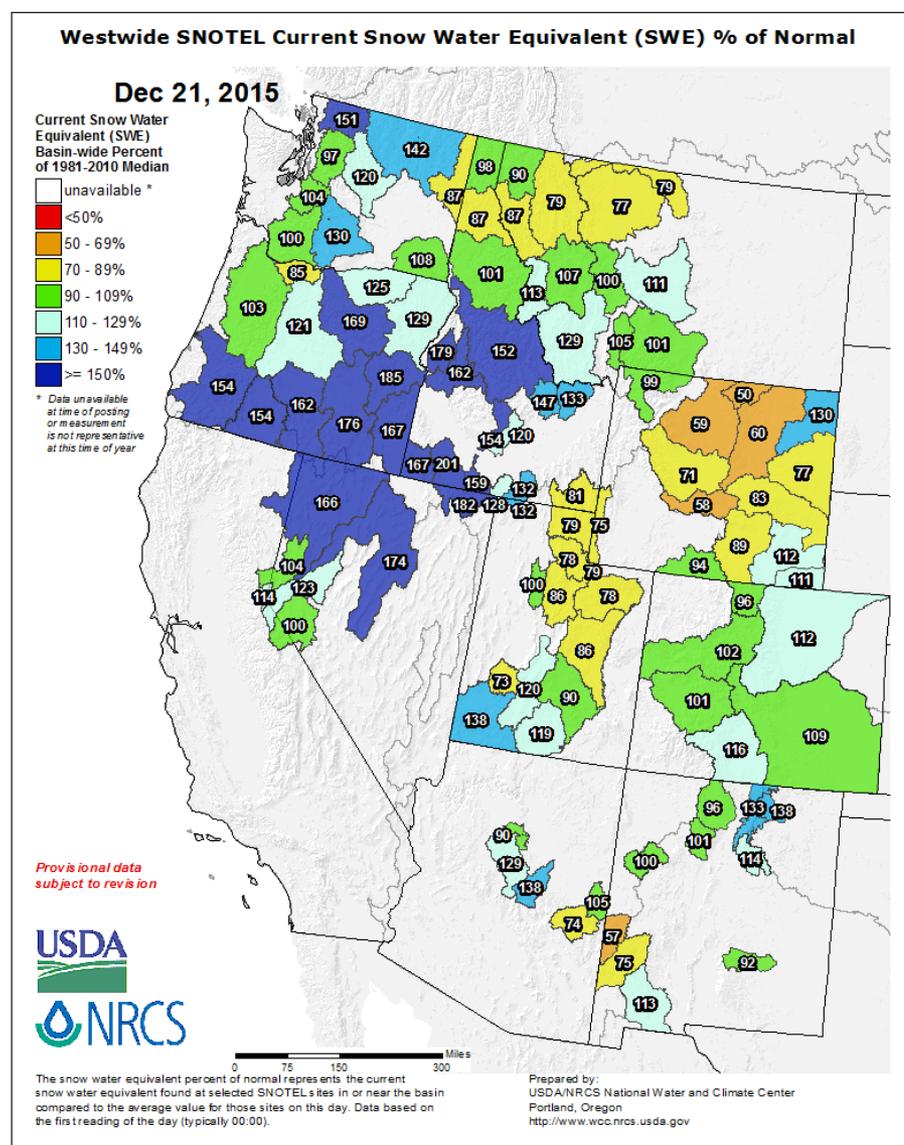
Percent of Average Precipitation (%)  
10/1/2015 – 12/19/2015



Generated 12/20/2015 at WRCC using provisional data.  
NOAA Regional Climate Centers

## October 1 – December 16, 2015

# Snow Water Equivalent



Source: NRCS

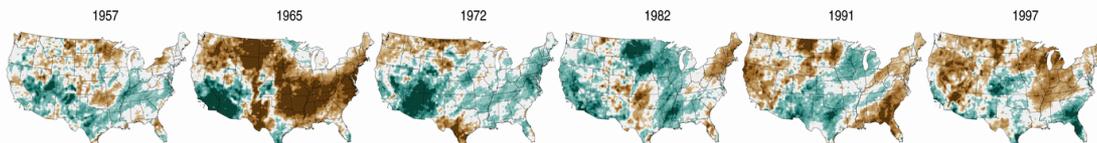
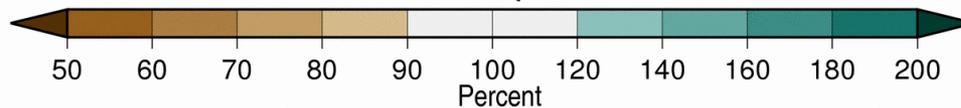
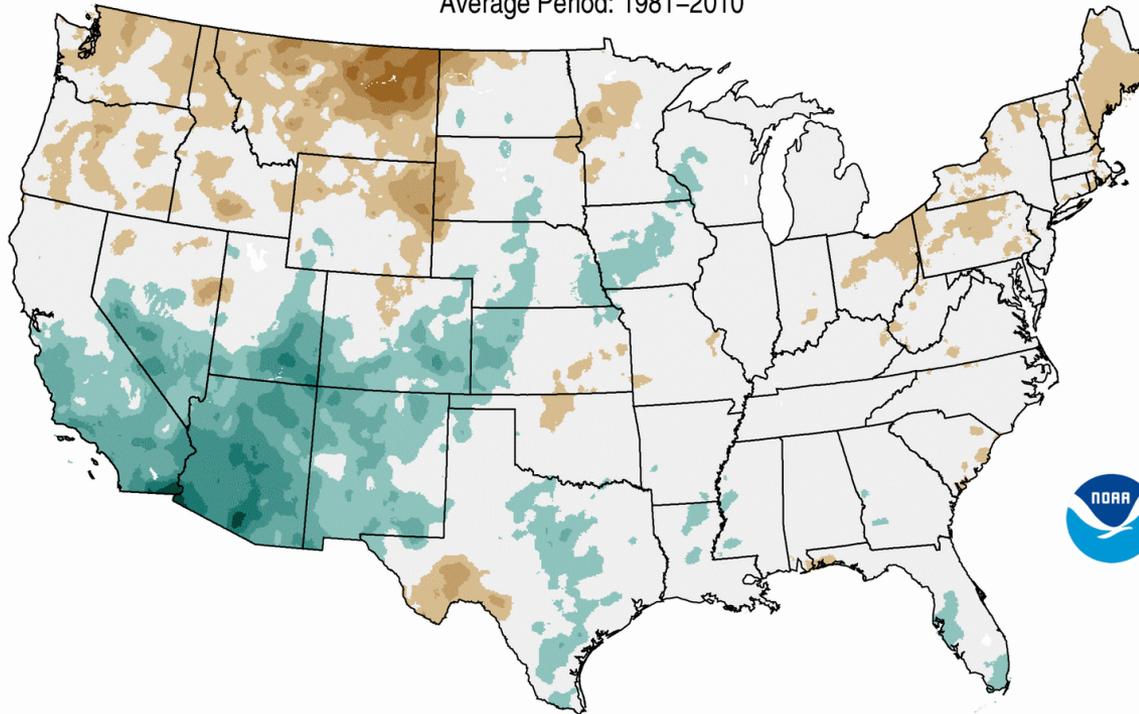
# Strong El Niño Precipitation Composites



## Strong El Niño Precipitation Percent of Average

Composite: **October–December** 1957, 1965, 1972, 1982, 1991, 1997

Average Period: 1981–2010



Data Source: 5km Gridded Dataset (nClimGrid)

Created by: National Centers for Environmental Information

Source: <http://www.ncdc.noaa.gov/monitoring-references/dyk/elniño-2015-2016>

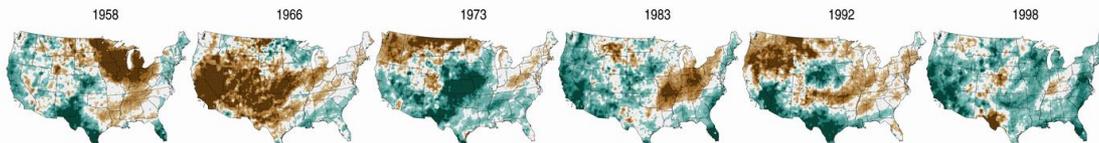
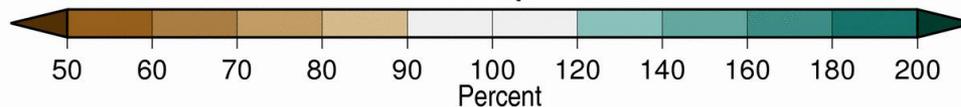
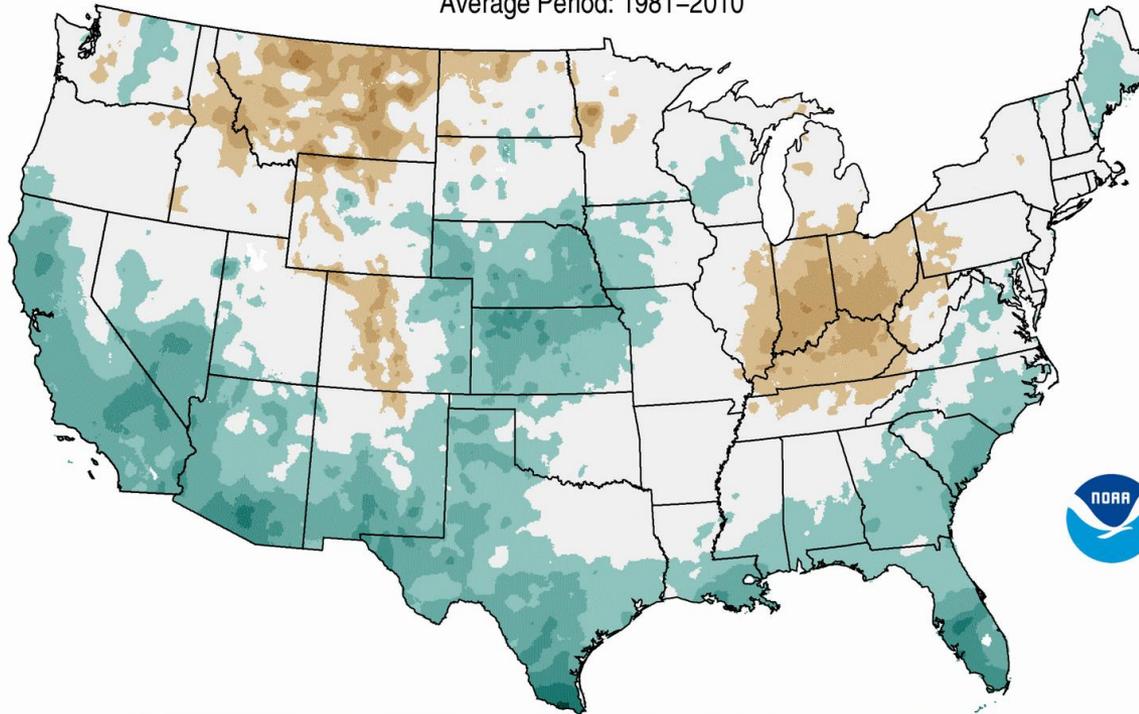
# Strong El Niño Precipitation Composites



## Strong El Niño Precipitation Percent of Average

Composite: **January–March** 1958, 1966, 1973, 1983, 1992, 1998

Average Period: 1981–2010



Data Source: 5km Gridded Dataset (nClimGrid)

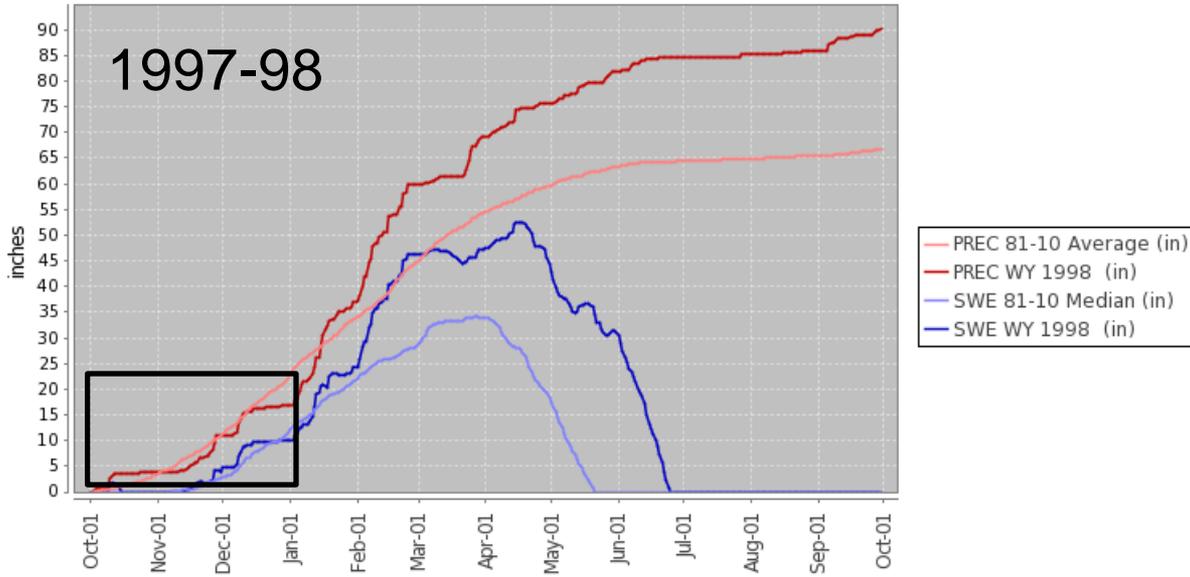
Created by: National Centers for Environmental Information

Source: <http://www.ncdc.noaa.gov/monitoring-references/dyk/elnino-2015-2016>

# Donner Summit 1997-98 vs. 2015-16



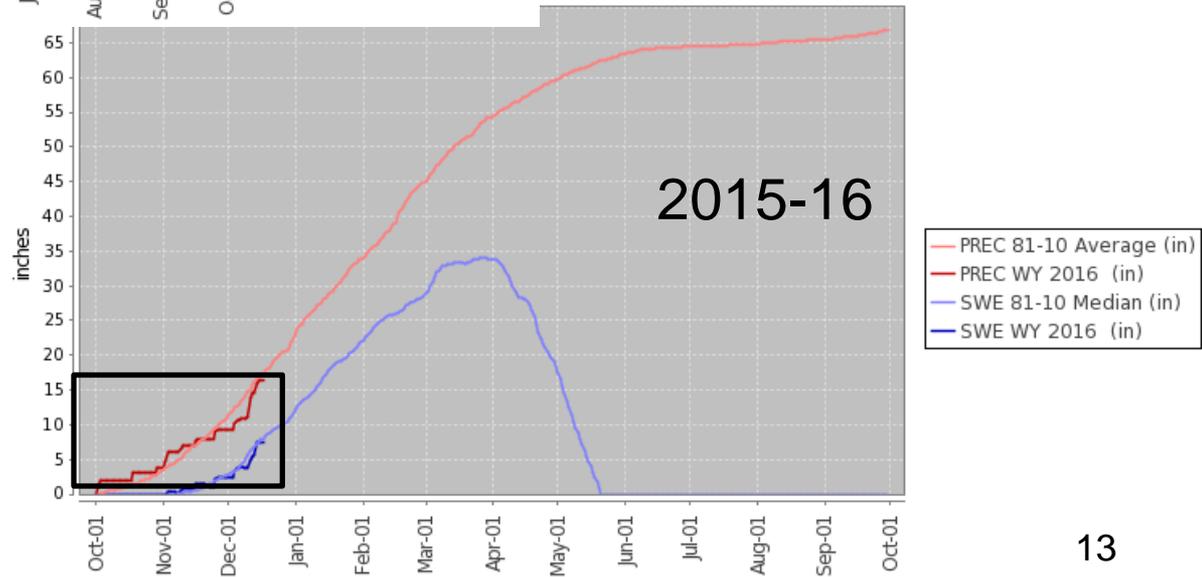
Station (428) WATERYEAR=1998 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision  
Thu Dec 17 14:32:46 GMT-08:00 2015



## SNOTEL Central Sierra Snow Lab

### Elevation: 6,855 ft.

al Water and Climate Center - Provisional Data - subject to revision  
4:32:25 GMT-08:00 2015



# 1997-98: dry start, wet finish

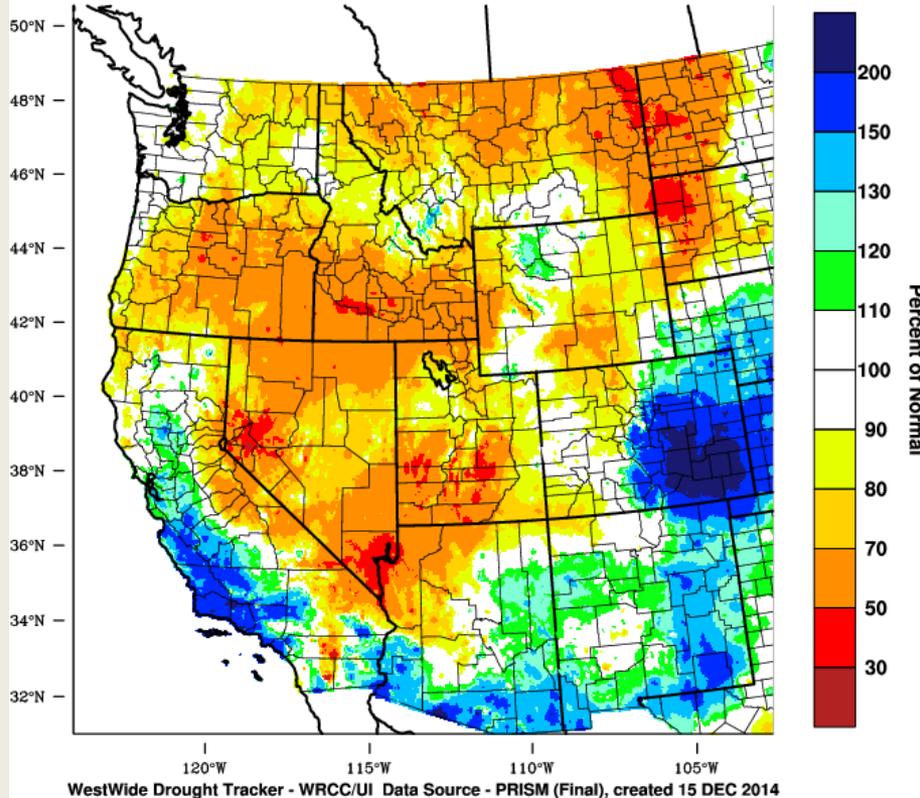


## OND 1997

## JFM 1998

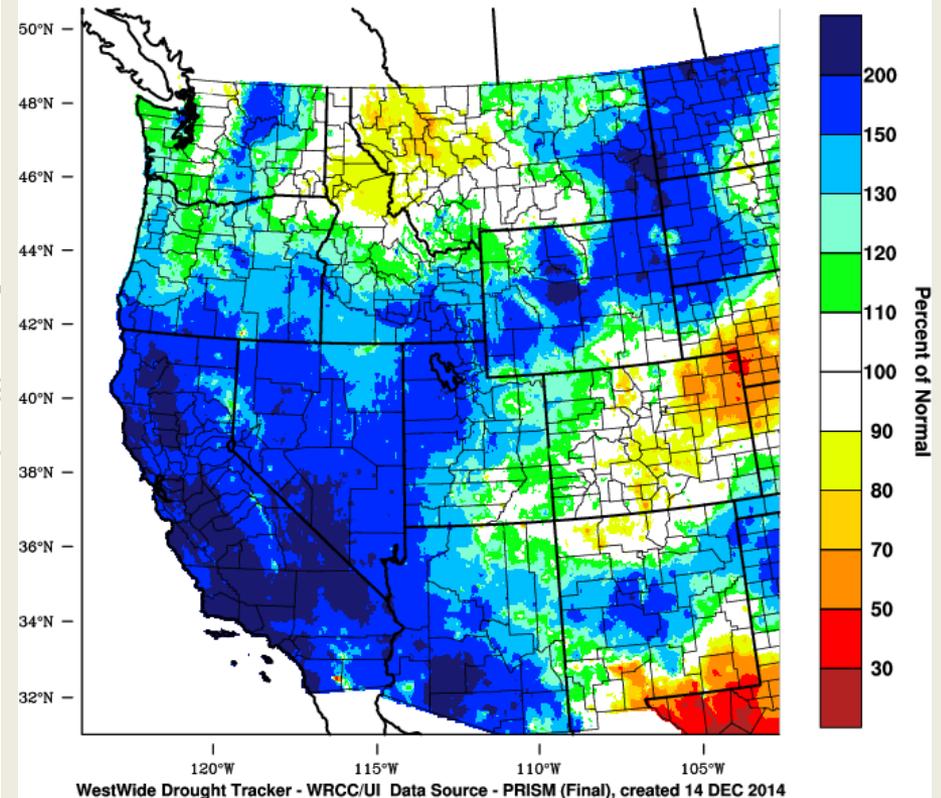
Western United States - Precipitation

October-December 1997 Percent of 1981-2010 Normal



Western United States - Precipitation

January-March 1998 Percent of 1981-2010 Normal



# The Blob



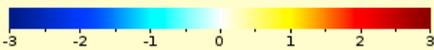
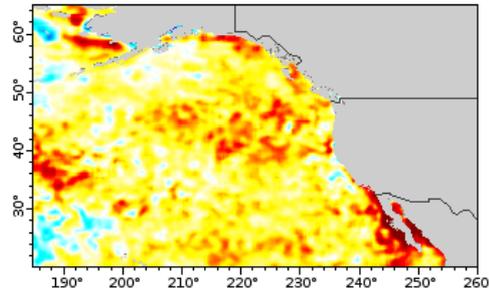
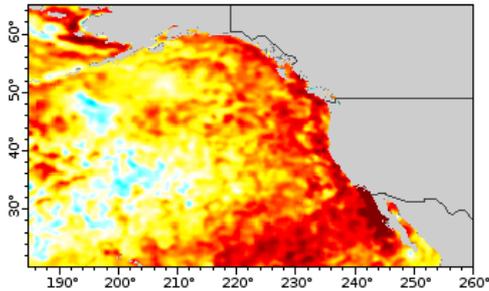
## November Takes a Bite Out of 'the Blob'

Fisheries Ecology Division, 12/10/2015 11:25:02 AM

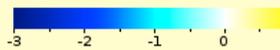
Warm expanse that heated up West Coast waters is beaten, but not yet broken

The so-called "blob" of infamous warm ocean waters that has gripped the West Coast and shaken up its marine ecosystems in the past two years is battered, but not dead yet, NOAA scientists report.

Strong winds blowing south from Alaska toward California dominated the West Coast through much of November, bringing cold air and some new upwelling of deep, cold water that weakened the warm patches that had long made up the blob, said Nathan Mantua, leader of the Landscape Ecology Team at NOAA Fisheries' Southwest Fisheries Science Center in Santa Cruz, California. Patches of ocean that had been as much as 2 to 3 degrees C warmer than average in October have now dropped sharply to around 0.5 to 1.5 degrees C above average. Some areas along the Northern California Coast have even dropped to slightly below average temperatures for this time of year, he said.



Daily Sea Surface Temperature Anomalies (degree C)  
SST, Daily Optimum Interpolation (OI), AVHRR Only, Version  
2, Final+Preliminary  
(2015-11-01T00:00:00Z, Altitude=0.0 m)  
Data courtesy of NOAA NCDC



Daily Sea Surface Temperature Anoma  
SST, Daily Optimum Interpolation (OI),  
2, Final+Preliminary  
(2015-12-01T00:00:00Z, Altitude=0.0 m)  
Data courtesy of NOAA NCDC



<https://swfsc.noaa.gov/news.aspx?ParentMenuId=54&id=21508>

## Cliff Mass Weather Blog

This blog provides updated forecasts and comments on current weather or

Thursday, December 17, 2015

### Dead Blob

Several people have asked me about the "BLOB"--the area of very warm water over the NE Pacific Ocean that has plagued our region for roughly two years.

The short answer: the BLOB is DEAD. Sorry for putting it bluntly, but it is better that way.

<http://cliffmass.blogspot.com/2015/12/dead-blob.html>

# El Nino Status

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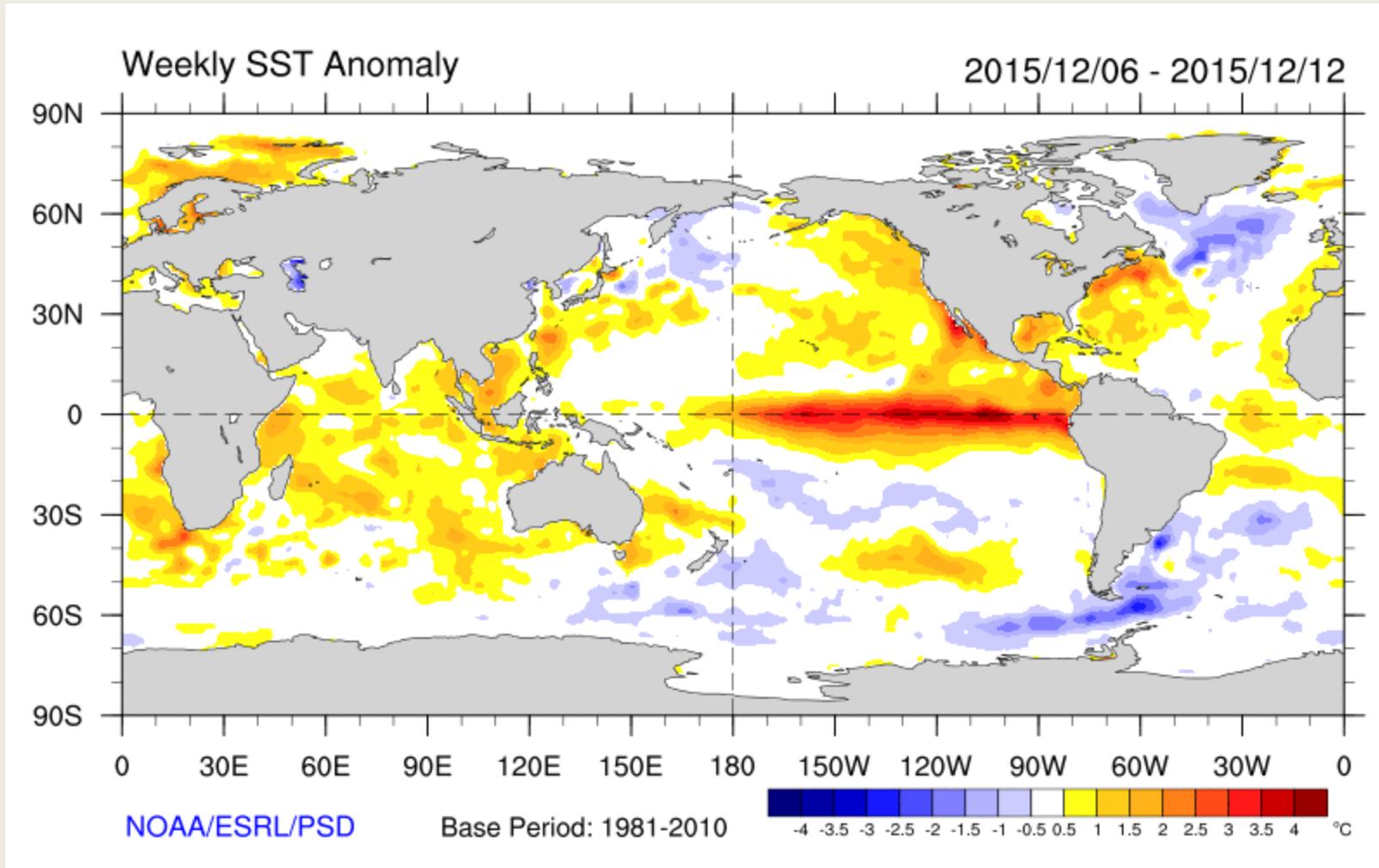


- ENSO Alert System Status: El Niño Advisory
- El Niño conditions are present
- Positive equatorial sea surface temperature (SST) anomalies continue across most of the Pacific Ocean.
- El Niño will likely peak during the Northern Hemisphere winter 2015-16, with a transition to ENSO-neutral anticipated during the late spring or early summer 2016.\*

Credit: CPC

\* Note: These statements are updated once a month (2<sup>nd</sup> Thursday) in association with the ENSO Diagnostics Discussion, which can be found by clicking [here](#).

# Current Sea Surface Temperatures



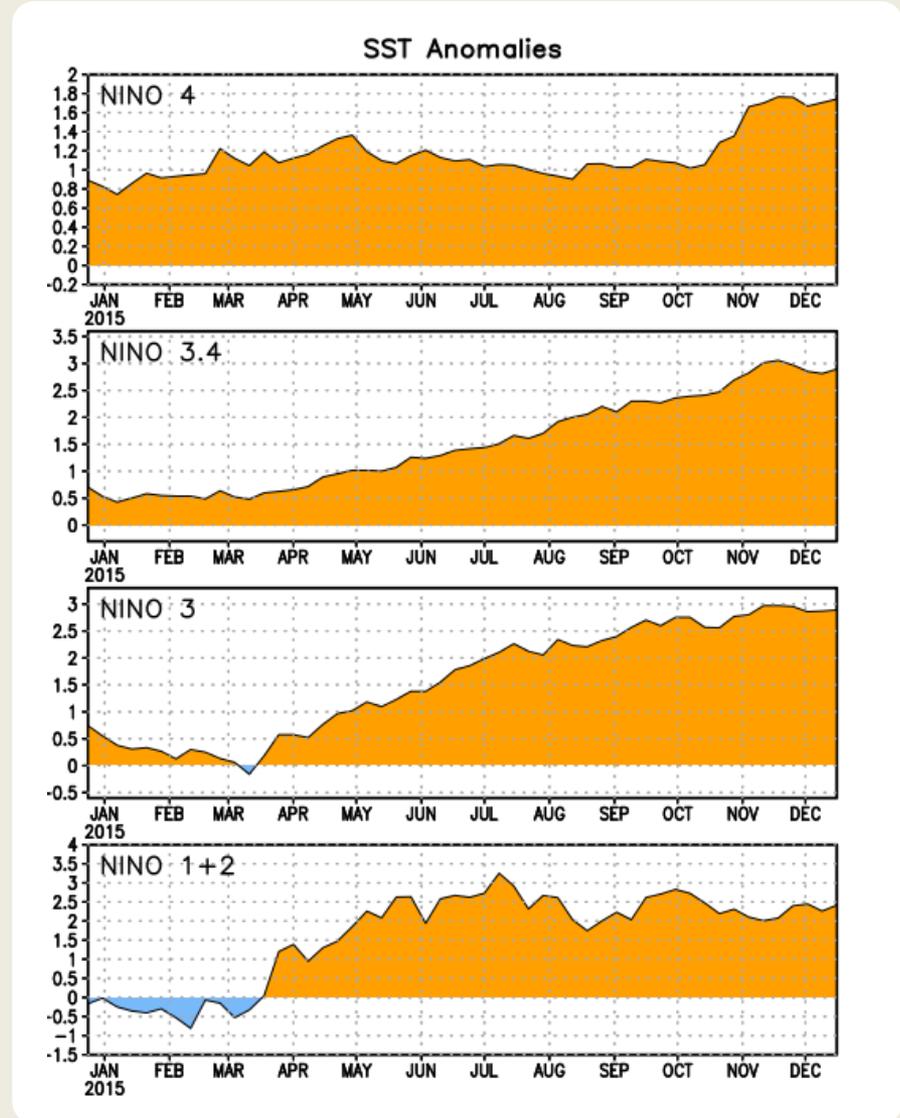
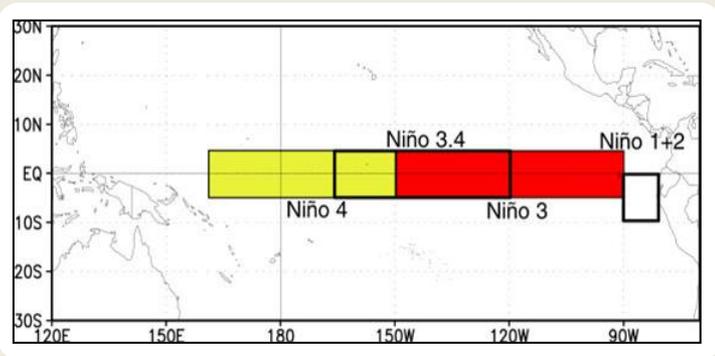
Source: NOAA/ESRL

# Niño Region SST Departures (°C) Recent Evolution

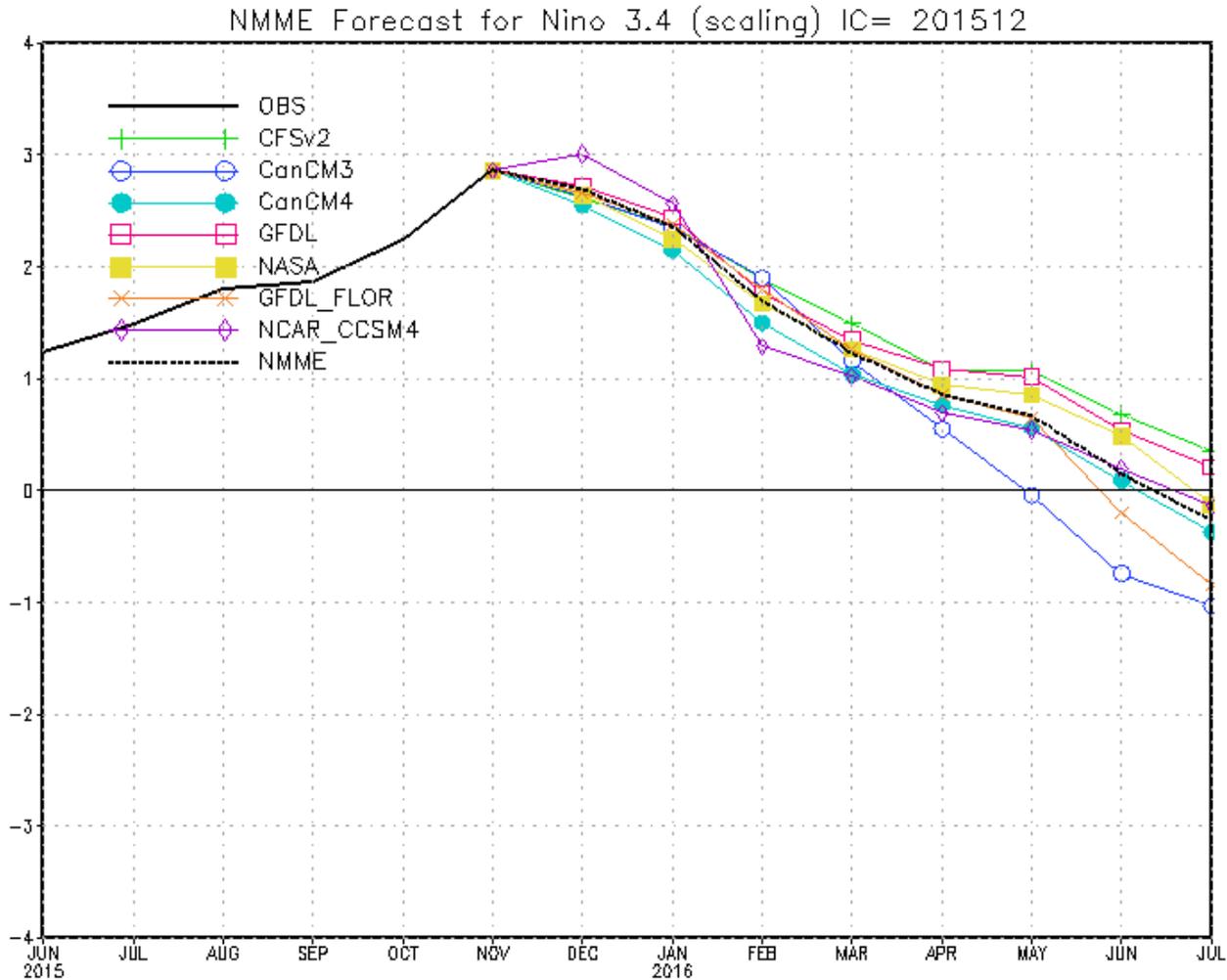


The latest weekly SST departures are:

Niño 4	1.7°C
Niño 3.4	2.9°C
Niño 3	2.9°C
Niño 1+2	2.4°C

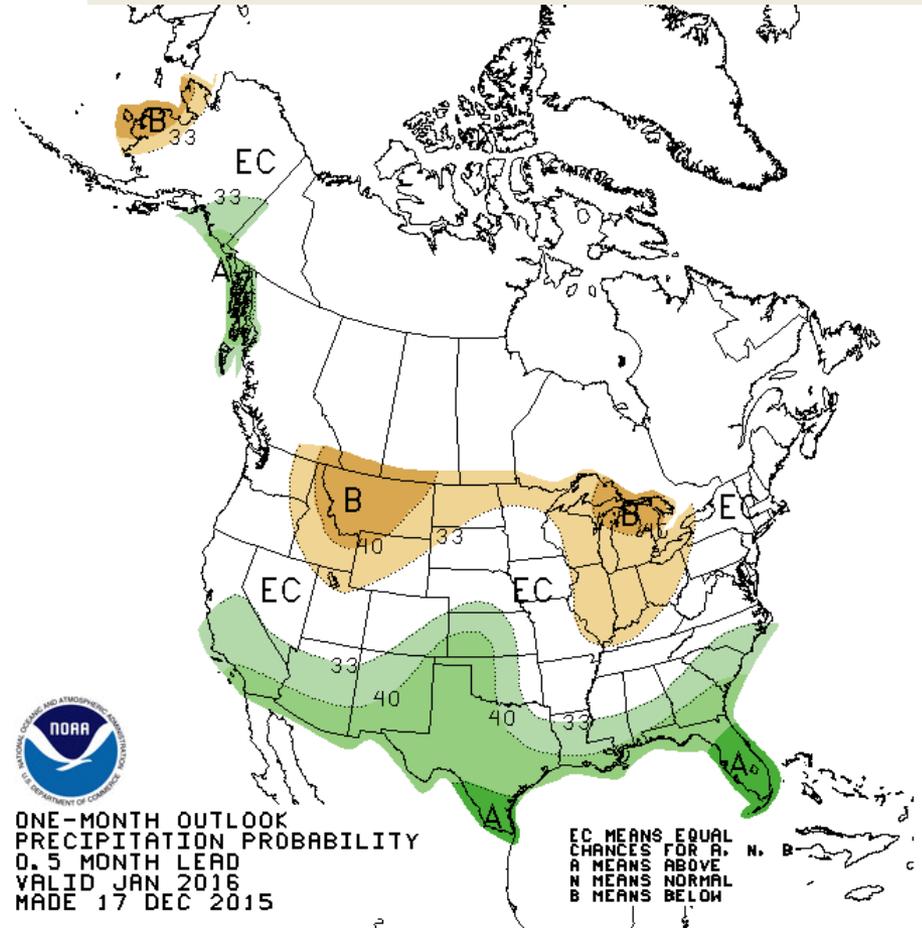
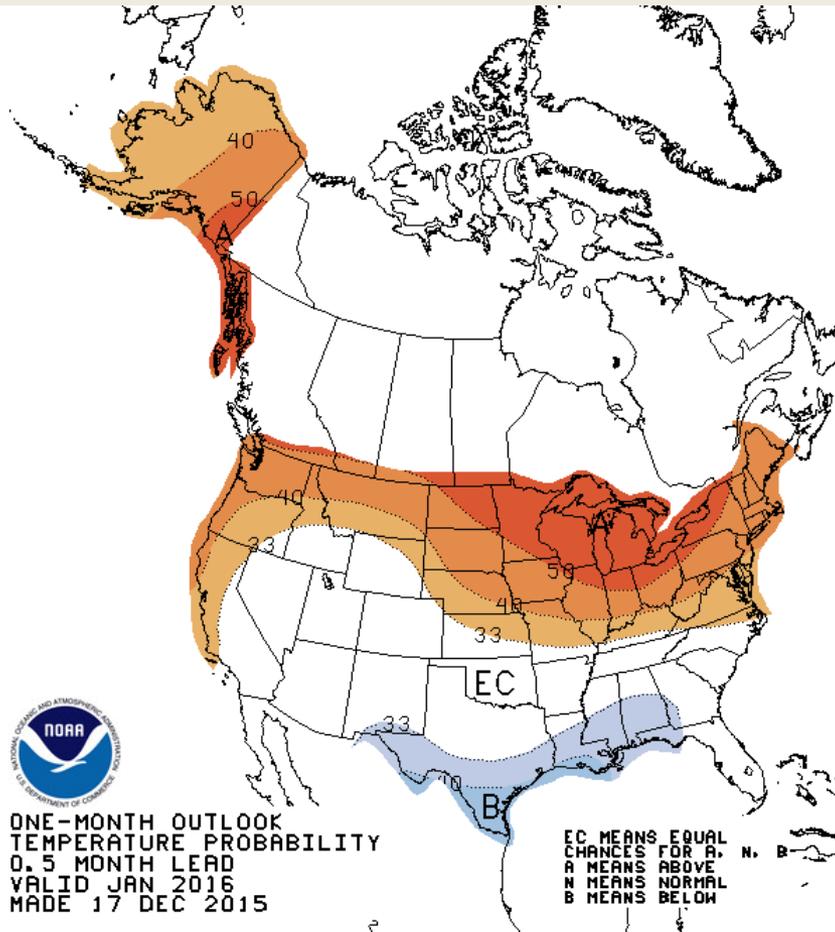


# ENSO Forecasts



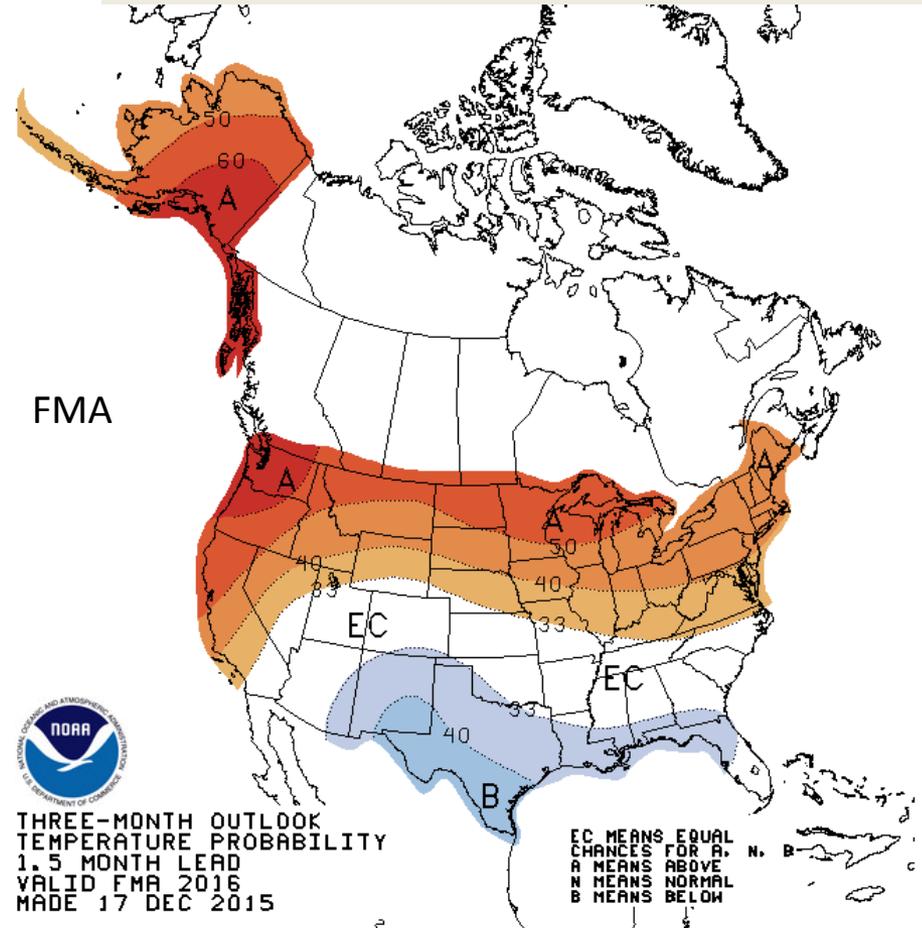
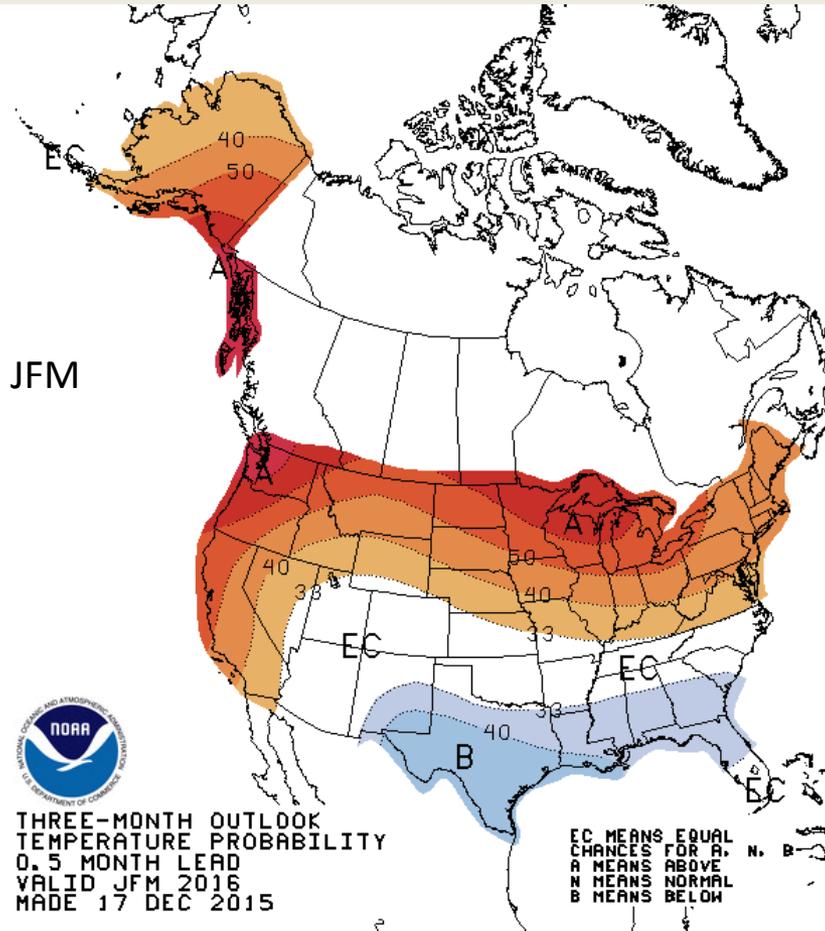
Source: NOAA/CPC

# December U.S. Forecasts



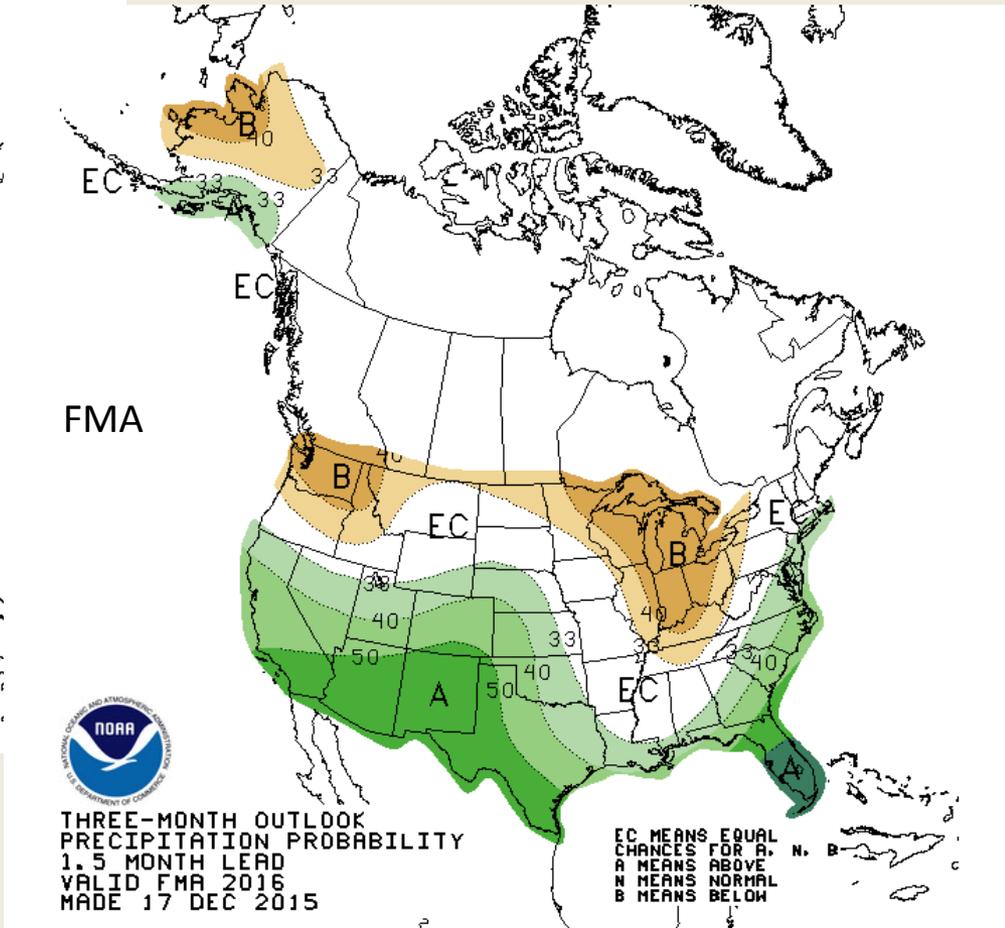
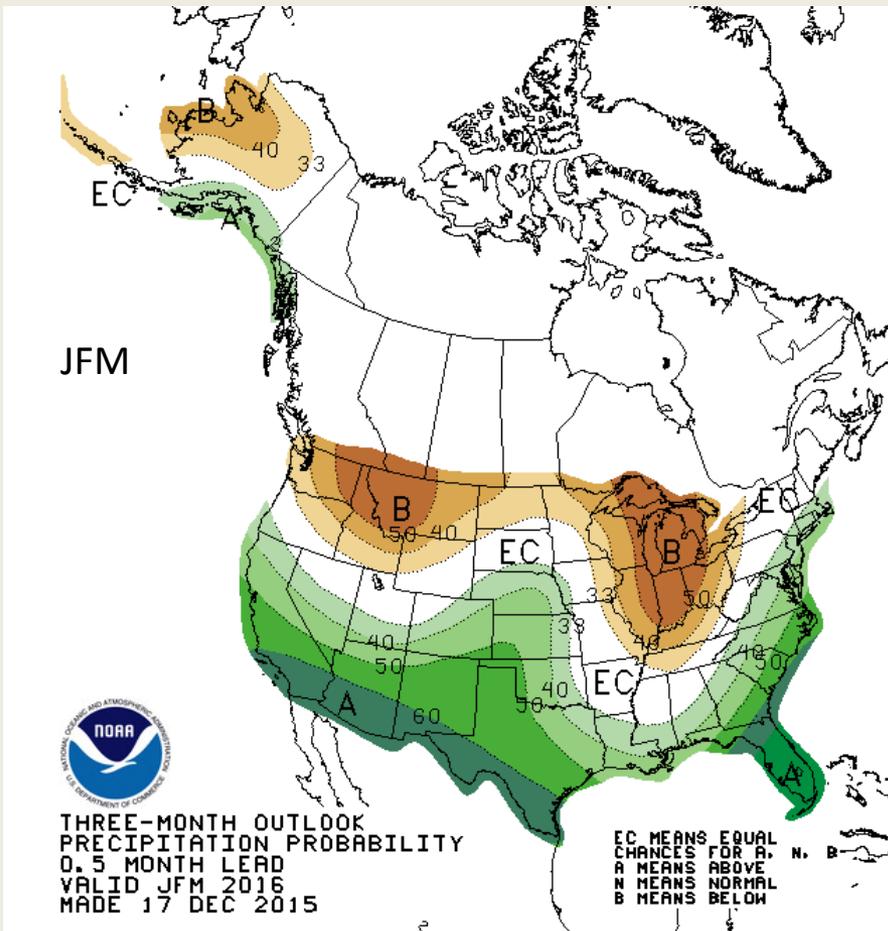
Source: NOAA/CPC

# U.S. Temperature Forecasts



Source: NOAA/CPC

# U.S. Precipitation Forecasts



Source: NOAA/CPC

# Regional Impacts Summary – 11/21 to 12/18

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**Goal:** Document information on regional anomalies and impacts. To insert a regional impact, click on the [Google Doc](#).

## Reports:

- Regional (Timi Vann)
- NWS
- NMFS
- Others – Open floor

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# Regional Impacts Summary – 11/21 to 12/18

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## Reporting Status:

- 123 entries since July 1, 2015
- Last reporting period: 22 environmental conditions & human system/NOAA mission impacts collected from 15 media sources, State of CA Ocean Protection Council and NWS Regional Operations Center

## Environmental Conditions Capture:

- King Tide
- Warm Pacific Ocean water & “The Blob”
- Domoic acid
- El Niño
- Extreme Weather: Record rainfall
- Drought

## Human System & NOAA Mission Impacts:

- Flooding
- Marine mammal strandings
- Marine mammal brain damage/domoic acid poisoning
- Whale entanglements
- Central Valley CA subsidence; agriculture
- Fisheries: Salmon migration & spawning
- Infrastructure (roads, sinkholes)
- Maritime commerce
- Species distribution
- Policies: Water banking, baseline water measurements, water rights, crab “fishery disaster” preparations, increased dam water (cool pools)

# Impacts in Headlines

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**Eel River flows still too low in peak salmon spawning period**

**90 Percent Of Snake River Sockeye Died Before Reaching First Snake River Dam**

**Warm water off Northwest coast could weaken future salmon runs**

**MARINE MAMMALS:**

**'Blob' will kill more seal pups for 2nd straight year**

**El Nino expected to leave more and more sea lions stranded on shore**

**Record number of stranded seal pups in Northern California**

**Whales Entangled at Alarming Rate Along California Coast**

**Tangled in trouble: Record number of ensnared whales may be due to warmer waters, experts say**

**Domoic acid poisoning marine life**

**Rare turtle washes up in Tolovana**

**Domoic Acid Continues To Delay Oregon's Crab Season**

**MARINE MAMMALS:**

**Algal toxin affecting memory of Calif. sea lions -- study**

# Impacts in Headlines



The Central Valley is sinking: drought forces farmers to ponder the abyss

As people dig ever deeper to find water, nearly 1,200 square miles of California is sinking 2 inches a month - destroying roads, bridges and farmland in the process

## **DROUGHT:**

**Calif. scrambles to count every drop of water**

## **DROUGHT:**

**California dreaming: developing an ATM for groundwater**

## **EXTREME WEATHER:**

**Pacific Northwest hit with deadly flooding, mudslides**

**Lower Kalama Fish Hatchery suffers major loss after recent rainstorms kill off young hatchery-raised fall chinook salmon**

# Impacts in Pictures



Entangled humpback spotted with a buoy attached to its head. Disentanglement crews could not help the animal. NOAA MMHSRP Permit #18786. <http://www.oregister.com/articles/whale-693899-boat-yip.html>



An endangered Olive ridley turtle washed ashore near Seaside, OR. The turtles normally remain south of San Diego, but do sometimes travel farther north in warm currents searching for food. [http://www.dailyastorian.com/Local\\_News/20151215/rare-turtle-washes-up-in-tolovana](http://www.dailyastorian.com/Local_News/20151215/rare-turtle-washes-up-in-tolovana)



Emaciated and weak fur seal pup being cared for at the Marine Mammal Center, Sausalito, CA. <http://www.pressdemocrat.com/news/4794767-181/sausalitos-marine-mammal-center-sees?gallery=4797881&artslide=1>

# Impacts in Pictures



An adult Chinook salmon showing sign of infection and blindness with milky white eyes found on an Eel River survey. The lack of adequate flows on the river has caused hundreds of salmon to crowd together in small pools, thus increasing risk of infection and lack of oxygen. <http://eelriver.org/2015/10/eel-river-salmon-go-blind-awaiting-rain/>



Different body weight of similar length juvenile Chinook salmon representing lower growth during warm ocean conditions (upper fish) and higher growth during cold ocean conditions (lower fish).

[http://www.oregonlive.com/environment/index.ssf/2015/12/warm\\_water\\_off\\_northwest\\_coast.html#incart\\_river\\_index](http://www.oregonlive.com/environment/index.ssf/2015/12/warm_water_off_northwest_coast.html#incart_river_index)

# Impacts in Pictures



Record-breaking Sea Levels in CA. San Diego experienced street flooding several miles inland when ocean water surged into the storm drain system.

<http://www.opc.ca.gov/programs-summary/climate-change/2015-2016-el-nino-and-californias-coast-and-ocean/>



As people dig ever deeper to find water, nearly 1,200 square miles of California is sinking 2 inches a month – destroying roads, bridges and farmland in the process. Cracks form in a field near Firebaugh, California. Photograph: David McNew/Getty Images.

<http://www.theguardian.com/us-news/2015/nov/28/california-central-valley-sinking-farmers-deepwater-wells>

# How to share our collective expertise?

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## Considerations:

- Regular summary of observations, human impacts in West
- Concise (1-2 pages) and visual (maps, graphics, photos)
- Relevant new/emerging research
- How conditions developing compared to predictions
- Promote information sharing across NOAA lines
- Inform congressional staff of latest developments, highlighting NOAA research and monitoring

# Announcements & Open Discussion

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1. Next WRECIC call: Monday January 25, 1pm PT
2. Open Discussion or Parting Comments