NOAA West Watch

Reporting Regional Environmental Conditions & Impacts in the West

January 22, 2019
Call Agenda

- Project Recap & Updates (Dan McEvoy)
- Regional Climate and ENSO brief (Dan McEvoy)
- IOOS Nearshore Conditions brief (Jan Newton, Henry Ruhl, Megan Hepner)
- Discussion - Environmental conditions and impacts reporting (All)
  - Additional impacts to share?
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 bringing 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 second webinar offering for Fiscal Year 2019 and the Western Regional Climate Center has taken over leading the webinars

• NOAA West has provided funding to the Western Regional Climate Center to offer three webinars in Fiscal Year 2019 (November, January & Spring/Summer timeframe). Next webinar: TBD.

• 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: (mcevoyd@dri.edu).
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Current US Drought Monitor

U.S. Drought Monitor

West

January 15, 2019
(Released Thursday, Jan. 17, 2019)
Valid 7 a.m. EST

Intensity:
- Yellow: D0 Abnormally Dry
- Light Orange: D1 Moderate Drought
- Orange: D2 Severe Drought
- Red: D3 Extreme Drought
- Maroon: D4 Exceptional Drought

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

Author:
Brad Pugh
CPC/NOAA

http://droughtmonitor.unl.edu/
Precipitation

Precipitation Percentile
November 22 – January 20, 2019

Precipitation Percentile
October 1 – January 20, 2019

https://climatetoolbox.org/tool/Climate-Mapper
Temperature

Mean Temperature Anomaly November 22 – January 20, 2019

Mean Temperature Anomaly October 1 – January 20, 2019

https://climatetoolbox.org/tool/Climate-Mapper
Snowpack

https://www.wcc.nrcs.usda.gov/snow/

https://cdec.water.ca.gov/
Drought Hangover, CO River Basin

Hangover From 2018 Drought Likely To Deplete Spring Runoff

Graph: http://graphs.water-data.com/lakepowell/
Data: USBR

Photo: Luke Runyon/KUNC/Lighthawk

Lake Powell, September 2018
Drought Hangover, CO River Basin

April-July 2019 Inflow Forecast = 64% of normal

Graph: http://graphs.water-data.com/lakepowell/
Data: USBR
Drought Hangover, Oregon

Second year in row:

- Poor snowpack
- Above normal temperatures
Drought Hangover, Oregon

Rogue River Basin, Southwest Oregon
Reservoir Levels

https://www.usbr.gov/pn/hydromet/
• **ENSO Alert System Status:** El Niño Watch

• **ENSO-neutral conditions are present.** *

• Equatorial sea surface temperatures (SSTs) are above average across most of the Pacific Ocean.

• The patterns of convection and winds are mostly near average over the tropical Pacific.

• El Niño is expected to form and continue through the Northern Hemisphere spring 2019 (~65% chance).

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**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: 0.7°C
- Niño 3.4: 0.5°C
- Niño 3: 0.6°C
- Niño 1+2: 0.9°C
Current Sea Surface Temperatures

Average SST Anomalies
23 DEC 2018 – 19 JAN 2019
Current Sea Surface Temperatures

CDAS Niño 3.4 Index

SST Anomaly (°C) (1981-2010 climatology)

CDAS Niño 1+2 Index

SST Anomaly (°C) (1981-2010 climatology)
**ENSO Forecasts**

**CPC/IRI El Nino forecast:**

NMME models + other dynamical models + statistical models

*Source: CPC/IRI*
February U.S. Forecasts

Source: NOAA/CPC
February-April Forecasts

Source: NOAA/CPC
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  – Future guest speaker or thematic issue of interest?
Northwest Association of Networked Ocean Observing Systems

NOAA West Watch Update 22 January 2019: Washington / Oregon Observations

Jan Newton, NANOOS Executive Director

www.nanoos.org
NANOOS: www.nanoos.org Climatology app

Sea Surface Temperature Anomaly
NCDC Optimum Interpolation SST

Dec 2018
‘Blob’ Indices

SST anomaly

MSL anomaly

Figures and analysis by Dudley Chelton and Craig Risien, OSU
Sea Surface Temperature Anomaly

NCDC Optimum Interpolation SST

NANOOS: www.nanoos.org Climatology app
Sea Surface Temperature Anomaly

OSU Modis

NANOOS: [www.nanoos.org](www.nanoos.org) Climatology app

Nov 2018

Dec 2018
NANOOS: www.nanoos.org Climatology app

Chlorophyll Anomaly: OSU Modis

Dec 2017

Dec 2018
Wave Height Seasonal Variability

NANOOS: www.nanoos.org Climatology app
NANOOS: [www.nanoos.org](http://www.nanoos.org) Climatology app
IOOS Partners Across Coasts OA
IPACOA (www.ipacoa.org)
IOOS Partners Across Coasts OA

IPACOA (www.ipacoa.org)
CeNCOOS Climatology
North Coast Undercurrent

- CA Undercurrent or Davidson Current
- Observed on Trinidad Glider Line
Rain Associated Low Salinity Events

NOAA NDBC (46042)
Thank you!

Email Henry Ruhl at hruhl@mbari.org
NOAA West Watch Update:
Southern California
Megan Hepner
January 22, 2019
www.sccoos.org
King Tides – Dec 25-27, 2018

Imperial Beach flooded Cortez street, a lot of storm surge

Five to eight feet of sand lost – Cardiff by the Sea (San Diego Reader)
A surfer passes the damage to the railing of the Ocean Beach Pier during the king tide, peaking about 8 a.m. Jan 18 with an expected 7.3 tide. Photo by Chris Stone
King Tides – January 18-21, 2019

Waves from the king tide slam into the staircase at La Jolla Cove. Photo by Chris Stone

With a 7.3 high tide, waves crashed into the windows at the Marine Room in La Jolla at 8:30 a.m Jan 19. Photo by Chris Stone
NOAA Tide Predictions - La Jolla

Station Datum (STND) = A fixed base elevation at a tide station to which all water level measurements are referred. The datum is unique to each station and is established at a lower elevation than the water is ever expected to reach.
Flooding and Storm Surge Model

Water level elevation (relative to MLLW) forecasts use Stockdon (2006), are HIGHLY experimental, and should not be used as your primary forecast information.

Potential Flooding Index – SIO

- Tide
- Tide + wave effects

Maximum water elevation (ft)

12 PST
Mon 01/21

12 PST
Tue 01/22

12 PST
Wed 01/23
CDIP Sea and Swell Models

Analysis Time - 21 Jan 2019: 1000 PST

Predicted Alongcoast Swell Height - Southern California

Significant Swell Height (feet)

Pt. Loma  Scripps Pier  Oceanside  Long Beach  Santa Monica  Port Hueneme  Santa Barbara  Pt. Conception
Tijuana River Plume Tracker
C-HARM predicted the highest likelihood of particulate domoic acid (pDA) production in the Southern CA Bight and the offshore region of central CA, and even higher probabilities in the nearshore zone of the North Coast than for October.
C-HARM Model

Cellular domoic acid (cDA) predictions, which should tell us where *Pseudo-nitzschia* cells are likely to be most toxic on a per-cell basis were elevated north of Pt. Conception, particularly the central and north CA coasts.
Santa Cruz Municipal Wharf

Santa Cruz Wharf

Monterey Wharf

Cal Poly Pier

Scripps Pier

Santa Cruz Municipal Wharf HAB and DA Data

Alexandrium spp. (cells/L)

Pseudo-nitzschia ‘delicatissima’ size class (cells/L)

Pseudo-nitzschia ‘seriata’ size class (cells/L)

Domoic Acid (ng/L)
Stearns Wharf

Pseudo-nitzschia 'delicatissima' (smaller size class—generally non-toxic) reached bloom levels in early November
Santa Monica Pier

Santa Monica Pier HAB and DA Data

- *Alexandrium* spp. (cells/L)
- *Pseudo-nitzschia* 'delicatissima' size class (cells/L)
- *Pseudo-nitzschia* 'seriata' size class (cells/L)

Map showing locations:
- Santa Cruz Wharf
- Monterey Wharf
- Cal Poly Pier
- Stearns Wharf
- Santa Monica Pier
- Newport Pier
- Scripps Pier
Newport Pier

*Pseudo-nitzschia* ‘delicatissima’ (smaller size class—generally non-toxic) reached bloom levels in early November.
The Marine Mammal Center recorded 91 sea lion strandings due to Domoic Toxicosis, with a peak of 29 strandings in the month of June. 35 of the 91 sea lions were rehabilitated and released, the others either died in treatment or received euthanasia.
Sea Lion Strandings 2018

*In 2019 we will be adding the Pacific Marine Mammal Center and SeaWorld stranding data.*
NOAA West Watch Update:
Southern California
Megan Hepner
January, 22nd, 2019
www.sccoos.org
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Western Storm Impacts – Taos, NM Avalanche

- January 17 avalanche at Taos Ski Valley killed one skier and critically injured another

Photo: Morgan Timms/The Taos News
Western Storm Impacts – California

• Heavy rain and strong winds led to flooding, mud and debris flows
• At least five deaths reported
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- Next webinar: FINAL WEBINAR, date TBD

THANK YOU!