NOAA West Watch

Reporting Regional Environmental Conditions & Impacts in the West

August 22, 2017
Call Agenda

• Project Recap & Updates (Ruth Howell)
• El Niño and Regional Climate brief (Dan McEvoy)
• Guest Speaker: Western US wildfire season update (Tim Brown)
• IOOS Nearshore Conditions brief (Clarissa Anderson, Aric Bickel, Jan Newton)
• Environmental conditions and impacts reporting and discussion (Ruth Howell)
• Discussion
Project Recap and Updates

• NOAA West Watch bi-monthly webinars are a project of the NOAA West Regional Coordination Team

• Goals of the project:
  – Document and share environmental conditions information and impacts on human systems and NOAA mission at the regional scale
  – Improve awareness of environmental observations and human system impacts across NOAA mission lines
  – Improve regional communication and coordination
  – Improve external communication of regional impacts

• Next webinar: October 24, 1-2PM PDT/ 2-3PM MDT
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- **El Niño and Regional Climate brief (Dan McEvoy)**
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Montana Drought

U.S. Drought Monitor

West

August 15, 2017
(Released Thursday, Aug. 17, 2017)
Valid 8 a.m. EDT

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/
Precipitation and Temperature

May-July Precipitation Percentiles

Western United States - Precipitation
May-July 2017 Percentile

May-July Temperature Percentiles

Western United States - Mean Temperature
May-July 2017 Percentile
Evaporative Demand

90-day Evaporative Demand Drought Index (EDDI)
May 18 – August 17, 2017

- EDDI inputs: temperature, humidity, wind speed, and solar radiation
- Reflects the atmospheric thirst
- High temperatures and wind speed, low humidity, and few clouds caused high EDDI over Montana

Map from Climate Engine: http://clim-engine.appspot.com/, EDDI webpage: https://www.esrl.noaa.gov/psd/eddi/
California Drought Recovery

Lake Tahoe Water Levels

North Fork American River, Greatest cumulative water year streamflow in 75 year record

Leavitt Lake SNOTEL
Melt out date: July 29, 2017
Southwest Monsoon

Arizona % of Average Precipitation


New Mexico % of Average Precipitation


CLIMAS North American Monsoon Tracker: http://www.climas.arizona.edu/sw-climate/monsoon/tracker
ENSO Status

- ENSO Alert System Status: Not Active

- ENSO-neutral conditions are present

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

- ENSO-Neutral is favored (~85% chance during Jul-Sep, decreasing to ~55% during Dec-Feb) through the Northern Hemisphere winter 2017-18.*

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: 0.1°C
- Niño 3.4: -0.5°C
- Niño 3: -0.5°C
- Niño 1+2: -0.7°C
Current Sea Surface Temperatures

Weekly SST Anomaly

2017/08/13 - 2017/08/19

NOAA/ESRL/PSD

Base Period: 1981-2010

°C
ENSO Forecasts

NMME Forecast for Nino 3.4 (scaling) IC = 201708

Source: NOAA/CPC
ENSO Forecasts

CPC/IRI El Nino forecast:

NMME models + other dynamical models + statistical models

Source: CPC/IRI
September U.S. Forecasts

Source: NOAA/CPC
U.S. Seasonal Temperature Forecasts

Source: NOAA/CPC
U.S. Seasonal Precipitation Forecasts

Source: NOAA/CPC
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NOAA West Watch Wildfire Update: 420,002,017th year of biomass burning on Earth

Timothy Brown

Desert Research Institute, Reno, Nevada
Program for Climate, Ecosystem and Fire Applications
Western Regional Climate Center

22 Aug 2017
Wildfire smoke not expected to ruin eclipse

Smoke from wildfires in Oregon, including the Staley fire in the Umpqua National Forest, could cloud the skies a bit on Monday. But meteorologists said eclipse viewing should be fine. (inciweb)
And now... a fire photo

Current large incidents

Current Large Incidents
August 21, 2017
Lolo Fire at 6:25 p.m. MDT August 18, 2017 as seen from the Missoula area. Photo by Dick Mangan
Smoke impacts

Source: AirNow
Smoke impacts

http://www.ospo.noaa.gov/Products/land/hms.html
Tree mortality
Tree mortality

Source: US Forest Service
<table>
<thead>
<tr>
<th>Name</th>
<th>County</th>
<th>Acres</th>
<th>Start Date</th>
<th>Containment Date</th>
<th>Status</th>
<th>Notes</th>
<th>Ref</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jayne</td>
<td>Fresno</td>
<td>5,736</td>
<td>April 20, 2017</td>
<td>April 21, 2017</td>
<td>Contained</td>
<td></td>
<td>[3]</td>
</tr>
<tr>
<td>Elm</td>
<td>Fresno</td>
<td>10,345</td>
<td>May 18, 2017</td>
<td>May 21, 2017</td>
<td>Contained</td>
<td></td>
<td>[5]</td>
</tr>
<tr>
<td>Highway</td>
<td>Kern</td>
<td>1,522</td>
<td>June 18, 2017</td>
<td>June 28, 2017</td>
<td>Contained</td>
<td></td>
<td>[8]</td>
</tr>
<tr>
<td>Holcomb</td>
<td>San Bernardino</td>
<td>1,503</td>
<td>June 19, 2017</td>
<td>June 29, 2017</td>
<td>Contained</td>
<td></td>
<td>[9]</td>
</tr>
<tr>
<td>Schaeffer</td>
<td>Tulare</td>
<td>16,031</td>
<td>June 24, 2017</td>
<td></td>
<td>94% contained</td>
<td></td>
<td>[10]</td>
</tr>
<tr>
<td>Hill</td>
<td>San Luis Obispo</td>
<td>1,598</td>
<td>June 25, 2017</td>
<td>June 30, 2017</td>
<td>Contained</td>
<td>4 homes destroyed</td>
<td>[12]</td>
</tr>
<tr>
<td>Alamo</td>
<td>San Luis Obispo</td>
<td>28,687</td>
<td>July 6, 2017</td>
<td>July 19, 2017</td>
<td>Contained</td>
<td>1 home destroyed, 1 damaged</td>
<td>[14]</td>
</tr>
<tr>
<td>Wall</td>
<td>Butte</td>
<td>6,033</td>
<td>July 7, 2017</td>
<td>July 17, 2017</td>
<td>Contained</td>
<td>41 homes, 48 outbuildings destroyed, 10 damaged</td>
<td>[15]</td>
</tr>
<tr>
<td>Whittier</td>
<td>Santa Barbara</td>
<td>18,430</td>
<td>July 8, 2017</td>
<td></td>
<td>87% contained</td>
<td>16 homes, 30 outbuildings destroyed, 7 damaged</td>
<td>[16]</td>
</tr>
<tr>
<td>Parkfield</td>
<td>Monterey</td>
<td>1,816</td>
<td>July 8, 2017</td>
<td>July 11, 2017</td>
<td>Contained</td>
<td></td>
<td>[17]</td>
</tr>
<tr>
<td>Gerza</td>
<td>Fresno</td>
<td>48,889</td>
<td>July 9, 2017</td>
<td>July 21, 2017</td>
<td>Contained</td>
<td>1 structure destroyed</td>
<td>[18]</td>
</tr>
<tr>
<td>Detwiler</td>
<td>Mariposa</td>
<td>81,626</td>
<td>July 16, 2017</td>
<td></td>
<td>95% contained</td>
<td>63 homes, 66 structures destroyed (131 total), 21 damaged</td>
<td>[20]</td>
</tr>
<tr>
<td>Modoc July Complex</td>
<td>Modoc</td>
<td>80,365</td>
<td>July 24, 2017</td>
<td></td>
<td>40% contained</td>
<td></td>
<td>[21]</td>
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</table>
### Strategies

#### NW Fires Utilizing Monitor, Confine, Point Zone Protection Suppression Strategies (YTD)

Lists fires (of any size) that singly utilize Monitor, Confine, or Point Zone Protection suppression strategies, or use Multiple Suppression Strategies (which may also include Full Suppression). Fires that singly utilize a Full Suppression strategy are not listed.

Source: ICS-209. Based on strategy(ies) listed on most recent ICS-209. Management strategy(ies) may change over the duration of the fire.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Owner</th>
<th>Name</th>
<th>Start Date</th>
<th>Current IMT</th>
<th>Acres</th>
<th>Tot Pers</th>
<th>Est Cost</th>
<th>Last 209</th>
<th>Completion/Cont Date</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Multiple Strategies (Monitor, Full Suppression)</em></td>
<td>OR-FWF</td>
<td>North Pelican</td>
<td>8/10/2017</td>
<td>3</td>
<td>1,100</td>
<td>120</td>
<td>$225,000</td>
<td>8/20/2017</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Multiple Strategies (Monitor, Confine, Point Zone Protection, Full Suppression)</em></td>
<td>WA-OWF</td>
<td>Diamond Creek</td>
<td>7/23/2017</td>
<td>2</td>
<td>30,581</td>
<td>367</td>
<td>$6,205,094</td>
<td>8/20/2017</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Multiple Strategies (Monitor, Confine, Point Zone Protection)</em></td>
<td>OR-RSF</td>
<td>Chetco Bar</td>
<td>7/12/2017</td>
<td>1</td>
<td>91,551</td>
<td>362</td>
<td>$3,300,000</td>
<td>8/20/2017</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Multiple Strategies (Monitor, Confine, Full Suppression)</em></td>
<td>OR-EUD</td>
<td>Whitewater</td>
<td>7/23/2017</td>
<td>1</td>
<td>8,271</td>
<td>607</td>
<td>$17,063,000</td>
<td>8/20/2017</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Multiple Strategies (Confine, Full Suppression)</em></td>
<td>OR-OCF</td>
<td>Wildcat 0284 PR</td>
<td>6/13/2017</td>
<td>4</td>
<td>130</td>
<td>63</td>
<td>$15,000</td>
<td>8/20/2017</td>
<td>6/20/2017</td>
<td></td>
</tr>
<tr>
<td>OR-WIF</td>
<td>French</td>
<td>8/10/2017</td>
<td>1</td>
<td>2</td>
<td>36</td>
<td>$222,000</td>
<td>8/20/2017</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR-WIF</td>
<td>Rebel</td>
<td>8/4/2017</td>
<td>1</td>
<td>2,507</td>
<td>303</td>
<td>$2,387,000</td>
<td>8/20/2017</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Monitor</em></td>
<td>OR-MAF</td>
<td>141 OR-MAF-17141</td>
<td>7/26/2017</td>
<td>5</td>
<td>0</td>
<td>1</td>
<td>$1,200</td>
<td>8/8/2017</td>
<td>8/8/2017</td>
<td></td>
</tr>
<tr>
<td>OR-WIF</td>
<td>Separation</td>
<td>8/10/2017</td>
<td>1</td>
<td>303</td>
<td>0</td>
<td>$0</td>
<td>8/20/2017</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WA-OWF</td>
<td>Jack Creek</td>
<td>8/11/2017</td>
<td>5</td>
<td>0</td>
<td>6</td>
<td>$1,000</td>
<td>8/18/2017</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Confine</em></td>
<td>OR-MHF</td>
<td>Indian Creek</td>
<td>7/4/2017</td>
<td>3</td>
<td>83</td>
<td>43</td>
<td>$2,500,000</td>
<td>8/20/2017</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WA-OWF</td>
<td>Norse Peak</td>
<td>8/11/2017</td>
<td>2</td>
<td>1,539</td>
<td>269</td>
<td>$702,839</td>
<td>8/20/2017</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Grand Total**:
- Acres: 136,073
- Tot Pers: 2,171
- Est Cost: $32,622,133

**Comments**: Not a LF.
Outlook

Significant Wildland Fire Potential Outlook
August 2017

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.
Outlook

Significant Wildland Fire Potential Outlook
September 2017

Significant Wildland Fire Potential
- Above Normal
- Below Normal
- Normal

Geographic Area Boundary
Predictive Services Area Boundary
State Border

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 August 1, 2017
Next issuance September 1, 2017
Outlook

Significant Wildland Fire Potential Outlook
October & November 2017

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.
Greetings From Reno!

Fire near Tim’s house
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Nearshore Conditions Briefing – West Coast IOOS Programs
SCCOOS Update: Spring 2017 –Harmful Algal Bloom in S. CA

The bloom lasted **April – June** and spanned the entire Bight (Santa Barbara Channel to Baja)

**~April 1 = Onset of DA Event**
- Large Upwelling Event
- Animals start stranding
- Toxins at Newport Pier spike on 4/3

**May 17 = HAB moves South & North**
- More Impacts felt near San Diego
- HAB persists in Santa Barbara Channel
- Rock Crab fishery closed in Nor Cal

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**Summary of Particulate Domoic Acid Levels (ng/mL) March-May from SCCOOS HAB Monitoring**

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Level</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/6-5/1/17</td>
<td>Scripps Pier</td>
<td>Surface</td>
<td>bd</td>
</tr>
<tr>
<td>3/1-5/8/17</td>
<td>Newport Pier</td>
<td>Surface</td>
<td>bd-0.33</td>
</tr>
<tr>
<td>3/13-5/1/17</td>
<td>Santa Monica Pier</td>
<td>Surface</td>
<td>bd-14.4</td>
</tr>
<tr>
<td>3/7-5/8/17</td>
<td>Stearn's Wharf (SB)</td>
<td>Surface</td>
<td>bd-7.56</td>
</tr>
<tr>
<td>3/7-5/15/17</td>
<td>CalPoly Pier</td>
<td>Surface</td>
<td>bd-0.40</td>
</tr>
</tbody>
</table>

*bd = below detection 0.5 ng/mL = toxic event threshold

*Offshore samples collected on the San Pedro Shelf were as high as 9.67 ng/mL*
SCCOOS Update: Summer 2017 – Harmful Algal Bloom in S. CA

What’s happening offshore? Domoic Acid causing sick sea lions again

Prediction Map of Domoic Acid Risk shows high DA offshore of SLO County

Recent cruise shows a lot of *Pseudo-nitzschia* in central CA

What’s happening nearshore? Dinoflagellate bloom = stinky beaches and fish kills?

*Coccolithus* Polykrikoides can cause fish kills

...but nearshore DO sensors also recorded low oxygen!!

**SF Chronicle**

Sea lions wash ashore in California amid return of toxic blooms

**SLO Tribune**

This is what’s making sea lions sick — and causing quite a stench in Pismo Beach
NANOOS Update: Sea Surface Temperature Anomaly
NANOOS Update
NANOOS: www.nanoos.org Clamitology app

Chlorophyll Anomaly

May 2017
June 2017
July 2017
La Push, Washington, profiling buoy

Temperature

day/month 2017

Oxygen

depth / m

depth / m

temperature °C

dissolved oxygen / mg/l

La Push, Washington, profiling buoy

Temperature

day/month 2017

Oxygen

depth / m

depth / m

temperature °C

dissolved oxygen / mg/l
More variation inshore...
Max > 16
Variation: strong peak...
Max >13
Sea Surface Temp

Variation: strong peak...
Max ~16
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Regional Impacts Summary

Reporting Status:
• 63 entries since June 6, 2017
• Thanks to WRCC Shawn Roj for compiling impacts for this period

<table>
<thead>
<tr>
<th>Environmental Conditions</th>
<th>Human &amp; Environmental Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Floods</td>
<td>• Property damage/Loss of property</td>
</tr>
<tr>
<td>• Landslides</td>
<td>• Impacts to recreational access</td>
</tr>
<tr>
<td>• Fire</td>
<td>• Evacuations</td>
</tr>
<tr>
<td>• Air Pollution and Smoke</td>
<td>• Increased human health risks</td>
</tr>
<tr>
<td>• Excessive Heat</td>
<td>• Power outages</td>
</tr>
<tr>
<td>• Drought</td>
<td>• Loss of life</td>
</tr>
<tr>
<td>• Severe Weather</td>
<td>• Agriculture and livestock</td>
</tr>
<tr>
<td>• Flash Flood</td>
<td></td>
</tr>
</tbody>
</table>
A major heat wave hit the Southwest making it dangerous to spend time outdoors. Planes have a hard time taking off when temperatures reach 120 degrees F. This caused many travel delays. Many people were treated for burns on their hands and feet due to hot pavement or hot car interiors. Phoenix was close to breaking its all time high of 122 degrees F. At least 18 deaths have been blamed on the heatwave.
Impacts in Pictures

Fires across the west have burned over 6.2 million acres in 2017 according to the National Interagency Fire Center. The Brian Head fire in Utah was human caused, burned over 70,000 acres, and forced at least 1,500 people to evacuate. At least 13 homes were destroyed. The Detwiller fire in California, still under investigation, burned over 80,000 acres, and forced at least 4,000 people to evacuate. 63 residences were destroyed. Smoke from this fire affected air quality from California to Idaho.
Impacts in Pictures

Monsoonal moisture produced a flash flood at a popular swimming hole in the Tonto National Forest in Arizona. 9 people lost their lives due to the unpredictable nature of the flood. Another flash flood in Arizona stranded 17 hikers but all were rescued.
Impacts in Pictures

A massive landslide in Big Sur, CA, possibly the largest in the states history, buried a quarter mile stretch of Highway 1. More than 1 million tons of rock and dirt tumbled down a saturated slope in an area called Mud Creek. Luckily, though the road was already closed due to other repairs. This years storms have cause over $1 billion in highway damage.
Impacts in Pictures

Heavy rains caused flash flooding in parts of Salt Lake City. A portion of the TRAX line was under a foot of water, causing train delays. 4 schools were damaged. Many homes suffered flooding damage. 4,000 customers were without power.
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- Discussion (all)
  - Additional impacts to report?
  - Observations on recent environmental anomalies?

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