

**Western Regional Environmental Conditions and Impacts Coordination Webinar
January 25, 2016**

Roll Call:

Name	Affiliation
Alicia Marrs	National Integrated Drought Information System
Andrea Bair	NWS Regional Office
Bill Peterson	NMFS Northwest Fisheries Science Center
Christina Fahy	NMFS West Coast Regional Office
Dan McEvoy	DRI Western Regional Climate Center
Dave Anderson	Central and Northern California Ocean Observing System
Dave Lott	NOS Office of National Marine Sanctuaries
Jan Newton	Northwest Association of Networked Ocean Observing Systems
John Stein	NMFS Northwest Fisheries Science Center
Julie Thomas	Southern California Coast Ocean Observing System
Karin Bumbaco	JISAO/Assistant WA State Climatologist
Kathleen Bogan	OAR ESRL Physical Sciences Division
Kristen Koch	NMFS Southwest Fisheries Science Center
Mark Strom	NMFS Northwest Fisheries Science Center
Michael Anderson	CA State Climatologist
Michael Milstein	NMFS West Coast Regional Office
Michelle Stokes	NWS Colorado Basin River Forecast Center
Nate Mantua	NMFS Southwest Fisheries Science Center
Patrick Rutten	NMFS Restoration Center
Paul Miller	NWS Colorado Basin River Forecast Center
Richard Lataitis	OAR ESRL Physical Sciences Division
Ruth Howell	NMFS Northwest Fisheries Science Center
Steve Ignell	NMFS Alaska Fisheries Science Center
Timi Vann	NOAA Regional Coordinator
Tina Fahy	NMFS West Coast Regional Office
Toby Garfield	NMFS Southwest Fisheries Science Center
Valerie Were	NOAA Economics and Social Sciences

Summary: Dan McEvoy, Western Regional Climate Center, welcomed attendees to the meeting, conducted roll call and reviewed the agenda. He noted this month's webinar included an additional focus on select monitoring and decision support tools provided by the three Integrated Ocean Observing System Regional Associations.

Jan Newton, Executive Director of the Northwest Association of Networked Ocean Observing Systems (NANOOS) provided a brief recap of the Pacific Anomalies workshop held last week. Over 180 people registered and attended over the two days. The format included presentations and guided discussion to allow for audience participation, and this format was well received. The workshop included a nice summation of what is being observed in the region, focused along the dimensions of the global ocean-atmosphere (including "The Blob" and El Niño); coastal-ocean interactions; and what is being observed via ecosystem responses. Workshop video is currently available via the NANOOS website (<http://www.nanoos.org/>), and presentations and posters will be available soon. One output of the workshop will be a short document that summarizes findings from each of the topical areas including

some discussion of needs – that is, the observations, modeling, decision support information that would have improved the prediction or awareness of the event. Another outcome is to organize and mobilize the scientific community – and Jan noted there is interest in developing a dedicated volume/special publication.

Dan provided an update of regional environmental conditions (temperature, precipitation, snow water equivalent) and included new graphics to depict both similarities and differences between the 1983, 1998 and 2016 El Niño events for wind and atmospheric pressure anomalies. El Niño conditions are present and the event is expected to gradually weaken through spring 2016. Although some believe the El Niño has peaked, Dan noted it is important to remember that just because sea surface temperature (SST) anomalies seem to have peaked doesn't mean impacts to the region have peaked. We are still likely to see impacts into the future. Bill Peterson (NMFS) noted that we aren't likely to see impacts on fisheries for another 2 to 4 years from now.

Jan Newton highlighted tools available through NANOOS that focus on conditions at the coast, including the NVS Climatology application (depicts temperature anomalies in false color) and conditions at various observation asset locations where data are collected for offshore and near coast. Jan reported that offshore temp anomalies have been recorded in excess of two standard deviations. The near coast is also anomalous but is moderated by coastal upwelling; there is much stronger variation in the near coast environment. Jan also shared plots for water level and wave height. Water level is higher than normal, which is not surprising due to warmer than normal water. Interestingly, the wave height is down (negative anomaly) although this is starting to shift.

Julie Thomas, Director of the Southern California Coastal Ocean Observing System (SCCOOS) shared some forecast tools developed to alert managers of coastal flooding impacts. She highlighted the coastal flooding index tool (Cardiff, CA test location), which includes tides plus waves and a run-up factor. She also noted that through the Coastal Data Information Program (CDIP) they've documented changing wave characteristics. Three weeks ago they measured some of the largest waves ever recorded in the 30-year record. SCCOOS is also leading a storm photo project focused on energetic waves and storms. This project will help validate models in as much as photo documentation is one way to assess thresholds. A photo repository will go live in the next week or so.

Dave Anderson, Director of the Central and Northern California Coastal Ocean Observing System (CeNCOOS) highlighted three new data and information products: The El Niño page; Oyster Conditions Dashboard; and Harmful Algal Bloom Nowcast and Forecast tools. Dave noted that warmer ocean temperatures are unusually complicated in part because of "The blob" which has persisted for the last year and a half. Warmer temperatures are due to both "The blob" and El Niño. Dave explained some of the changing ocean chemistry/ocean acidification along the Central California Coast and the user driven oyster conditions dashboard. Dave also talked of the CeNCOOS Harmful Algal Bloom Model, and the unprecedented event in 2015. The HAB event led to the closing of the Dungeness crab fishery this fall. Domoic acid lingers in sediments and can have enduring effects on the ecosystem.

Timi Vann provided a regional impacts summary over the last reporting period (Dec. 18 to Jan. 22). This is the 7th monthly webinar, and over this time 156 entries to the environmental conditions and impacts spreadsheet have been made. A number of environmental conditions were noted over the last reporting period including so called "monster waves" (35' in Northern CA); elevated sea levels (up to a foot higher than non El Niño years reported in Monterey, CA); and a significant amount of news on El Niño, especially in the context of rain and snow. Human system impacts were reported in terms of coastal flooding (built environment and transportation impacts), beach erosion, mudflows, reservoir storage, and continued species displacement, among others. Timi noted that the improved water levels at a number of California reservoirs made news this month (see headlines slide). Mike Anderson (CA State Climatologist) noted

that although there is noticeable improvement, the deficits were so significant that water levels are still well below where they need to be to see a turn around.

Michael Milstein provided an explanation of what the monthly bulletins are (and aren't) and an update on story ideas. He conveyed the desire to try and quantify the functional results and costs of impacts that we're seeing, and to translate that in ways that are understandable and accessible. Michael plans to have a draft bulletin in the next couple weeks, well in advance of our February call.

In addition to the ideas listed, other suggestions include highlighting some of the interagency federal efforts and collaboration to monitor and report anomalies (e.g., flooding and the US Army Corps and US Geological Survey), and/or looking at how the event may evolve and the "what next?" question. The group also discussed the desire to include impacts on the interior reaches of the region (not just the coast). Paul Miller (NWS Colorado Basin River Forecast Center) noted that some of the big reservoir decisions will be made in April through August timeframe, and this could be a consideration in terms of the "storytelling" and write-up, but also something to assess on a monthly basis.

Bill Peterson (NMFS Northwest Fisheries Science Center) noted that impacts on fisheries aren't likely to be seen for 2-4 years from now, and wondered how much of the event details would be remembered. He asked if these presentations would be posted to a website. Timi Vann said the Google site is not an ideal way to share information – too clunky and difficult to access. She will take up the question of where we might host this information.

Due to a conflict with Ocean Sciences week, the next webinar is scheduled for **February 29, 2016**.