

# News

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## Monitoring El Niño Effects in Morro Bay

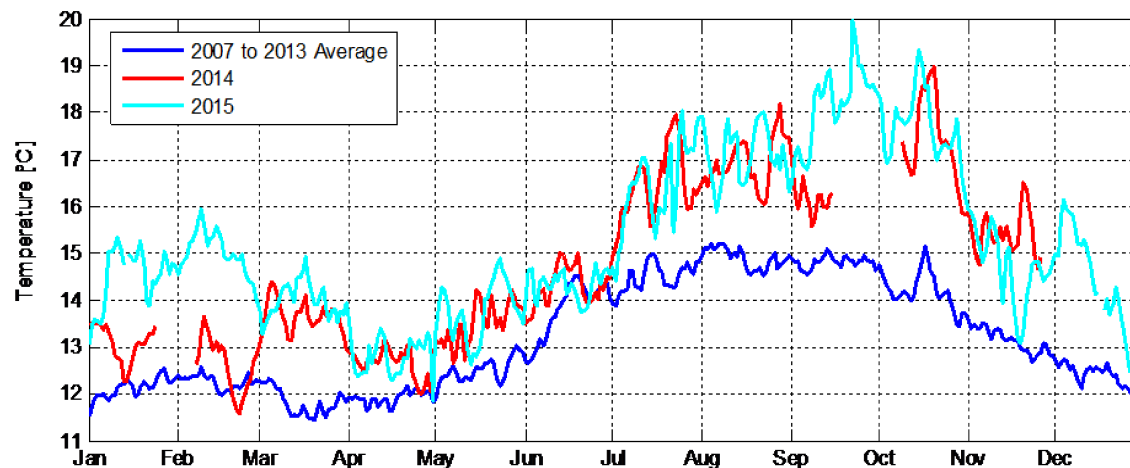
Thursday, Apr 7th, 2016



*Contributed by Cal Poly Assistant Professor and CeNCOOS Principal Investigator Dr. Ryan K. Walter*

This year's El Niño is among the strongest ever recorded. Combined with the "warm blob" persisting throughout the northeast Pacific Ocean, the last two years have exhibited unprecedented warm water anomalies, aka much warmer than usual ocean surface waters. Using a series of oceanographic platforms supported by CeNCOOS, Cal Poly has

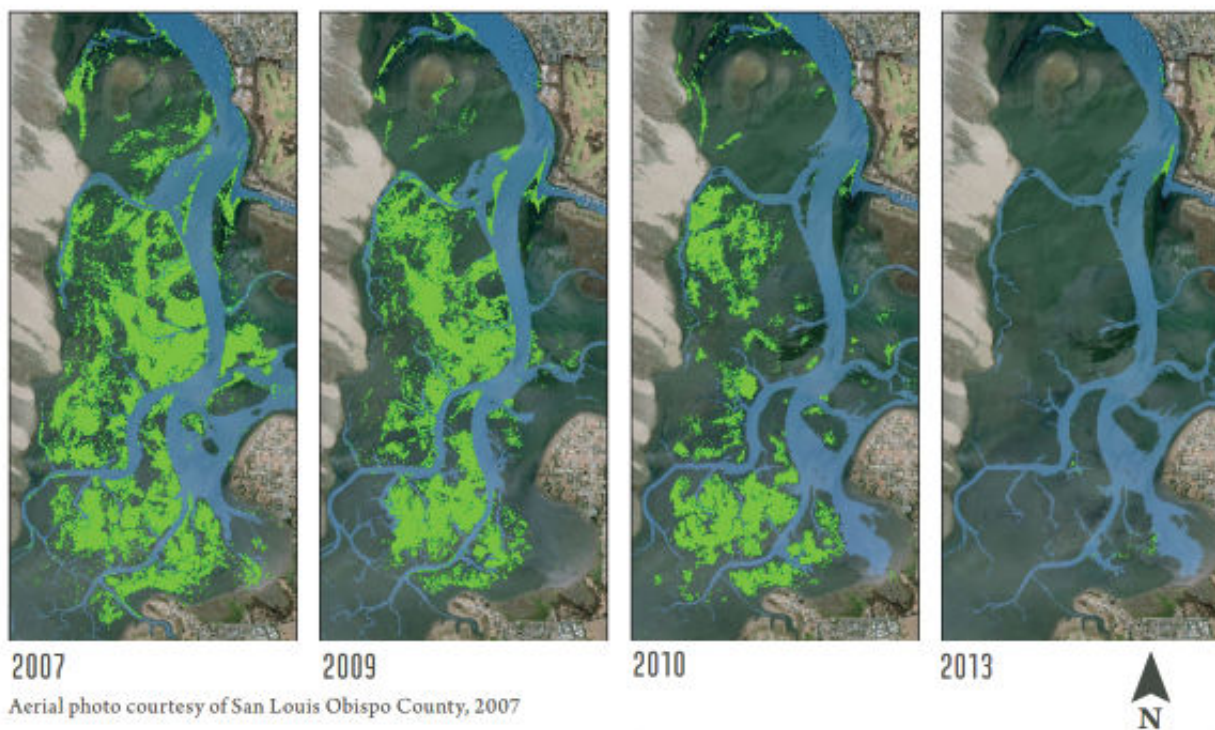
been monitoring ocean temperature (and a suite of other variables) at several nearshore stations along the central California coast including at the end of the [Cal Poly Pier](#) (2005-present) located near Avila Beach and at the mouth of the [Morro Bay Estuary](#) (2007-present). Over the last two years, in the Morro Bay Estuary, temperature anomalies associated with the "warm blob" and El Niño event are as large as 5°C (9°F) warmer than average.



Temperature anomalies from Morro Bay in degrees C from the 2014 “warm blob” and 2015 El Niño event relative to the long-term average from 2007 to 2013. Temperature anomalies as large as 5°C (9°F) can be seen in the data.

## Impacts to Morro Bay Marine Ecosystem

This prolonged warming event may have profound impacts on the marine ecosystem of Morro Bay, and comes at a time when Morro Bay Estuary is already experiencing major declines in its dominant habitat: eelgrass (*Zostera marina*). Since 2007 eelgrass has declined by more than 90% in Morro Bay, representing a major environmental catastrophe that may have far reaching environmental and economic impacts. Eelgrass meadows are a critical habitat for numerous fish and invertebrates; provide shoreline stabilization and prevent erosion; improve water clarity by filtering polluted runoff and absorbing excess nutrients; and uptake and store the greenhouse gas carbon dioxide, a role that will become increasingly important with ocean acidification and climate change. There are concerns in the Morro Bay community about potential further declines in eelgrass due to this prolonged warming.



Aerial map highlighting the large extent of eelgrass decline in Morro Bay from 2007 to 2013.

## Assessing Ecosystem Changes

The Morro Bay Estuary has historically been one of the least disturbed estuaries in central and southern CA and its habitats and biota contribute significantly to the local economy through aquaculture, fisheries, tourism, and other ecosystem services. Concerned with the serious eelgrass decline, a team of researchers at Cal Poly (Walter, O'Leary, Yost, Francis, Paavo, Yep, Needles) formed an active working group to study it in conjunction with the Morro Bay National Estuary Program (MBNEP). The researchers are using water quality data (supported by CeNCOOS) to determine potential drivers of the decline. The working group and the MBNEP are also conducting pre- and post-El Niño assessments of the remaining, healthy eelgrass beds including eelgrass abundance and density measurements. These results will be used with the physical data collected by the oceanographic mooring in Morro Bay to help understand El Niño-related changes and increase understanding of conditions that promote eelgrass survival and growth, which is important for future restoration efforts. Assessment results will directly inform the management of Morro Bay and promote the inclusion of coastal residents in conservation solutions through partnerships with the community-based MBNEP.

## Links

- [Cal Poly Marine Science Program Research](#)
- [Learn more about MBNEP the Morro Bay National Estuary Program](#)
- [Learn more about temperature changes in Morro Bay and El Nino on the California Coast](#)

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