

The Columbia River estuary as an ocean sentinel: temperature, hypoxia and other tales

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Observations from multiple Columbia River endurance stations and from a WA shelf glider are being used to characterize the response of the Columbia River estuary to ocean variability, and to explore the use of estuary properties as a sentinel for ocean change. The planned focus of the talk is on temperature and oxygen data, although other variables are being examined and some might also be opportunistically highlighted.

Anchoring the talk will be the introduction of an “upwelling index” that is based exclusively on estuarine temperatures and salinities, and the discussion of lessons learned from an “oxygen watch” that links oxygen levels in the estuary (e.g., see Figure) with upwelling and with hypoxia in the WA shelf.

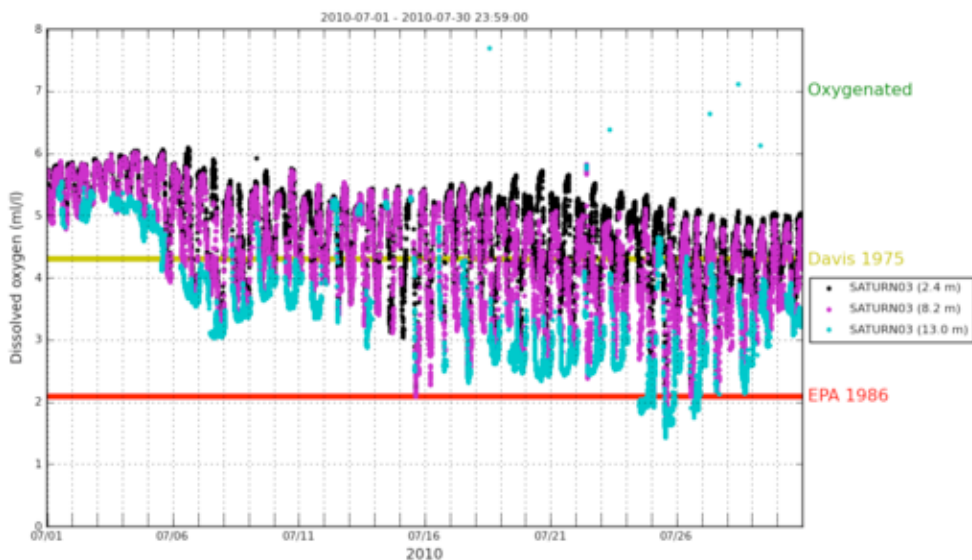


Figure: Oxygen at three depths in the south channel of the Columbia River estuary, displayed against oxygen-tolerance thresholds for salmon. Oxygen in the estuary responds to shelf winds and oxygen levels in the WA shelf (see more at http://www.stccmop.org/datamart/observation_network/hypoxia).

All analyses will be based on data from the observation network of the SATURN collaboratory (<http://www.stccmop.org/saturn>), a signature technology of the multi-institutional NSF Science and Technology Center for Coastal Margin Observation & Prediction (CMOP). SATURN is a sub-system of the Northwest Association of Networked Ocean Observing Systems (NANOOS), the Pacific Northwest arm of the Integrated Ocean Observing System (IOOS).

Notes

- Submitted to the General Eastern Pacific Oceanography Session (chair: James Lerczak
- May naturally be grouped with Roegner et al. (also submitted to EPOC). Their analysis was part of the motivation for the “oxygen watch”.