

Climatic and Ecological Conditions in the California Current LME

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Climate and Ecosystems Conditions

CLIMATE CONDITIONS IN BRIEF

- El Nino Southern Oscillation (ENSO)
- Pacific Decadal Oscillation (PDO)
- Upwelling Index (UI)
- Madden Julian Oscillation (MJO)

ECOSYSTEM CONDITIONS IN BRIEF

- California Current Ecosystem Indicators:
 - Copepods
 - Krill
 - Juvenile Rockfish
 - Coastal Pelagics (Market squid, Pacific mackerel, Pacific sardine, Northern anchovy).
 - Salmon
 - Groundfish
 - Midwater species
 - Cassin's Auklet
- Highly Migratory Species (tuna, sharks, billfishes)
- Invasive Species
- Marine Mammals
- Marine Birds
- Harmful Algal Blooms
- Dissolved Oxygen Concentrations
- Quarterly Publications and Websites
- Canada and Mexico

Distribution List for PaCOOS Quarterly

NOAA (SWR and NWR)

DFO

CICESE

PFMC

WA DFW

OR DFW

CDFG

USGS

PRBO

MBARI

CeNCOOS

SCCOOS

NANOOS

AOOS

UCSC

UCSD

OR State

SFSU

HSU

USC

UC Davis

WA University

UCSB

CSUF

References

CLIMATE:

El Niño Southern Oscillation (ENSO):

Source: *Bill Peterson, NOAA*

Source: <http://www.cdc.noaa.gov/people/klaus.wolter/MEI/mei.html>

http://www.cpc.noaa.gov/products/analysis_monitoring/enso_advisory/

Central & Eastern Pacific Upper-Ocean (0-300 m) Heat Content Anomalies:

Source: *The Coast Watch* <http://coastwatch.pfel.noaa.gov/elnino.html>

Source: *Regional Integrated Sciences & Assessments* http://www.climate.noaa.gov/cpo_pa/risa/

http://www.cpc.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.doc

Madden Julian Oscillation (MJO):

Source: <http://www.cpc.ncep.noaa.gov/products/precip/CWlink/MJO/mjo.shtml> (*Expert Discussions*)

<http://www.cpc.ncep.noaa.gov/products/precip/CWlink/MJO/ARCHIVE/> (*summaries*)

Pacific Decadal Oscillation (PDO):

Source: *Jerrold Norton, NOAA* (Jerrold.G.Norton@noaa.gov)

Source: *Environmental Research Division, NOAA, NMFS*

<http://jisao.washington.edu/pdo/>, <http://jisao.washington.edu/pdo/PDO.latest>

The PDO and Sea Surface Temperature at Newport, Oregon:

Source: *Bill Peterson, NOAA*

Source: <http://jisao.washington.edu/pdo/PDO.latest>, <http://jisao.washington.edu/pdo/>

Regional Oceanic Conditions:

Source: *El Niño Watch, Advisory* <http://coastwatch.pfel.noaa.gov/cgi-bin/elnino.cgi>

Upwelling Index:

Source: http://www.pfel.noaa.gov/products/PFEL/modeled/indices/upwelling/NA/daily_upwell_graphs.html

Source: <http://coastwatch.pfel.noaa.gov/cgi-bin/elnino.cgi> *NMFS/SWFSC/ERD monthly coastal upwelling index*

Deep Water Temperature and Salinity at Newport Hydrographic (NH) line, Oregon:

Source: *Bill Peterson, NOAA*

ECOSYSTEMS:

California Current Ecosystem Indicators:

Copepods:

Source: *Bill Peterson, NOAA, NMFS*

PDO, MEI and Copepod Species Richness: station NH 05

Source: <http://jisao.washington.edu/pdo/PDO.latest>, <http://jisao.washington.edu/pdo/>

Copepods:

Source: *Dave Mackas (Fisheries and Ocean Canada)*

Zooplankton Anomaly Time Series – Southern Vancouver Island Continental Margin

Krill:

Source: *Bill Peterson, NOAA*

Ecosystem indicators for the Central California Coast

Source: *John Field, Steve Ralston and Keith Sakuma, Fisheries Ecology Division, SWFSC*

Rockfish Juveniles:

Source: <http://coastwatch.pfel.noaa.gov/cgi-bin/elNino.cgi>

Coastal Pelagics:

Source: *Review of Selected California Fisheries for 2008: Coastal Pelagic Finfish, Market Squid, Ocean Salmon, Groundfish, California Spiny Lobster, Spot Prawn, White Seabass, Kelp Bass, Thresher Shark, Skates and Rays, Kelleys' Whelk, and Sea Cucumber. CDFG, CalCOFI & Dale Sweetnam*

Coastal Pelagics:

Ecosystem indicators for the Central California Coast

Source: *Steve Ralston, John Field and Keith Sakuma, Fisheries Ecology Division, SWFSC*

Sardines and Squid:

Source: <http://coastwatch.pfel.noaa.gov/cgi-bin/elNino.cgi>

Jumbo Squid:

Jumbo squid in the California Current for 2008

Source: *John C. Field (John.Field@noaa.gov) NOAA Fisheries, Southwest Fisheries Science Center, Santa Cruz, CA*

Sardine:

Sardine Catches off the West Coast of British Columbia for 2008

Source: *Marc Trudel, Pacific Biological Station, Fisheries and Oceans Canada, Nanaimo, BC*

Source: *Richard Charter (NOAA)*

Review of some California Fisheries for 2007: Coastal Pelagic Finfish and Market squid.

Source: *CDFG, CalCOFI & Dale Sweetnam*

Council Adopts Reduced Pacific Sardine Fishery Specifications for 2009

Source: *Pacific Council News <http://www.pcouncil.org/newsletters/currentnews.pdf>*

Pacific sardine & Northern anchovy egg distributions

Source: *Sam McClatchie, NOAA, SWFSC, Report on the NMFS California Current Ecosystem Survey (CCES) between San Diego, California and Cape Flattery, Washington in April and July/August 2008 (Note the CCES is an additional survey to CalCOFI).*

- Salmon:
- **Pacific Council News:**
- **Source: Pacific Council News** <http://www.pcouncil.org/newsletters/currentnews.pdf>
- **Historical and Fall 2008 Salmon Returns:**
- **Source: Bill Peterson, NOAA**
- **Salmon Returns to Northern California and Oregon Rivers:**
- **Source: El Niño Watch, Advisory** <http://coastwatch.pfel.noaa.gov/cgi-bin/elnino.cgi>
- **California Coast Coho Salmon Continue to Decline**
- **Fisheries Ecology Division, Southwest Fisheries Science Center, NOAA** <http://swfsc.noaa.gov/news.aspx?id=14472>
- **Pacific Fishery Management Council chooses options for 2009 Salmon Season:**
- **Fisheries in North Improve; Fisheries in South Still Limited**
- **Source: Pacific Fishery Management Council**
- http://www.pcouncil.org/newsreleases/salmon_packet/0309press_release_FINAL.pdf
- Groundfish:
- **Groundfish Inseason Adjustments to 2008 and 2009 Groundfish Fisheries**
- **Source: Pacific Council News** <http://www.pcouncil.org/newsletters/currentnews.pdf>
- Pacific Mackerel:
- **Source: Pacific Council News** <http://www.pcouncil.org/newsletters/currentnews.pdf>
- **Highly Migratory Species (tunas, shark, billfishes):**
- **Source:** <http://coastwatch.pfel.noaa.gov/cgi-bin/elnino.cgi>
- **Source: Pacific Council News** <http://www.pcouncil.org/newsletters/currentnews.pdf>
- **Highly Migratory Species (Thresher Shark):**
- **Source: Dale Sweetnam, CDFG**
- **Invasive Species:**
- **Source: Jeff Crooks (Tijuana River National Research Reserve)**
- **Invasive Species:**
- **Source: Amy Vierra (Boone), Ocean and Coastal Policy Analyst, California Natural Resources Agency** **Source: Kerstin Wasson, Research Coordinator, Elkhorn Slough National Estuarine Research Reserve, California**
- Marine Birds:
- **Source: WJ Sydeman, Farallon Institute for Advanced Ecosystem Research,** wsydeman@comcast.net
- Marine Birds:
- **What was the ocean condition in Central California Coastal ocean?**
- **A summary of Wells et al (2008) results extended to 2006 –2007**

- Marine Birds: Bird Observations by Point Reyes Bird Observatory (PRBO)
- **Source: Sam McClatchie, NOAA, SWFSC, Report on the NMFS California Current Ecosystem Survey (CCES) between San Diego, California and Cape Flattery, Washington in April and July/August 2008**
- Marine Mammals:
- **Source: <http://coastwatch.pfel.noaa.gov/cgi-bin/elnino.cgi>**
- Marine Mammals:
- **Source: PRD, SWFSC <http://swfsc.noaa.gov/textblock.aspx?Division=PRD&ParentMenuId=562&id=13024#>**
- Marine Mammals:
- **Source: Lisa Munger, Dominique Camacho, Andrea Havron, Greg Campbell, and John Hildebrand**
- Harmful Algal Blooms:
- Washington HAB Summary
- **Source: WA Department of Fish and Wildlife <http://www.wdfw.wa.gov/fish/shelfish/razorclm/levels/levels.htm>**
- Oregon HAB Summary
- **Source: Oregon Department of Agriculture Food Safety Division http://egov.oregon.gov/ODA/FSD/shellfish_status.shtml**
- Paralytic shellfish poisoning (PSP) and Domoic acid
- **Source: Oregon Department of Fish and Wildlife <http://www.dfw.state.or.us/MRP/shellfish/razorclams/plankton.asp>**
- **Source: Zach Forster, Phytoplankton Sampling Coordinator. MOCHA Project, Shellfish Project**
- Marine Resources Program, Oregon Department of Fish and Wildlife
- California HAB Summary
- **Source: <http://coastwatch.pfel.noaa.gov/cgi-bin/elnino.cgi>**
- **Source: Gregg W. Langlois, Senior Environmental Scientist, CA Department of Public Health <http://www.cdph.ca.gov/healthinfo/environhealth/water/Pages/Shellfish.aspx>**
- California HABMAP:
- **Source: Dave Caron, NOAA, NMFS, University of Southern CA**
- **Source: SCCOOS HAB monitoring team**
- Low Dissolved Oxygen:
- **Source: Lisa Levin Scripps Institute of Oceanography, Steve Bograd NOAA, NMFS, Jim Wilkinsen Scripps Institute of Oceanography**
- Spatial Patterns and Oxygen Anomalies from the Spring CalCOFI Survey:
- **Source: Ralf Goericke**
- Oxygen at 50 m depth at Newport Hydrographic (NH) line, Oregon
- **Source: Bill Peterson**

In Summary

- Are these quarterly updates valuable?
- Do we have all the right information?
- Who else should we contact?