

71ST (?) ANNUAL
EASTERN PACIFIC OCEAN CONFERENCE

EPOC 2025 PROGRAM



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Stanford Sierra Center, Fallen Leaf Lake, California
September 21-24, 2025

Meeting Chairs: Mer Pozo Buil & Jessica C. Garwood

EPOC 2025 - PROGRAM SUMMARY

DAY 1: SUNDAY, SEPTEMBER 21

3:00 PM	Check-in Begins (<i>Stanford Room</i>)
6:00 PM – 8:00 PM	Dinner (<i>Dining Room</i>)
8:00 PM – 9:00 PM	Fireside Chat, Dr. Melanie Fewings (<i>Cathedral Room</i>)
9:00 PM – 11:00 PM	Bonfire Reception (<i>Old Lodge and Front of Lodge</i>)

DAY 2: MONDAY, SEPTEMBER 22

6:00 AM	Coffee available at the Stanford Room
7:15 AM – 8:20 AM	Breakfast (<i>Dining Room</i>)
8:30 AM – 12:00 PM	Morning Session (<i>Cathedral Room</i>):

(S1) Nearshore & coastal processes modelling and observations

12:00 PM – 1:00 PM	Lunch (<i>Dining Room</i>)
1:00 PM – 3:00 PM	Free Time
3:00 PM – 5:00 PM	Afternoon Sessions (<i>Cathedral Room</i>)

(S2) Marine stations as community ocean observatories

5:00 PM – 5:30 PM	Poster Session Introductions (<i>Cathedral Room</i>)
5:30 PM – 7:30 PM	Dinner and Free Time (<i>Dining Room</i>)
7:30 PM – 8:00 PM	Poster Session Setup (<i>Angora Room</i>)
8:00 PM – 10:00 PM	Poster Session and Reception (<i>Angora Room</i>)

EPOC 2025 - PROGRAM SUMMARY (CONT.)

DAY 3: TUESDAY, SEPTEMBER 23

6:00 AM Coffee available at the Stanford Room

7:15 AM – 8:20 AM Breakfast (*Dining Room*)

8:30 AM – 12:00 PM Morning Session (*Cathedral Room*)

(S3) Refugia and ecological processes in coastal and (meso-)pelagic ecosystems

12:00 PM – 1:00 PM Lunch (*Dining Room*)

1:00 PM – 3:00 PM Free Time

3:00 PM – 5:00 PM Afternoon Sessions (*Cathedral Room*)

(S4) Machine Learning: its potential and its limitations for understanding the dynamics of the Eastern Pacific

(S5) Observational and modeling needs for marine carbon dioxide removal in the Eastern Pacific Ocean: from physics to fish

5:00 PM – 7:00 PM Free Time

7:00 PM – 11:00 PM Banquet and Entertainment, **SambaDá** (*Dining Room/Deck*)

DAY 4: WEDNESDAY, SEPTEMBER 24

6:00 AM Coffee available at the Stanford Room

7:15 AM – 8:50 AM Breakfast (*Dining Room*)

9:00 AM – 9:30 AM Morning coffee break & Checkout

9:30 AM – 11:00 AM Morning Session (*Cathedral Room*)

(S6) General Session

10:35 AM – 11:00 AM General Discussion for All Sessions (*Cathedral Room*)

11:00 AM – 12:30 PM EPOC Business Meeting (*Cathedral Room*)

12:30 PM End of Meeting

12:30 PM – 1:30 PM Lunch (*Dining Room*)

EPOC 2025 - MONDAY, SEPTEMBER 22

- 8:30 AM - 11:20 AM** **(S1) Nearshore and coastal processes**
Chairs: Clarissa Anderson and Jessica Garwood
- 8:30 AM Introductory Remarks
- 8:40 AM **Nathalí Cordero Quirós:** Long-term variability of subsurface temperature in the shelf of California: Del Mar mooring
- 9:00 AM **Selena Yu*:** Breaking the ice: Evaluating MOM6-NEP on the Bering Sea
- 9:20 AM **Luke V. Colosi*:** Variations in Decorrelation Scales Across the Coastal-Open Ocean Transition
- 9:40 AM **Luke Carberry*:** Phase-lag between wind, nitrate, and phytoplankton abundance in the inner shelf
- 10:00 AM *Morning Coffee Break*
- 10:30 AM **Dakota Mascarenas*:** Century-Scale Change in Dissolved Oxygen, Temperature, and Salinity in Puget Sound
- 10:50 AM **Kristen Davis:** Synchrony between diurnal tides and solar day drives hypoxia in a coral lagoon.
- 11:10 AM **Clarissa Anderson:** Are we in an unprecedented era of HAB-driven marine mammal mortality events in coastal California?
- 11:30 AM *Discussion*
- 12:00 PM– 3:00 PM** **Lunch and Free Time**

*Student Presenter

EPOC 2023 - MONDAY, SEPTEMBER 22 (CONT.)

- 3:00 PM - 5:00 PM** **(S2) Marine stations as community ocean observatories**
Chairs: Michael P. Montgomery and John Largier
- 3:00 PM **Michael P. Montgomery***: Introductory Remarks – Marine Station History and Perspectives
- 3:15 PM **John Largier**: Long-term records at Bodega Marine Laboratory
- 3:35 PM **Marnie Zirbel**: An estuary in real time: the coastal monitoring station at Hatfield
- 3:55 PM *Afternoon Coffee Break*
- 4:10 PM **Will Johnson***: Environmental DNA as a general tool for biodiversity monitoring of coastal ecosystems: lessons from kelp forests
- 4:30 PM *Discussion*
- 5:00 PM – 6:00 PM** **Poster Session Introductions**
- 6:00 PM – 7:00 PM** **Dinner and Free Time**
- 7:30 PM – 8:00 PM** **Poster Session Setup**
- 8:00 PM – 10:00 PM** **Poster Session and Reception**

*Student Presenter

EPOC 2025 - TUESDAY, SEPTEMBER 23

- 8:30 AM - 12:00 PM** **(S3) Refugia and ecological processes in coastal and (meso-)pelagic ecosystems**
Chairs: Mikaela Provost, Jessica Bolin, Arina Favilla, and Rachel Holser
- 8:30 AM **Introductory Remarks**
- 8:40 AM **Jessica Bolin:** Projected decline of habitat refugia for red abalone (*Haliotis rufescens*) across California
- 9:00 AM **Will White:** Spatial population models reveal tradeoffs involved in making spatial shifts in marine reserves to improve kelp forest resilience
- 9:20 AM **Megan Cimino:** Diverse sampling programs highlight pulses of *Velella velella* along the U.S. West Coast
- 9:40 AM **Michael P. Montgomery*:** "Cangrejo Invasor": Insights about Range Shifts from the Purple Swimming Crab, *Euphyllax dovieri*
- 10:00 AM *Morning Coffee Break*
- 10:30 AM **Rachel Holser:** A mesopelagic predator tracks interannual variation in a large-scale ocean front
- 10:50 AM **Mikaela Provost:** More frequent ENSOs could reduce probability of overfishing in long-lived California Current fishes
- 11:10 AM **Christopher Perle:** Towards a movement and mixing model for Eastern Pacific Ocean dolphinfish
- 11:30 AM *Discussion*
- 12:00 PM– 3:00 PM** **Lunch and Free Time**

*Student Presenter

EPOC 2025 - TUESDAY, SEPTEMBER 23

- 3:00 PM - 6:15 PM** **(S4) Machine Learning: its potential and its limitations for understanding the dynamics of the Eastern Pacific**
Chairs: Albert J. Hermann
- 3:00 PM Introductory Remarks
- 3:10 PM **Mar Arroyo***: Historical reconstructions of interior ocean biogeochemistry in the California Current System
- 3:30 PM **David Rivas**: Reconstruction of NPZD-modeled phytoplankton from modeled physical drivers using artificial neural networks
- 3:50 PM *Afternoon Coffee Break*
- 4:10 PM - 5:00 PM** **(S5) Observational and modeling needs for marine carbon dioxide removal in the Eastern Pacific Ocean: from physics to fish**
Chair: Clarissa Anderson
- 4:10 PM **Minna Ho***: Ocean alkalinity enhancement in an estuary
- 4:30 PM *Discussion for both sessions*
- 5:00 PM - 7:00 PM** **Free Time**
- 7:00 PM - 11:00 PM** **Banquet and Entertainment with *SambaDá***

*Student Presenter

EPOC 2025 - WEDNESDAY, SEPTEMBER 24

- 9:00 AM *Morning Coffee Break and Check-out*
- 9:30 AM - 11:00 AM (S6) General Session: Oceanography of the eastern Pacific Ocean**
Chairs: Jessica Garwood and Mer Pozo Buil
- 9:30 AM Introductory Remarks
- 9:35 AM **Natalie Dornan***: Nitrogen sources to the giant kelp *Macrocystis pyrifera* determined using natural abundance stable isotopes
- 9:55 AM **Aurpita Saha**: Seasonal and interannual variability of Harmful Algal Blooms along the U.S. West Coast
- 10:15 AM **Jordana Sevigny***: Seasonal to Interdecadal Variability in Lagrangian Transport to the Southern California Bight from 1940–2019
- 10:35 PM *Discussion*
- 11:00 AM–12:30 PM EPOC Business Meeting**
- 12:30 PM EPOC 2025 is Adjourned**
- 12:30 PM– 1:30 PM Lunch and Departures**

*Student Presenter

EPOC 2025 - POSTER PRESENTATIONS

SESSION 1

NEARSHORE & COASTAL PROCESSES MODELLING AND OBSERVATIONS

- Nat Bial*** Does Mom's Choices Matter? Harem Location, Disturbance, and Pup Success in a Capital Breeding Marine Mammal
- Ricky Brokaw*** Shoreline change influenced by kelp-wave-current interactions in the Santa Barbara Channel, CA
- Madolyn Kelm*** Farm vs forest: Investigating internal wave dynamics and nutrient delivery to nearshore reefs and suspended kelp farms in the Santa Barbara Channel
- Eber Reyes Lopez*** Giant Kelp Forests as Coastal Low-Pass Filters: Flow, Temperature, and Tracer Retention in Arroyo Quemado
- Yifan Zhu** Marine Heat Waves and Compound Change in Biogeochemical Conditions in the Northern California Current System

SESSION 2

MARINE STATIONS AND LONG-TERM OBSERVATIONS

- Sean Coleman** Millions of Observations More: A Continuing Spatial Analysis of Along and Cross-shelf Near-Bottom Dissolved Oxygen in the Pacific Northwest in 2021-2024
- Melanie Fewings** Long-Term Datasets Available in Olympic Coast National Marine Sanctuary and on the Newport Hydrographic Line in the Northern California Current System
- Jonathan Fram** Suspension of an 11-year time series: NSF's OOI Endurance Array
- Art Miller** Vertical Structure of Chlorophyll-a During Marine Heatwaves in the California Current Ecosystem
- Jeffrey Paduan** A decade of surface current mapping along the U.S. West Coast: What does it say about vertical circulation magnitudes, distributions, and forcing?
- Manman Wang** High resolution of Long-term Observations and applications of HF Radar along west coast of Canada

SESSION 3

REFUGIA AND ECOLOGICAL PROCESSES IN COASTAL AND (MESO-)PELAGIC ECOSYSTEMS

Luke Bobay*	Temporal and spatial overlap between larval northern anchovy (<i>Engraulis mordax</i>) and their zooplankton prey
George Colaco*	Linking Ocean Variability to Predator Behavior: Insights from California Sea Lions in the Central California Current
Arina Favilla	Fine-scale insights of dissolved oxygen variability measured by a mesopelagic predator
Juan Gerardo Gutierrez Bravo*	An ecological characterization of early life history of pink shrimp (<i>Pandalus jordani</i>) in Oregon coastal waters
Jasen Jacobsen	Patterns of Zooplankton Phenology Across the Northeast Pacific
Eric Lin	Larval Connectivity from Drifter-Based Diffusivity: A Moorea Case Study
Jann Paul Mattern	Propocalypse in the California Current System: Examining the Nearshore Decline of Prochlorococcus in a Regional Ecosystem Model
Monique Messié	Searching for environmental clues to anchovies booms and busts
SESSION 4	MACHINE LEARNING: ITS POTENTIAL AND ITS LIMITATIONS FOR UNDERSTANDING THE DYNAMICS OF THE EASTERN PACIFIC
Albert Hermann	Application of dimensional reduction in the training of Machine Learning-based emulators for biogeochemical downscaling of the Northeast Pacific ocean
Makayla McDevitt	Identifying and Predicting Ecological Marine Provinces
Will White	Scientific machine learning to understand kelp forest dynamics from remote sensing imagery
SESSION 5	OBSERVATIONAL AND MODELING NEEDS FOR MARINE CARBON DIOXIDE REMOVAL IN THE EASTERN PACIFIC OCEAN: FROM PHYSICS TO FISH
Christopher Edwards	A demonstration of mCDR numerical experiments in the California Current with an assessment of exports across open boundaries

SESSION 6

GENERAL SESSION: OCEANOGRAPHY OF THE EASTERN PACIFIC OCEAN

- Wei Cheng** Modeled connectivity pathways between the Gulf of Alaska and the Bering and Chukchi Seas
- Melanie Fewings** Ocean surface currents from space, with simultaneous winds: an update on the proposed ODYSEA Doppler Scatterometer satellite mission
- Jessica Garwood** Fishing for Hypoxia: bottom oxygen measurements on the Oregon shelf
- Aurora Leeson*** Modeling the impact of wastewater discharge on oxygen in Puget Sound
- Eliza Lerman*** Seasonal and Interannual Temperature Variability along the Columbia River Estuary
- Lucas de la Maza Fernandez*** Physical drivers of dissolved oxygen in Cordell Bank on a high frequency long term time series
- Julia Navarrete*** Developing a Dungeness crab (*Metacarcinus magister*) meat quality forecasting management tool
- Leah Wilczynski*** From Chinook Salmon to Marine Ecosystems: Predicting Migration on the Oregon and Washington Coasts