

65<sup>TH</sup> ANNUAL  
EASTERN PACIFIC OCEAN CONFERENCE

EPOC 2018 PROGRAM



*Photo courtesy of Noel Pelland*

Timberline Lodge, Mount Hood, Oregon

September 12-15, 2018

# EPOC 2018 - PROGRAM SUMMARY

---

## DAY 1: WEDNESDAY, SEPTEMBER 12

- 4:00 PM Check-in Begins (*Barlow Room*)  
6:00 PM - 7:30 PM Dinner (*Cascade Dining Room or Ram's Head Bar*)  
7:30 PM - 8:00 PM Welcome Ceremony (*Lobby Patio*)  
8:00 PM - 10:00 PM Fireside Chat, **Dr. Zack Powell** (*Barlow Room*)

## DAY 2: THURSDAY, SEPTEMBER 13

- 7:30 AM - 8:15 AM Breakfast (*Cascade Dining Room*)  
8:30 AM - 12:00 PM Morning Sessions (*Ullman Hall*):  
**(S3) Trends in the Eastern North Pacific Ocean: Beyond Interannual Variability**  
**(S1) Marine Protected Areas**  
12:00 PM - 3:00 PM Lunch and Free Time (*Cascade Dining Room*)  
3:00 PM - 5:00 PM Afternoon Session (*Ullman Hall*):  
**(S2) Interdisciplinary Studies Examining Transport and Mixing from the Shelf to the Shoreline**  
5:00 PM - 5:30 PM Poster Session Introductions (*Ullman Hall*)  
5:30 PM - 7:30 PM Dinner and Free Time (*Cascade Dining Room or Ram's Head Bar*)  
7:00 PM - 9:30 PM Poster Session and Reception (*Ullman Hall*)

## DAY 3: FRIDAY, SEPTEMBER 14

- 7:30 AM - 8:15 AM Breakfast (*Cascade Dining Room*)  
8:30 AM - 12:00 PM Morning Sessions (*Ullman Hall*):  
**(S4) Upwelling and Undercurrent Ocean and Ecosystem Dynamics in the California Current**  
**(S1) Oceanography of the Eastern Pacific Ocean**  
12:00 PM - 3:00 PM Lunch and Free Time (*Cascade Dining Room*)  
3:00 PM - 5:20 PM Afternoon Session (*Ullman Hall*):  
**(S2) Interdisciplinary Studies Examining Transport and Mixing from the Shelf to the Shoreline (cont.)**  
5:20 PM - 7:00 PM Free Time  
7:00 PM - 10:30 PM Banquet and Entertainment, **Melao de Cuba** (*Ullman Hall*)

## DAY 4: SATURDAY, SEPTEMBER 15

- 7:30 AM - 8:15 AM Breakfast (*Cascade Dining Room*)  
8:30 AM - 11:40 AM Morning Session (*Ullman Hall*):  
**(S5) Processes, Predictability, and Prediction of Coastal Ocean-Atmosphere and Ecological Systems**  
**\*dedicated in honor and memory of Chris Mooers**  
11:40 AM - 12:30 PM EPOC Business Meeting (*Ullman Hall*)  
12:30 PM End of Meeting

# EPOC 2018 - THURSDAY, SEPTEMBER 13

---

**8:30 AM -10:40 AM Trends in the Eastern North Pacific Ocean: Beyond Interannual Variability**

Chairs: Andrew Thomas and Mer Pozo Buil

8:30 AM Introductory Remarks

8:40 AM **Matt Newman:** Characterizing Pacific Ocean Regime Shifts

9:00 AM **Patrick Cummins:** Low-frequency isopycnal variability in the Alaska Gyre from Argo

9:20 AM **Andrew Thomas:** Thirty-five year trends of eastern North Pacific SST and SST phenology

9:40 AM **Ralf Goericke:** Climate and bottom up forcing of phytoplankton biomass and primary production in the southern California Current System

10:00 AM *Morning Coffee Break*

10:20 AM **Louis Botsford:** Responses of biological populations to different time scales of environmental variability

**10:40 AM-12:00 PM Integrating Oceanographic Data into MPA Adaptive Management**

Chairs: Will White and Kerry Nickols

10:40 AM **Will White:** Bring the noise: the influence of larval recruitment variability on the adaptive management of marine protected areas

11:00 AM **Kerry Nickols:** A tale of transition: physical and chemical conditions of kelp forests and urchin barrens within a MPA

11:20 AM **H. Eve Robinson:** Comparing oceanographic conditions between marine protected areas and reference sites provides the context necessary to interpret ecological patterns and responses

11:40 AM *Discussion*

**12:00 PM- 3:00 PM Lunch and Free Time**

Poster Setup, Ullman Hall

## EPOC 2018 - THURSDAY, SEPTEMBER 13 (CONT.)

---

- 3:00 PM - 5:00 PM**    **Interdisciplinary Studies Examining Transport and Mixing from the Shelf to the Shoreline**  
Chairs: Nathalie Reyns, Melissa Moulton, Jacqueline McSweeney and Jessica C. Garwood
- 3:00 PM    Introductory Remarks
- 3:10 PM    **Geno Pawlak:** Vertical structure of cross-shore flow in the inner shelf in the Southern California Bight
- 3:30 PM    **Gregory Sinnett:** A Detailed Nearshore Heat Budget
- 3:50 PM    **Merrick Haller:** Morphologic and transient rip current dynamics: ISDRI observations and model simulations
- 4:10 PM    *Afternoon Coffee Break*
- 4:20 PM    **Connor Dibble\*:** Headland recirculation in a wind-driven system
- 4:40 PM    **Nathalie Reyns:** Thermal Stratification and Nearshore Larval Accumulation and Transport
- 5:00 PM - 5:30 PM**    **Poster Session Introductions**
- 5:30 PM - 7:30 PM**    **Dinner and Free Time**
- 7:30 PM - 9:00 PM**    **Poster Session and Hors d'Oeuvre Reception**

## EPOC 2018 - FRIDAY, SEPTEMBER 14

---

**8:30 AM -10:20 AM**    **Upwelling and Undercurrent ocean and ecosystem dynamics in the California Current**  
Chairs: Melanie Fewings, Stuart Bishop, Eric Bjorkstedt, Jennifer Fisher, Mike Jacox, Bill Sydeman and Steven Bograd

8:30 AM    Introductory Remarks

8:40 AM    **Briana Abrahms:** Blue whales and greenwaves: oceanographic determinants of migration phenology

9:00 AM    **Hally Stone\*:** Linking phytoplankton biomass and wind patterns using satellite data in the Northern California Current System

9:20 AM    **Jasen Jacobsen\*:** Seasonal variability and dissolved oxygen trends in the California Undercurrent off northern California

9:40 AM    **Roger Samelson:** Coastal winds and poleward undercurrents

10:00 AM    *Morning Coffee Break*

**10:20 AM-12:00 PM**    **General Session: Oceanography of the Eastern Pacific Ocean**  
Chairs: Liz Drenkard and Manu Di Lorenzo

10:20 AM    **Renato Castelao:** Upwelling jet separation in the California Current System

10:40 AM    **Daniel Dauhajre\*:** Submesoscale currents in the coastal ocean

11:00 AM    **Xiuning Du:** Characterizing phytoplankton production and community composition from mid-shelf to slope waters off Oregon during 2013-2017

11:20 AM    *Discussion*

**12:00 PM- 3:00 PM**    **Lunch and Free Time**

## EPOC 2018 - FRIDAY, SEPTEMBER 14 (CONT.)

---

**3:00 PM - 5:20 PM**    **Interdisciplinary Studies Examining Transport and Mixing from the Shelf to the Shoreline (cont.)**  
Chairs: Nathalie Reyns, Melissa Moulton, Jacqueline McSweeney and Jessica C. Garwood

3:00 PM    **Matt Gough:** The Influence of Diurnal Wind Forcing on Internal Waves over the Inner Shelf

3:20 PM    **David Fertitta\*:** Modeled and observed internal tidal variability in the Santa Maria Basin

3:40 PM    **Maria Jose Marin Jarrin\*:** Effects of winds, river discharge and tides on shelf-estuary coupling in Coos Bay, OR

4:00 PM    *Afternoon Coffee Break*

4:20 PM    **Anna Lowe\*:** A model investigation of larval transport for shallow-water rockfish populations in Carmel Bay and southern Monterey Bay

4:40 PM    **Jessica C. Garwood\*:** A ratchet to shore: How background flow and nonlinear internal waves can interact to enhance transport of quasi-Lagrangian plankton mimics

5:00 PM    **Clarissa Anderson:** Is Humboldt Bay a cryptic hot spot for harmful algal blooms?

**5:20 PM - 7:00 PM**    **Free Time**

**7:00 PM -10:30 PM**    **Banquet and Entertainment with *Melao de Cuba***

# EPOC 2018 - SATURDAY, SEPTEMBER 15

---

**8:30 AM -11:40 AM Processes, Predictability, and Prediction of Coastal Ocean-Atmosphere and Ecological Systems**

Chairs: Aneesh Subramanian, Alexander Kurapov, Antonietta Capotondi, Roger Samelson, Arthur Miller and Jack Barth

8:30 AM Introductory Remarks

8:40 AM **Emanuele Di Lorenzo:** Physical-biological predictability along the California coast arising from large-scale Pacific climate dynamics

9:00 AM **Nathali Cordero Quiros\*:** A Composite physical-biological ENSO in the California Current System

9:20 AM **Elise Olson:** Salish Sea Model Ecosystem - Lower Trophic: Tidally driven nutrient supply to surface waters in the Northern Strait of Georgia

9:40 AM **Emma Nuss:** Predicting ecosystem response to shifting drivers in San Francisco Bay

10:00 AM *Morning Coffee Break*

10:20 AM **Parker MacCready:** Processes Affecting Water Properties in Washington Coastal Estuaries

10:40 AM **Albert Hermann:** A hybrid dynamical-statistical downscaling method for the rapid generation of regional ocean forecasts

11:00 AM **Melanie Fewings:** Toward predicting the spatial pattern of mid-latitude marine heat waves based on the imprinting of regional wind anomalies

11:20 AM *Discussion*

**11:40 AM-12:30 PM EPOC Business Meeting**

**12:30 PM EPOC 2018 is Adjourned**

## EPOC 2018 - POSTER PRESENTATIONS

---

### **SESSION 1**                      **General Session: Oceanography of the Eastern Pacific Ocean and Marine Protected Areas**

- Annette Carlson\***                      Benthic Microplastic Distribution in Humbolt Bay, Northern California: A Comparative Study of Surface Sediments Based on Proximity from the Shore
- Lumas Helaire\***                      Modeling Flood Present and Future Flood Risk in the Portland, OR Metro Area
- Joseph Jurisa**                      Human induced changes to freshwater transport pathways on the OR/WA shelf
- Katherine Panebianco\***                      Comparison of Microplastics in the Benthic Sediments of the Northern, Central, and Southern Regions of Humboldt Bay, Northern California
- Noel Pelland**                      Simulating the Migration of Northern Fur Seal Pups through the Bering Sea and North Pacific Ocean
- Daniel Raemer\***                      Evaluation and Comparison of Microplastic Contents in Wild Mussels and Maricultured Oysters from Humboldt Bay, California Using an Enzymatic Digestion Method
- Nicholas Schieferecke\***                      Distribution of Microplastics at the Surface and Within the Water Column in Humboldt Bay, Northern California
- Samantha Zeman**                      *Calanus marshallae* and *Calanus pacificus* egg production in relation to environmental variables in a productive upwelling zone in the northern California Current



## EPOC 2018 - POSTER PRESENTATIONS (CONT.)

---

### **SESSION 2**                      **Interdisciplinary Studies Examining Transport and Mixing from the Shelf to the Shoreline**

- Caitlin Amos\***                      Offshore Transport of Coastal Water in the California Current System Due to Mesoscale Eddies
- Christine Baker\***                      Validation of Rip-Current Driven Cross-Shore Exchange Simulations
- Nick Beard**                      Late Summer Observations of Turbulent Nutrient Flux in the Chukchi Sea
- Elizabeth Brasseale\***                      Where Estuarine Inflow Originates on the Shelf
- Kristen Davis**                      Fate of Internal Waves on a Shallow Shelf
- Sarah Gravem**                      Challenges of Understanding and Managing Disease Outbreaks in the Sea
- Derek Grimes\***                      Idealized Simulation of Cross-Shore Tracer Exchange Nearshore with Transient Rip-Currents, Stratification, and Diurnal Heat-Flux
- Michael Kovatch\***                      Multi-Platform Observations of Headland Eddy-Internal Wave Interactions Observations of Internal Tides on the Inner Shelf: A Three Dimensional Look at Propagation and Shoaling
- Jacqueline McSweeney**                      Observations of Internal Tides on the Inner Shelf: A Three Dimensional Look at Propagation and Shoaling
- Steven Morgan**                      "Robot Larvae" Test the Effects of Behavior on Larval Transport in a Retentive Upwelling Shadow
- Jesús Pineda**                      Reduced Barnacle Larval Abundance and Settlement in Response to the "Blob" and El Niño: Patterns, Nearshore Thermal Stratification, and Potential Mechanisms
- Jerry Smith**                      Mixing and Frontal Action in the Outer Southern California Bight
- Xiaodong Wu**                      Long-distance transport and Dilution of Tracers Released from Multiple Shoreline and Estuarine Sources

\*Student Presenter

## EPOC 2018 - POSTER PRESENTATIONS (CONT.)

---

### **SESSION 3**                      **Trends in the Eastern North Pacific Ocean: Beyond Interannual Variability**

**Eric Bjorkstedt**                      Transitions and recovery in ocean structure and plankton assemblages associated with the 2009-10 El Niño and the 2014-16 marine heatwave off northern California

**Jennifer Fisher**                      Variable Trends in Pteropod Abundance Between the Shelf and Slope from Two Decades of Observations Off Newport Oregon, USA

**Mercedes Pozo Buil**                      Exploring the Deterministic Dynamics of the Generation and Propagation of Decadal Subsurface Water-Mass Anomalies in the North Pacific

**Stefan Talke**                      Water Level Trends in the North-Eastern Pacific Since 1853

### **SESSION 4**                      **Upwelling and Undercurrent Ocean and Ecosystem Dynamics in the California Current**

**Stuart Bishop**                      What Time and Space Sampling is Needed to Resolve the California Undercurrent?

**Christine Cass**                      Influences of Local and Large-Scale Processes on the Body Composition of Northern California Current Euphausiids

**Daniel McCoy**                      Detection and Characterization of Submesoscale Coherent Vortices from Argo Float Observations in the Northeast Pacific

**Ted Strub**                      Seasonal and Interannual Transports of Water into the California Current from the South

## EPOC 2018 - POSTER PRESENTATIONS (CONT.)

---

<b>SESSION 5</b>	<b>Processes, Predictability, and Prediction of Coastal Ocean-Atmosphere and Ecological Systems</b>
<b>Daniela Faggiani Dias*</b>	Seasonal to Decadal Predictions of Northeastern Pacific Sea Surface Temperatures: a Linear Inverse Model and Multimodel Ensemble Study
<b>Albert Hermann</b>	Immersive 3D Visualization of Regional Model Output
<b>Delphine Hypolite</b>	Submesoscale circulation and vertical flux in the California Current System
<b>J. Paul Mattern</b>	Increasing the Biological Resolution of a Regional Ocean Model for the California Current System
<b>Nick Nidzieko</b>	Patterns of Residence Time, Eutrophication, and Ecosystem Metabolism in Coastal Ecosystems