Science Update

Washington Ocean Acidification Center

at the

University of Washington

College of the Environment

Dr. Terrie Klinger
Dr. Jan Newton
Co-Directors

MRAC meeting
31 March 2015

Photo: Klinger

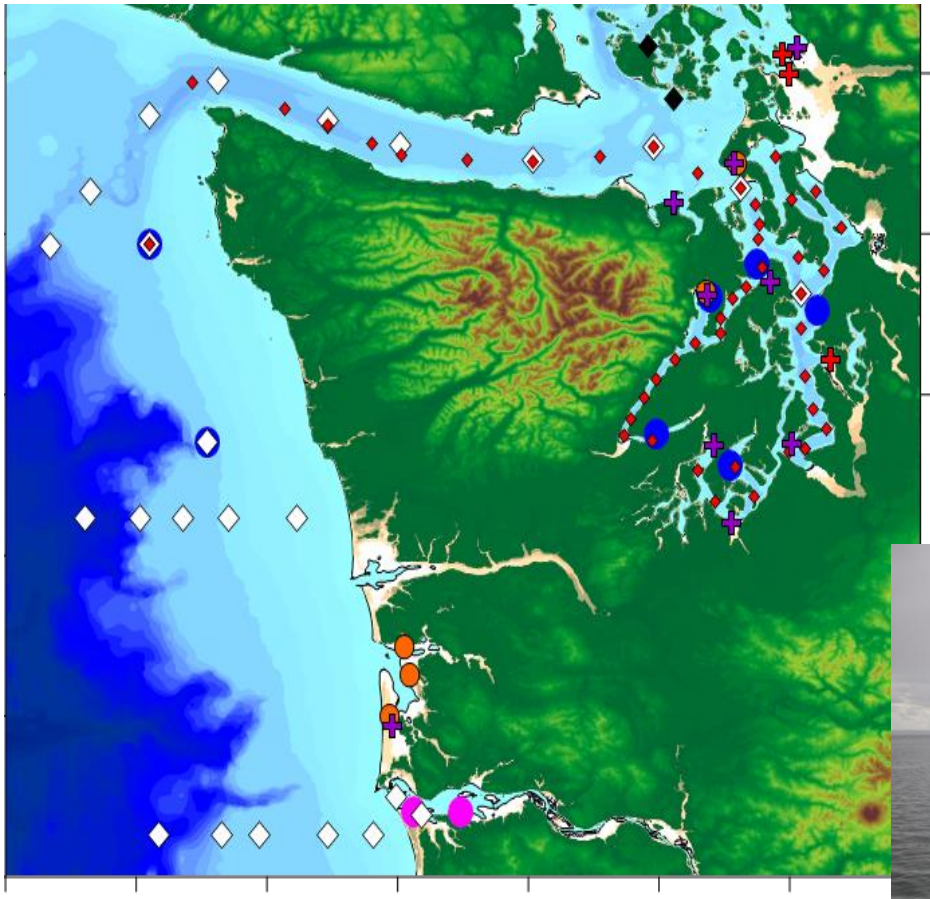
The Washington Ocean Acidification Center is coordinating BRP actions to:

- ***Assess water conditions and what's driving ocean acidification***
  - Monitoring
- ***Provide forecasts to facilitate adaptation***
  - Forecast modeling
- ***Assess how species respond***
  - Biological experiments
- ***Inform aquaculture practices***
  - Shellfish culture adaptation

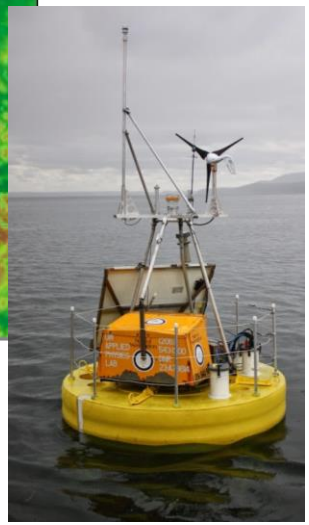
Our Partners

PCSGA, NANOOS, & other partners

Monitoring



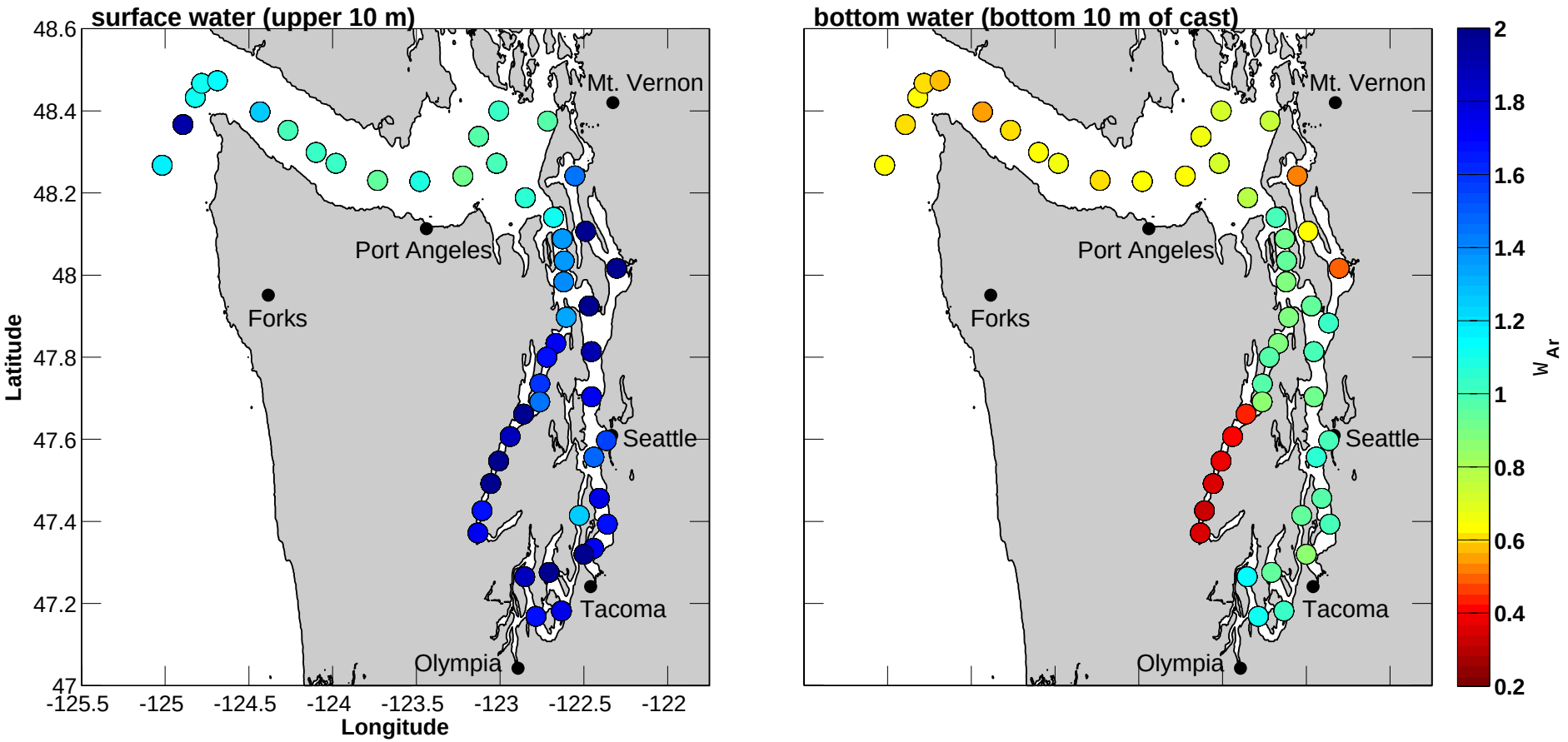
- Leverages existing networks
- Deployed new monitoring sensors
- Integrated water and biological measurements



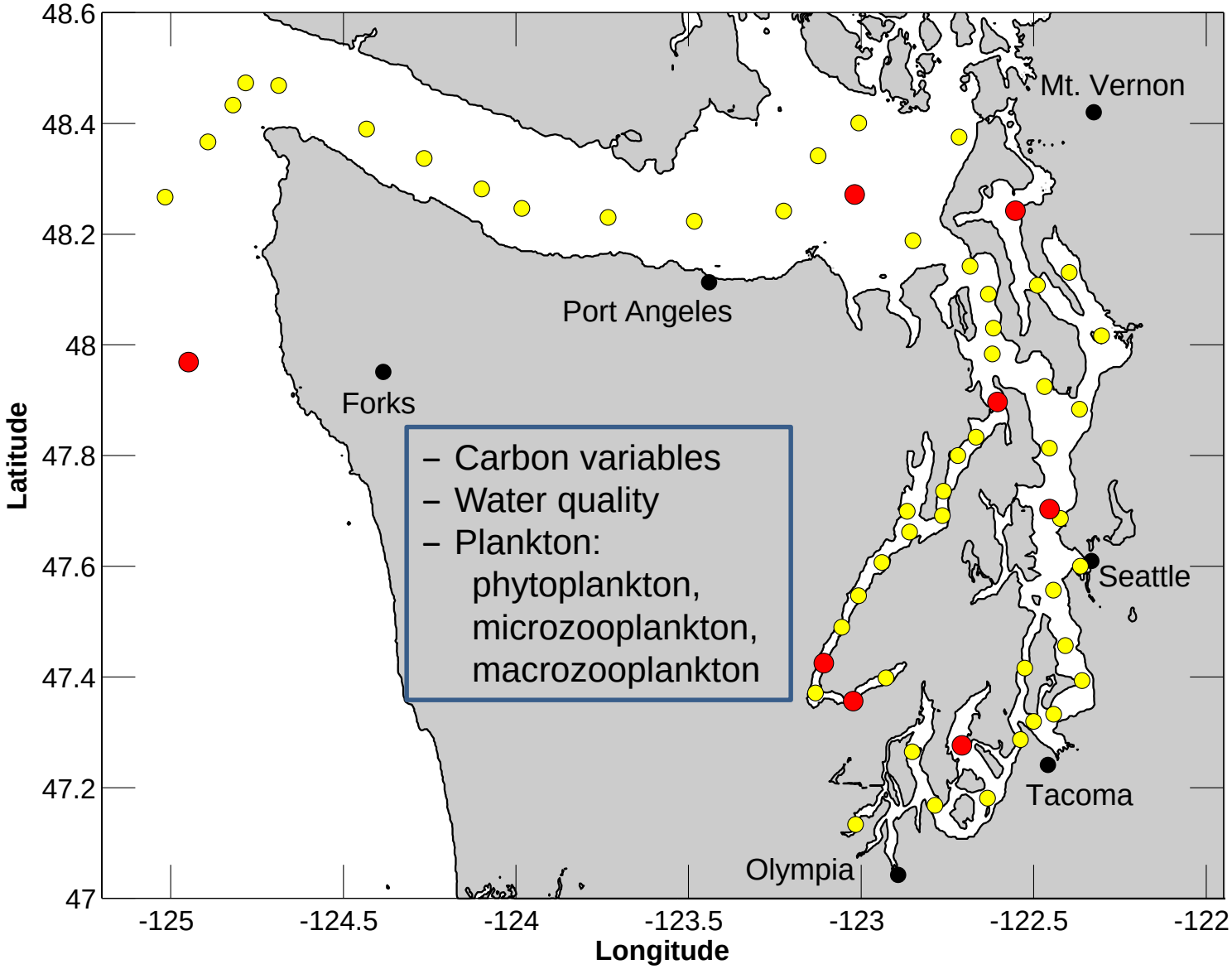
Map: Greeley; Photos: Vander Giessen & USA Today

Aragonite Saturation State Variability

August 2008

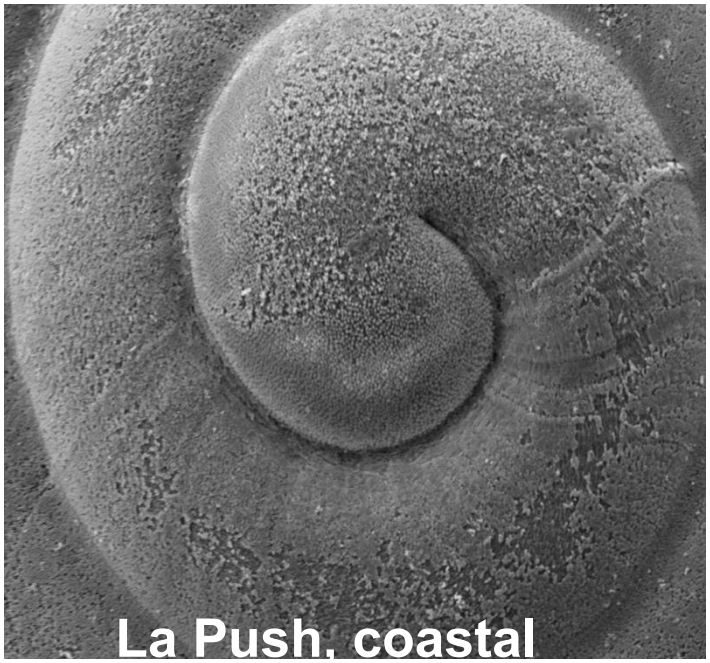


Integrated Monitoring Stations



Integrated Monitoring

- Pteropod shells show signs of dissolution
- Patterns in time and space help us understand impacts and drivers

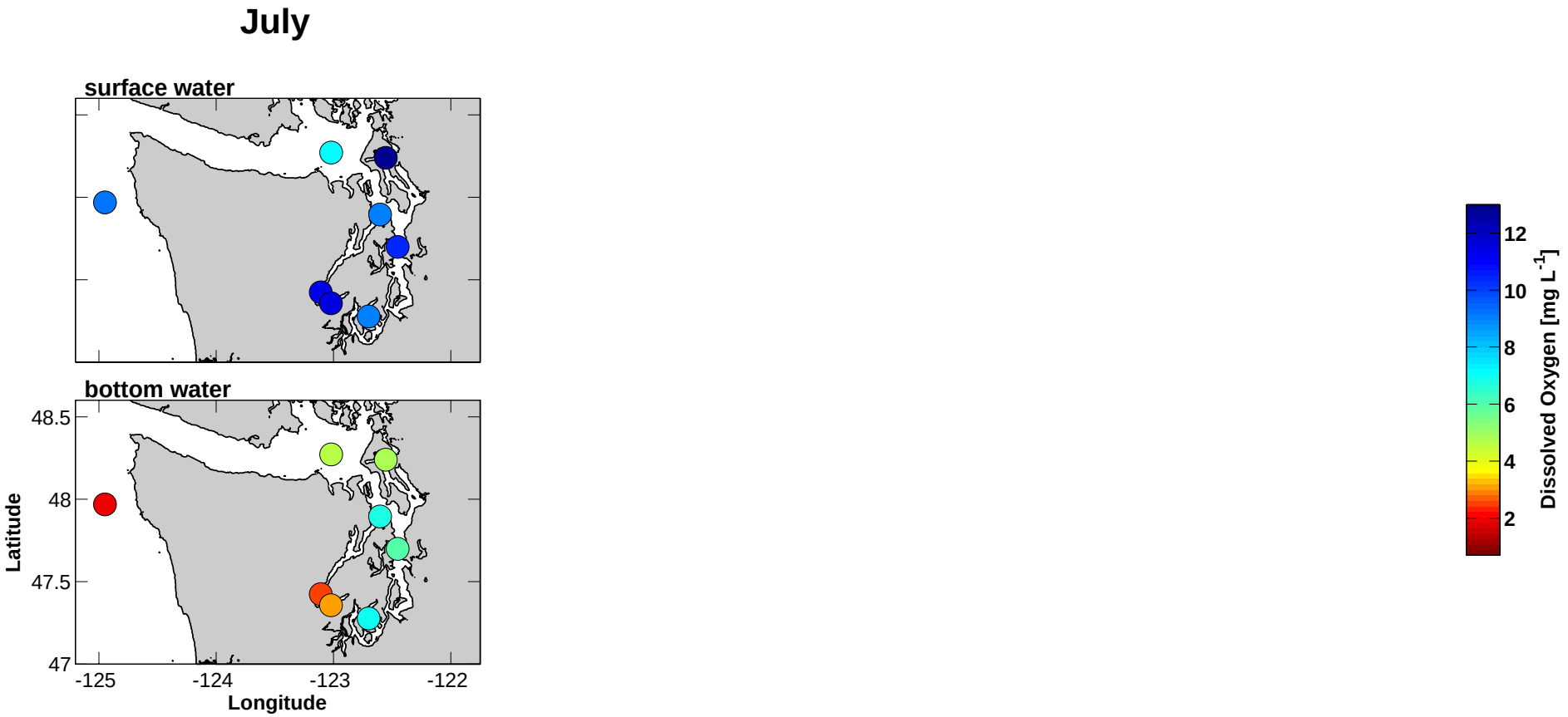


La Push, coastal

Whidbey basin, Puget Sound

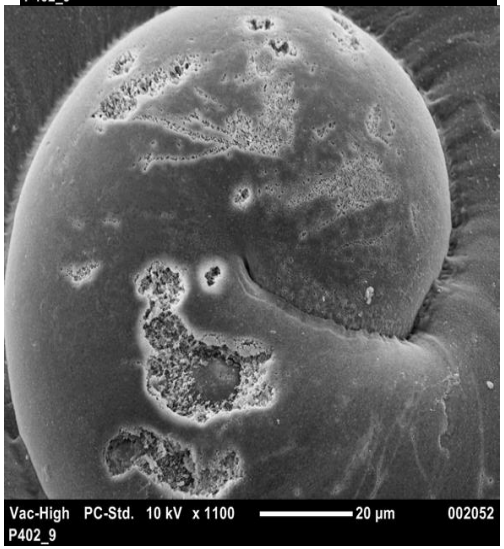
Photos: Johnson & Bednarsek

2014 Temporal and Spatial Variability

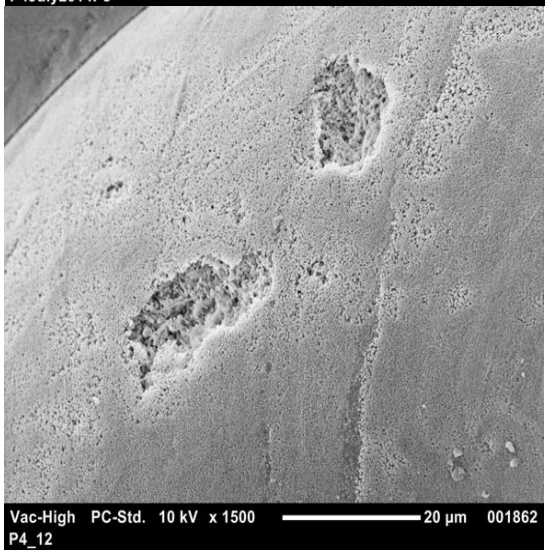


Pteropods as indicators

Hood Canal – July ‘14

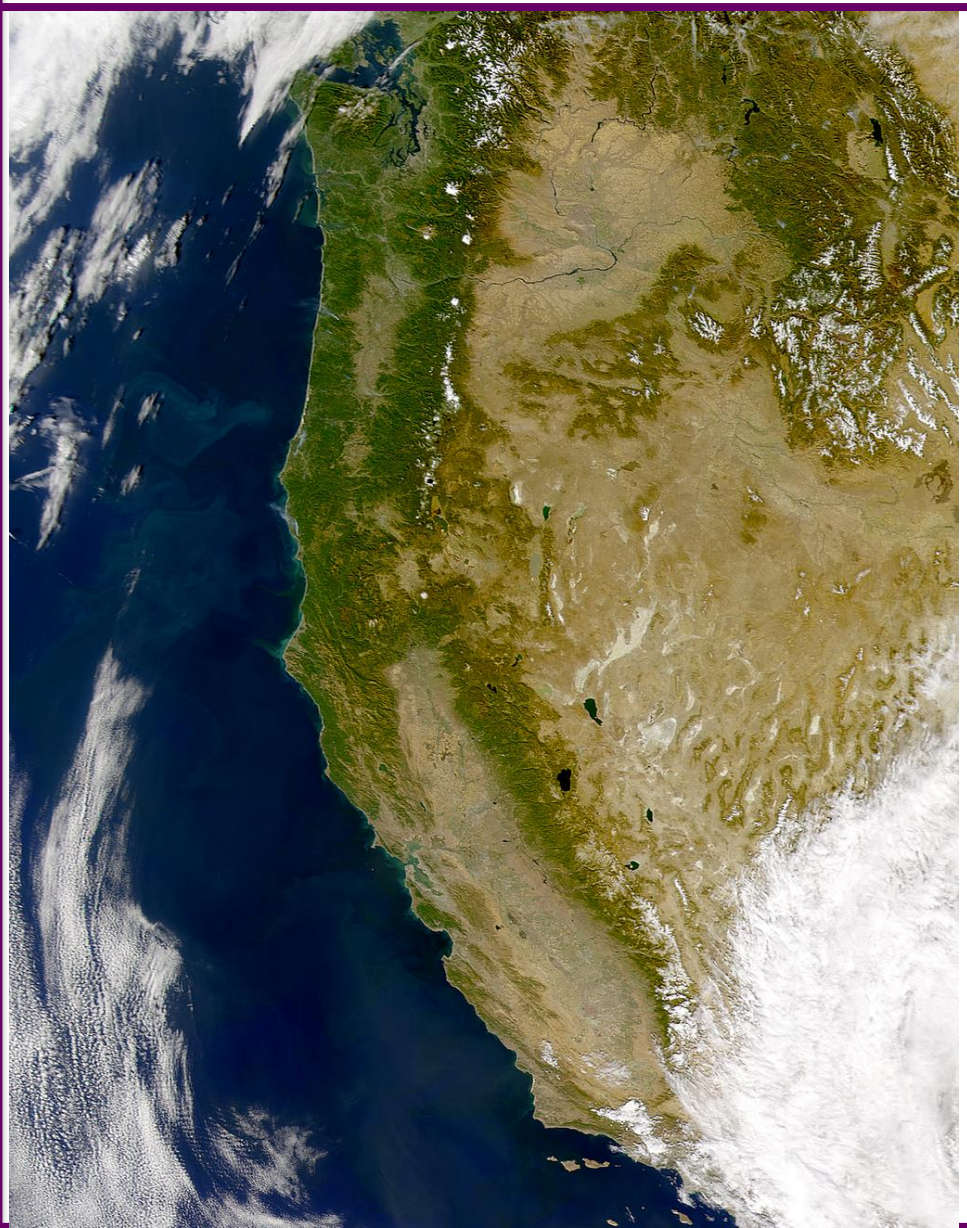


Whidbey Basin – July ‘14



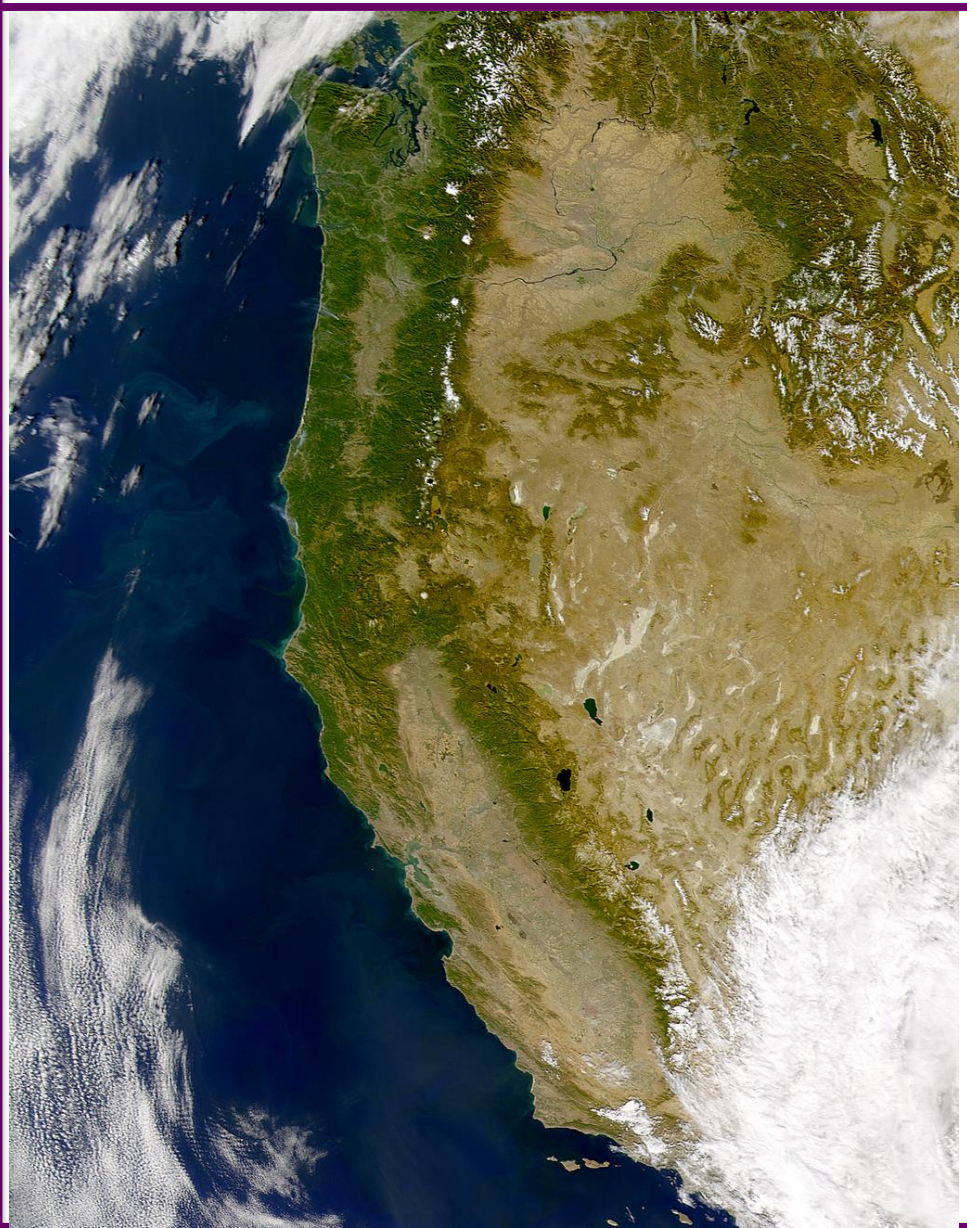
- Pteropods offer a promising means to develop a bio-indicator of response to changing ocean conditions
- Comparable across space and time

New Regional Science Products



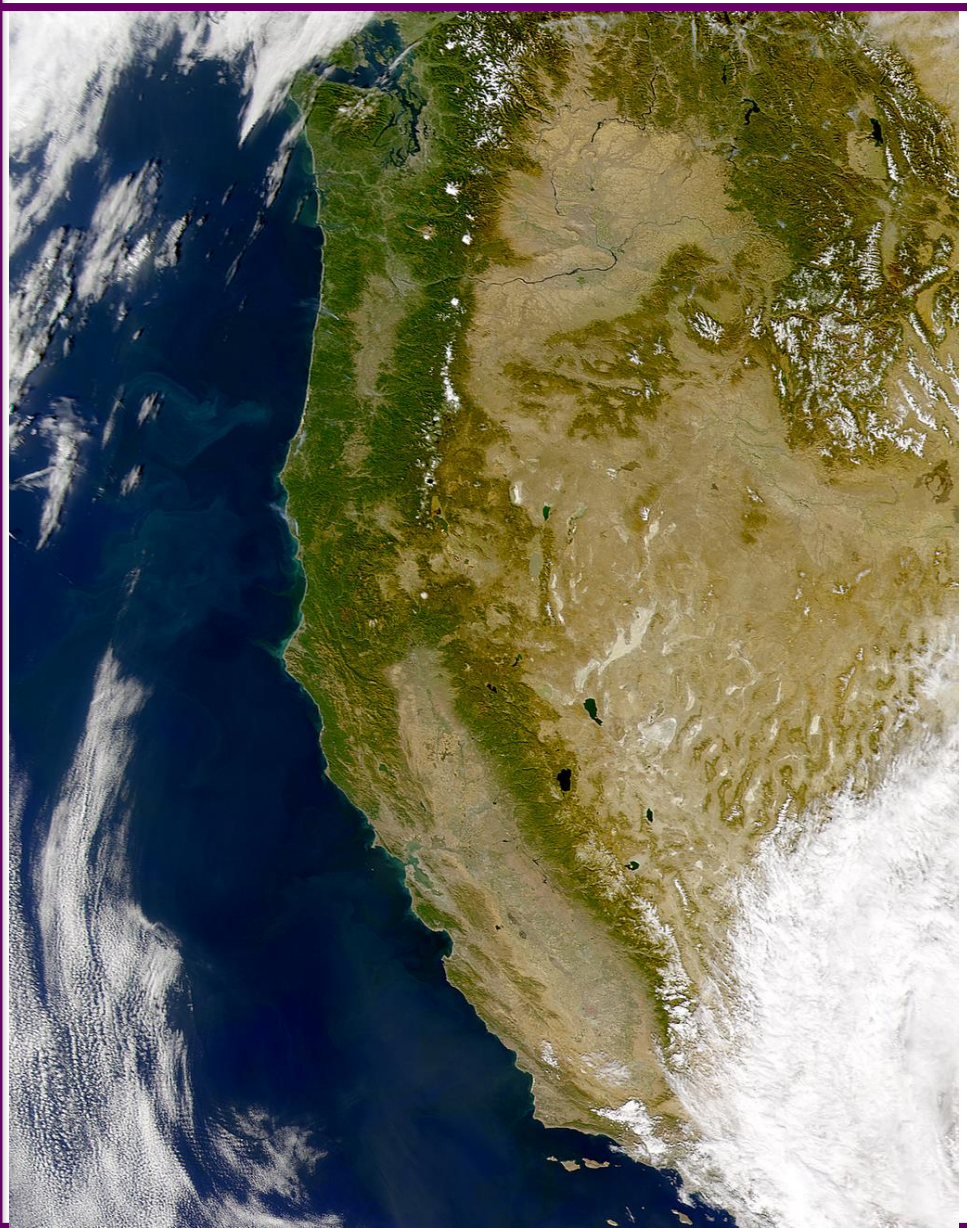
- Developed by a panel of scientists from CA, OR, WA, and BC
- Focused on OA and hypoxia along the entire west coast
- Intended to be decision-relevant

1. Physiological Perspective



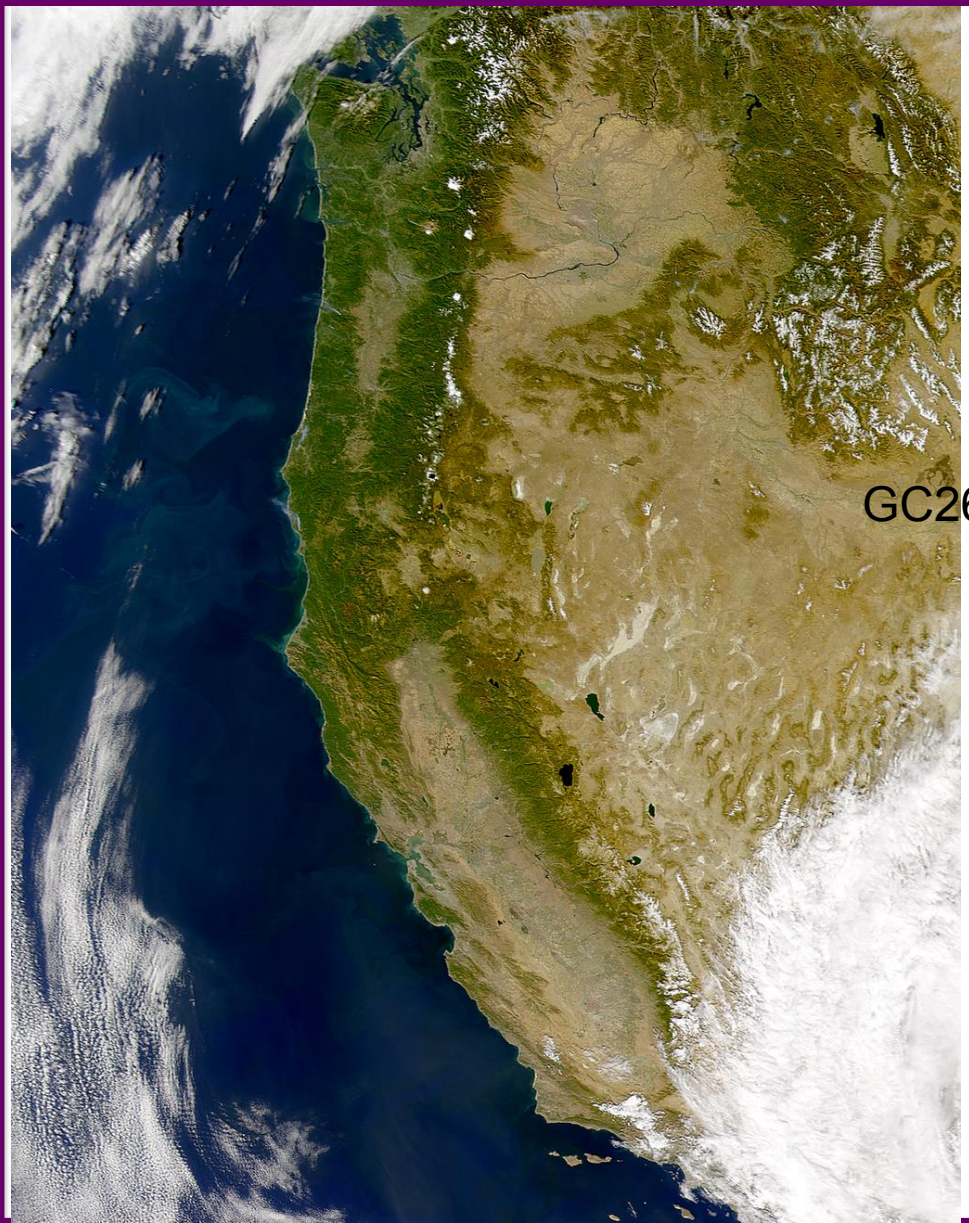
- Asks how physiological studies can help interpret and predict effects of global change
- Analyzes effects of stressors on basic physiological function
- Suggests best practices for experimental studies
- Connects science with management and policy

2. Ecosystem Perspective



- Asks how existing knowledge can bound predictions for future change
- Explores use of ecosystem management to address problem *now*
- Illustrates utility of ecosystem approaches for managing effects of OA and hypoxia along west coast

3. ‘Science Needs’ Perspective



- Describes local management actions to reduce effects of OA
- Identifies the scientific information needed to implement management actions at local scales
- Argues that monitoring, modeling, and vulnerability assessment are required to manage response to OA

WOAC Science Symposium

Announcing:

26 May 2015

UW Center for Urban Horticulture

All are welcome!