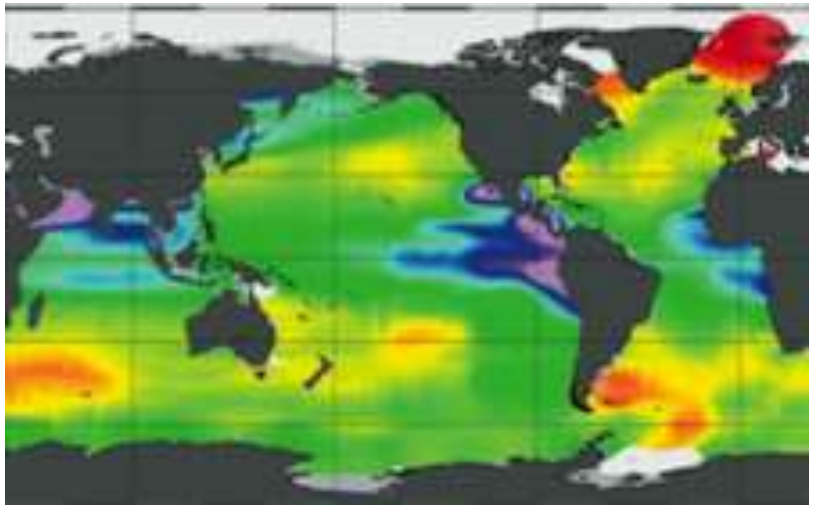


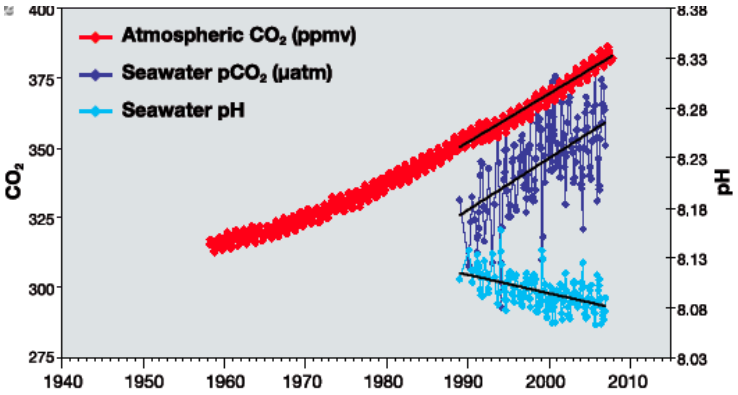
Climate Variability : Ocean Acidification

Jan Newton, NANOOS, Alex Isern, NSF, Molly McCammon, AOOS, Roy Watlington, CaRA

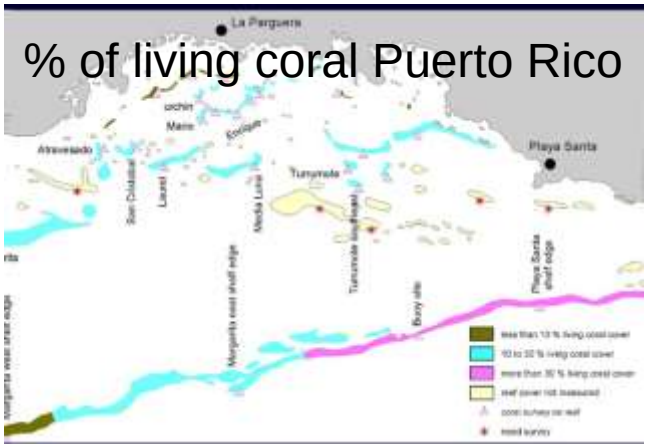
Regional Climate Change Activities

Observations: Single system – multiple uses

PMEL working with RAs to deploy CO2 sensors:
NANOOS; PacIOOS; CaRA, NERACOOS



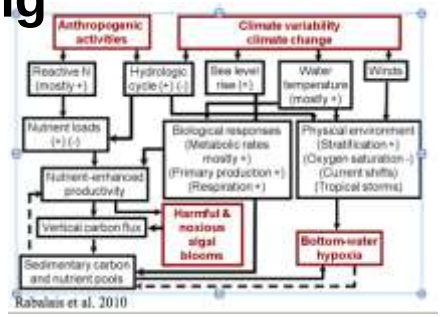
Data Management
RT, trends, public display



Integrated Coral Reef Monitoring

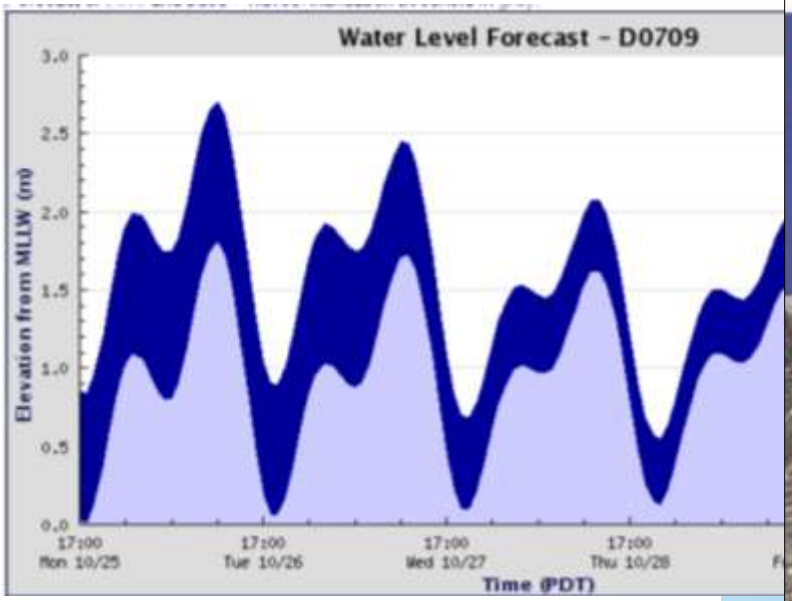
Education Materials

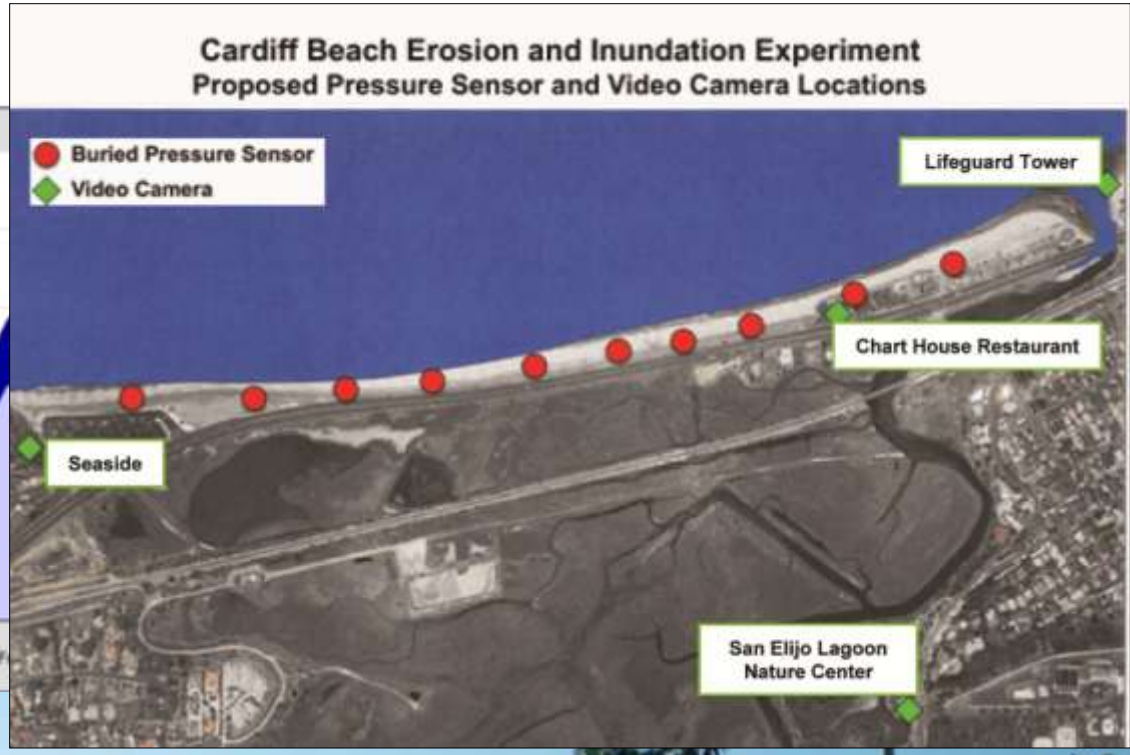
Modeling



Climate Products: Inundation/Sea Level

Most RAs work with users on inundation and SLR

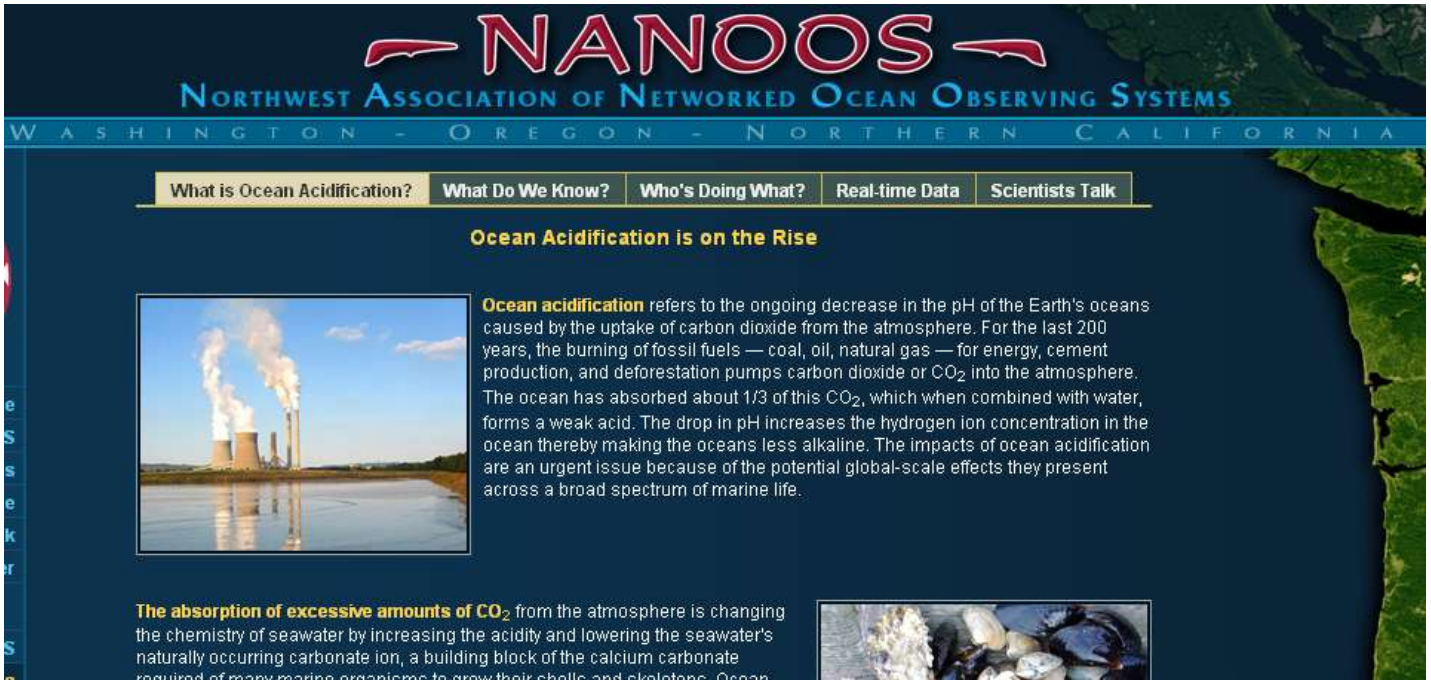




Automated 3-day E-mail warnings of potential inundation sent to City of Encinitas.

Getting the word, and data, out:

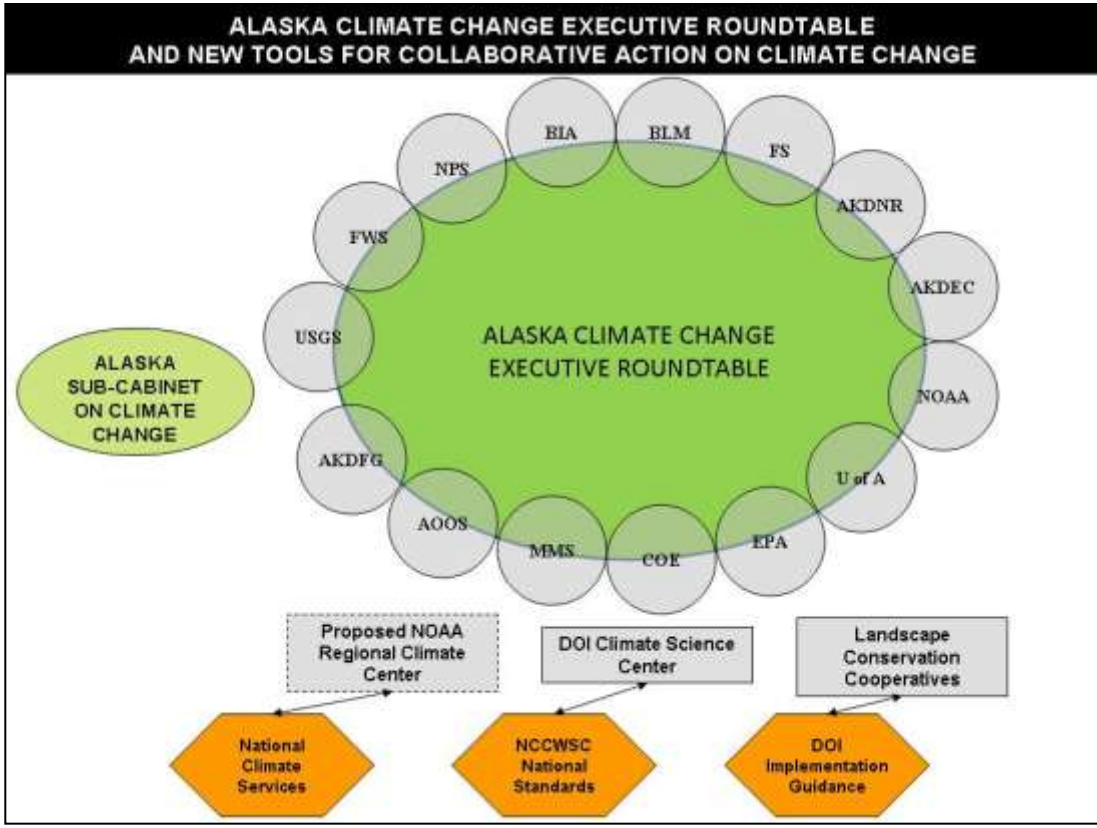
"Theme page" on OA, with real-time data link



- NOAA PMEL & NANOOS worked collectively on content
- Sharing with Pacific Science Center, with links to their planned public displays
- Along with other W Coast RAs, working with shellfish industry

Coordination at the regional level collaborating with existing programs

- IOOS Regional Associations
- NOAA Natl Climate Service with regional climate director
- NOAA RISA program (Regional Integrated Services)
- NOAA Regional CollaborationTeams
- Dept of Interior regional climate centers & new Landscape Conservation Cooperatives (LCCs)
- Sea Grant Program
- USDA Cooperative Extension Service
- State climatologist
- State coastal management program



This graphic is an example of a coordinated regional approach to responding to climate change.

Tools to Quantify Ocean Acidification

Evaluations of pCO_2 and pH Sensors

pCO_2 Analyzer Demonstration in 2010 & 2011

Field tested technologies from Contros, NOAA/PMEL, Pro-Oceanus, Sunburst, YSI in Hood Canal, WA & Kaneohe Bay, HI

calculations

pH Sensor Verification planned for 2012

ACT Symposium and Workshop, Alaska, May 2011:
Discussion of technologies to quantify changes to:

- Weather patterns and storm severity
- Biogeochemical cycles and ecosystem processes
- Ocean temperature and acidification
- Sea level rise and coastal erosion
- Sea ice retreat

Elements of a National OA Observing Network

- Calls for the creation of a National Ocean Acidification Program
- Monitoring program should include: temperature, salinity, oxygen, nutrients, and carbon parameters (DIC, pCO_2, total alkalinity, pH).
- Measurements of general indicators of ecosystem change should be supported as part of a program for assessing the effects of acidification.

- NOA Program should review existing and emergent observing networks to identify measurements that could become part of a comprehensive ocean acidification observing network and to identify any critical spatial or temporal gaps in the current capacity to monitor ocean acidification.

Management and Decision Support

The National Ocean Acidification Program should

- plan for the long-term sustainability of an integrated ocean acidification observation network.
- identify, engage, and respond to stakeholders in its assessment and decision support process and work with existing climate service and marine ecosystem management programs to develop a broad strategy for decision support.

Data Management

- create and fund a data management office and identify appropriate data center(s) for archiving data or create its own.
- support inter-calibration, standards development, and efforts to make methods of acquiring chemical and biological data clear and consistent.
- support the development of satellite, ship-based, and autonomous sensors as part of a network

Discussion Questions

- What opportunities do the RAs offer for monitoring the coastal effects of OA?
- How can the OA observing system and the IOOS system complement and not duplicate one another?
- Within each region, are there “hot spots” that should be considered for monitoring?
- What role can the RAs play in addressing other climate needs?