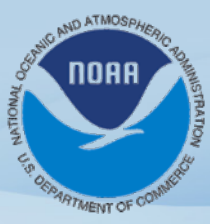


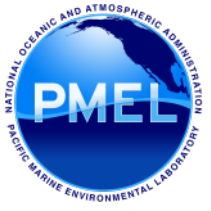
PMEL

Pacific Marine Environmental Laboratory

Laboratory Overview

Dr. Christopher Sabine

Director



Pacific Marine Environmental Laboratory

Providing the critical advancement of knowledge about the global ocean and its interactions with Earth, atmosphere, ecosystems, and climate

Established in 1973, PMEL is one of 7 OAR Research Laboratories and employs over 200 scientists, engineers, technical staff, and administrative staff.

Office of Oceanic and Atmospheric Research

OAR Laboratories

OAR's laboratories are critical to long-term research endeavors, particularly those that require major infrastructure, such as monitoring oceans and atmosphere for climate assessments.

OAR Programs

Program offices manage competitive and noncompetitive awards to focus on specific topics, including emerging areas of research. They are well suited to address research needs that are relatively short-term in nature or that require infrastructure that exists beyond OAR laboratories.

OAR Partners

OAR manages the National Sea Grant program and NOAA's Cooperative Institutes, to maintain dialog with academia. OAR also oversees NOAA's Technology Partnerships Office (TPO) and NOAA's Science Advisory Board.

Pacific Marine Environmental Laboratory

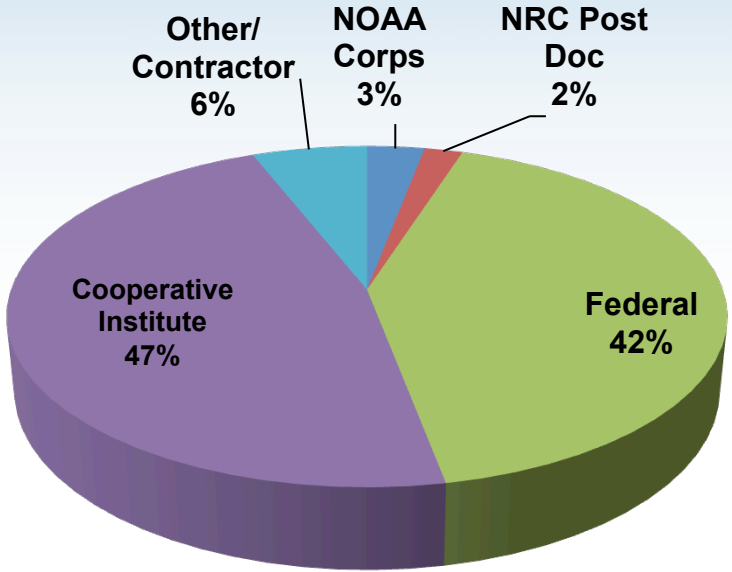
Providing critical advancement of knowledge about the global ocean and its interactions with Earth, atmosphere, ecosystems, and climate

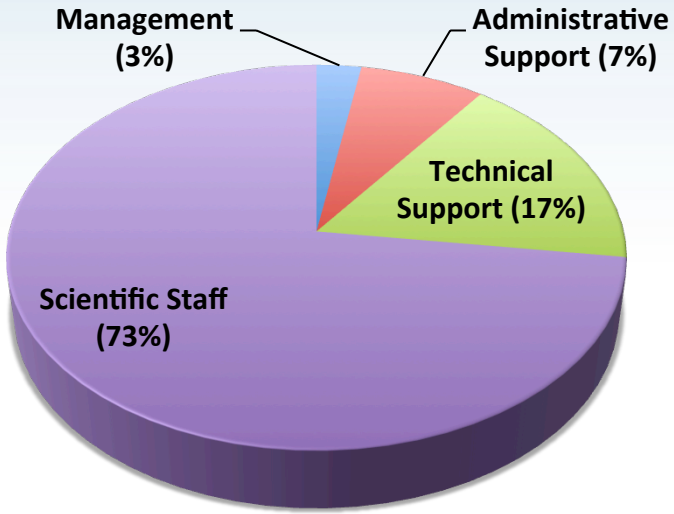
JISAO
University of Washington

CIMRS
Oregon State University

CIFAR
University of Alaska

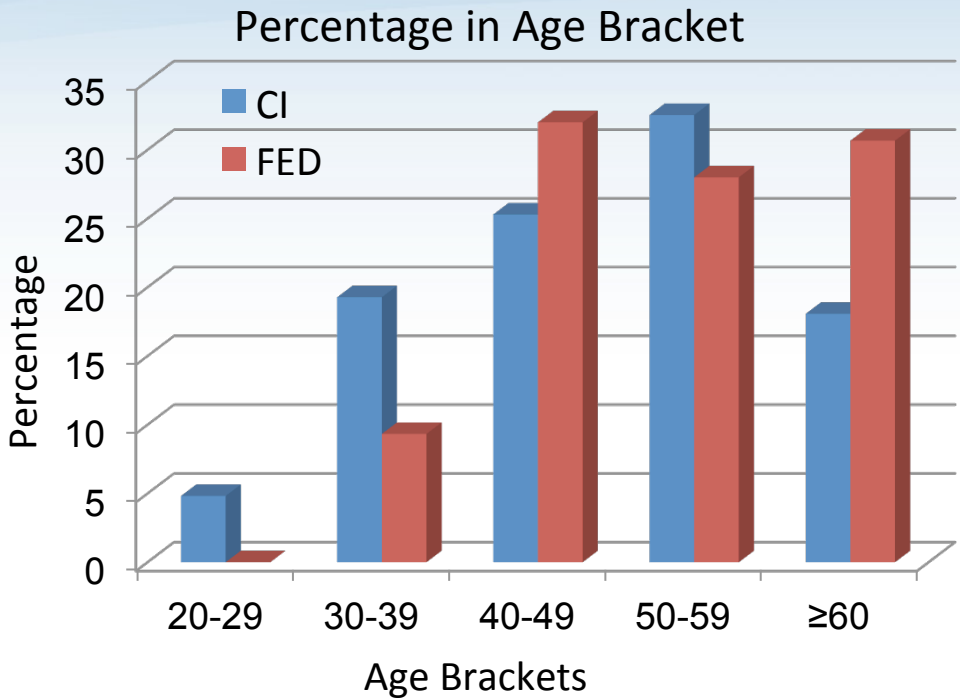
JIMAR
University of Hawaii

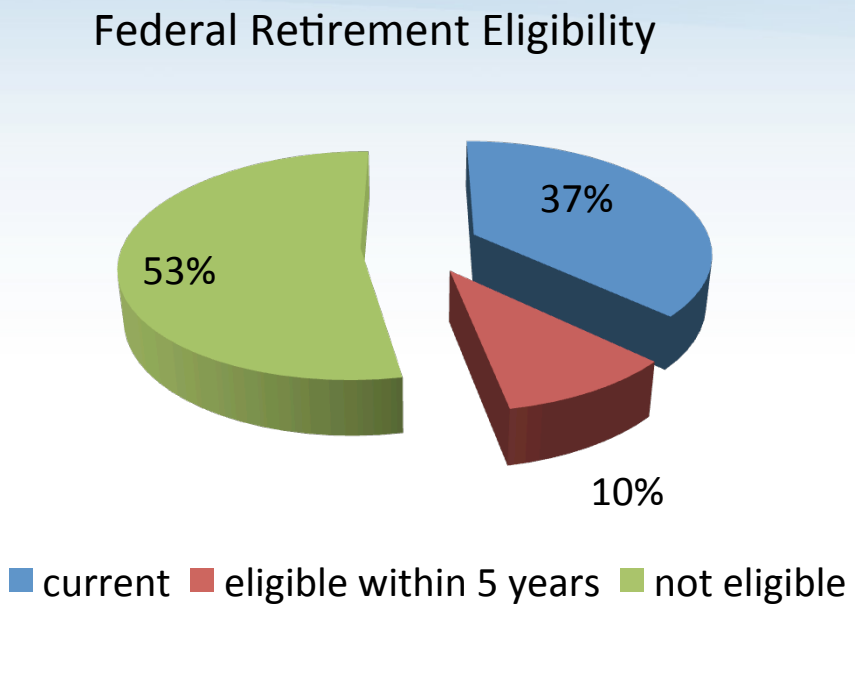




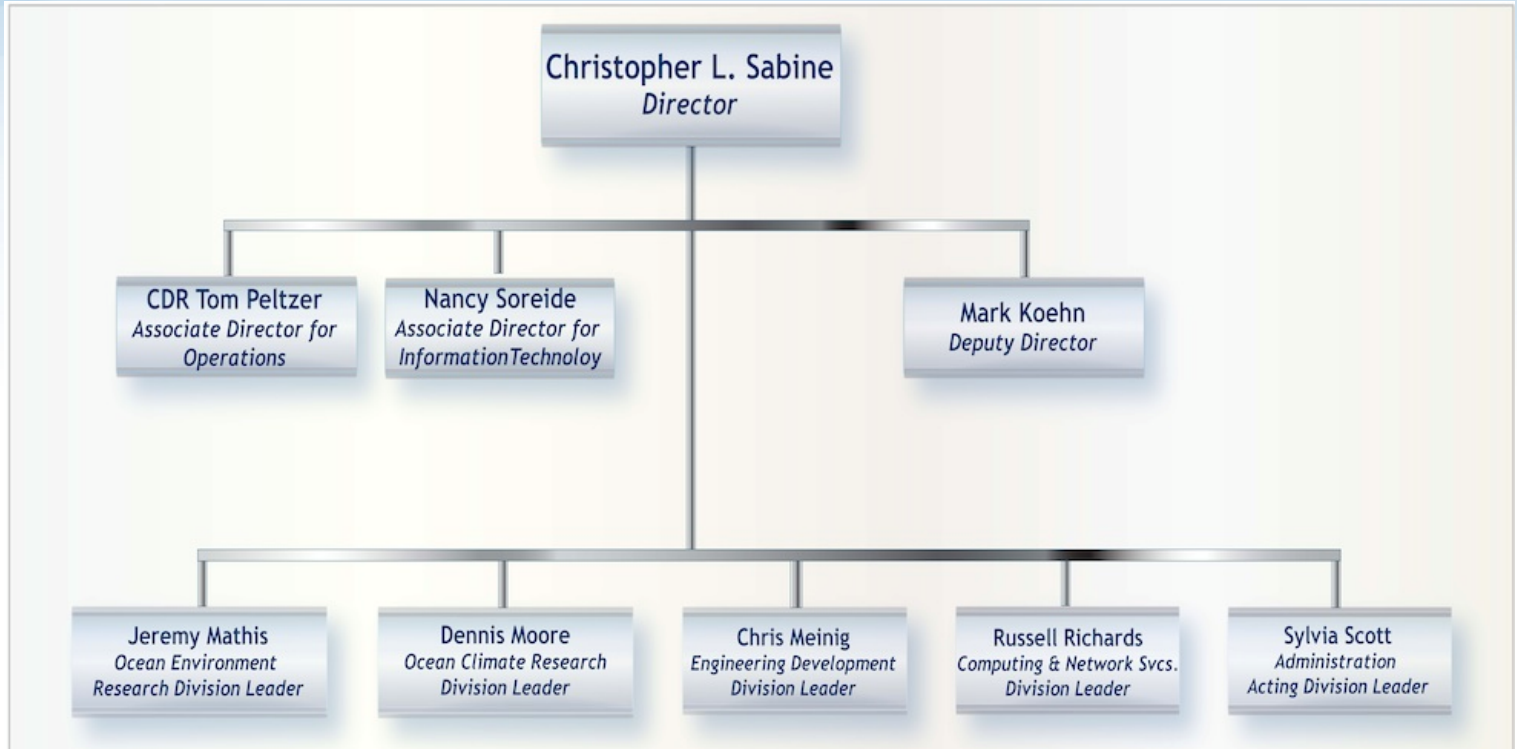
Pacific Marine Environmental Laboratory

Providing the critical advancement of knowledge about the global ocean and its interactions with Earth, atmosphere, ecosystems, and climate





Organization



PMEL Strategic Plan

PMEL's Vision of the future:

"An informed society that relies on PMEL's observations and the critical advancement of knowledge about the global ocean and it's interactions with the earth, atmosphere, ecosystems, and climate"

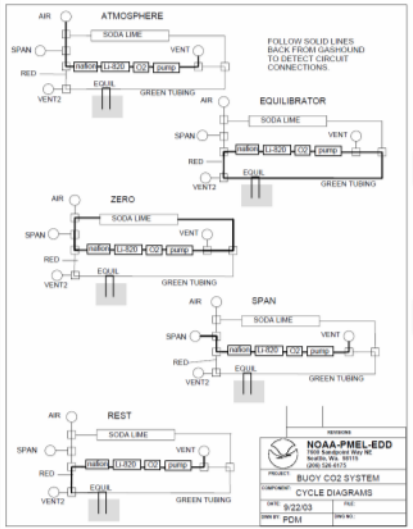
PMEL Mission:

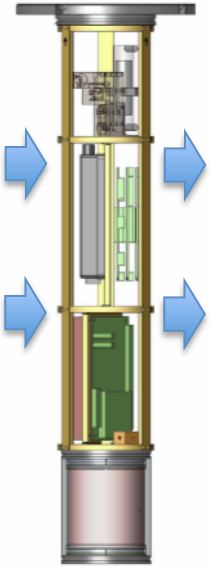
Innovate, Observe, Understand, and Inform

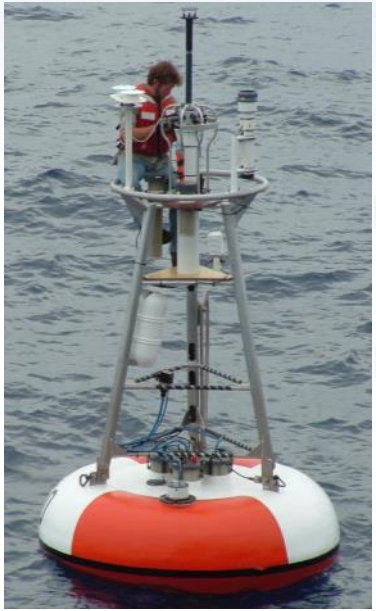
- Lead the development and deployment of innovative technologies
- Observe, analyze, and predict oceanic and atmospheric phenomena
- Identify and understand ocean-related issues of major consequence
- Inform society with well-documented, high-quality science

PMEL Strengths

Technical Innovation - Our engineers and software developers are involved in projects with the scientists from inception to completion.



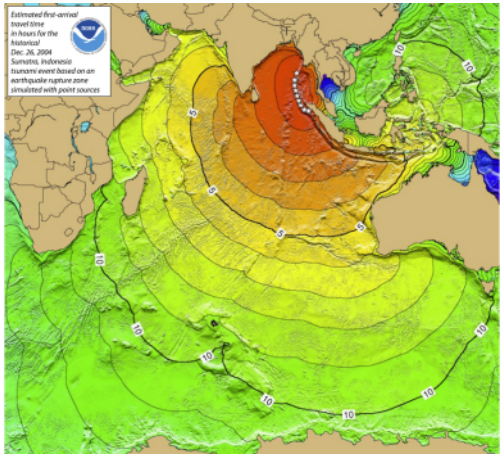




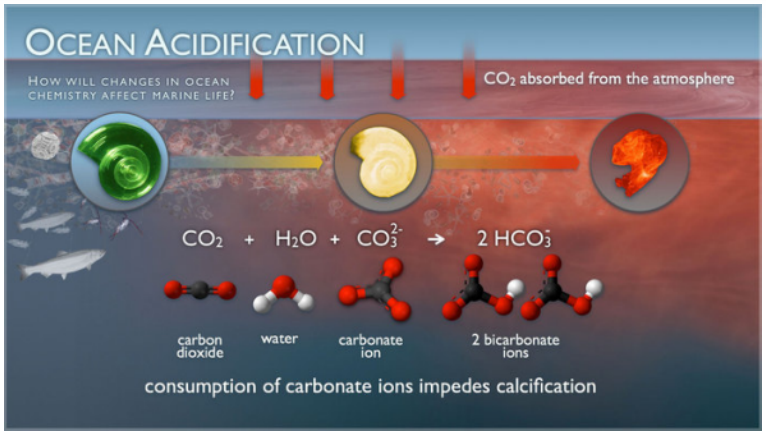
PMEL Strengths

Scientific Innovation - It is our job to identify emerging scientific issues, develop ways of improving the efficiency of observational networks, and explore poorly understood areas of the ocean.

PMEL was conducting research on tsunami detection and forecasting long before the 2004 Sumatra tsunami.



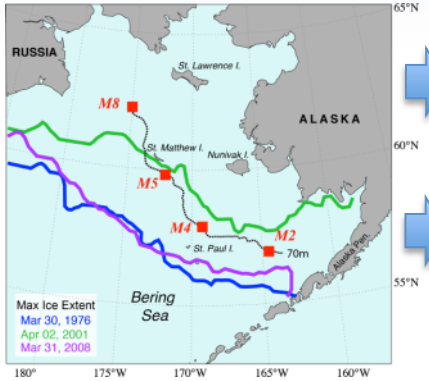
PMEL researchers provided the pioneering research on Ocean Acidification.



PMEL Strengths

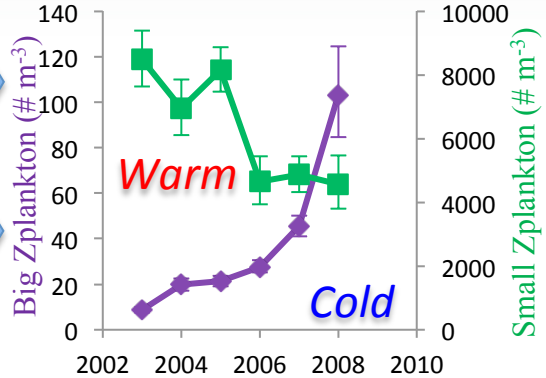
Core Science Infrastructure allows PMEL scientists to develop multidisciplinary synergies and provide the backbone for large-scale or long-term programs which many of our partners depend on.

Bering Sea Project - an NSF, NPRB and NOAA partnership to understand fisheries dynamics in the Bering Sea

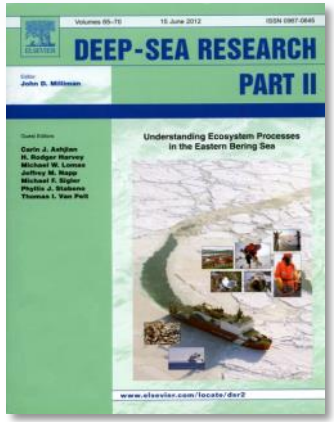


Background data

Core measurements for process study



Data Synthesis and interpretation



Paradigm shift and special issue

PMEL Strengths

Collaborations and Partnerships proactively developed with our academic colleagues and government counterparts in the US and abroad to leverage our research funding and expertise

5-Year Review

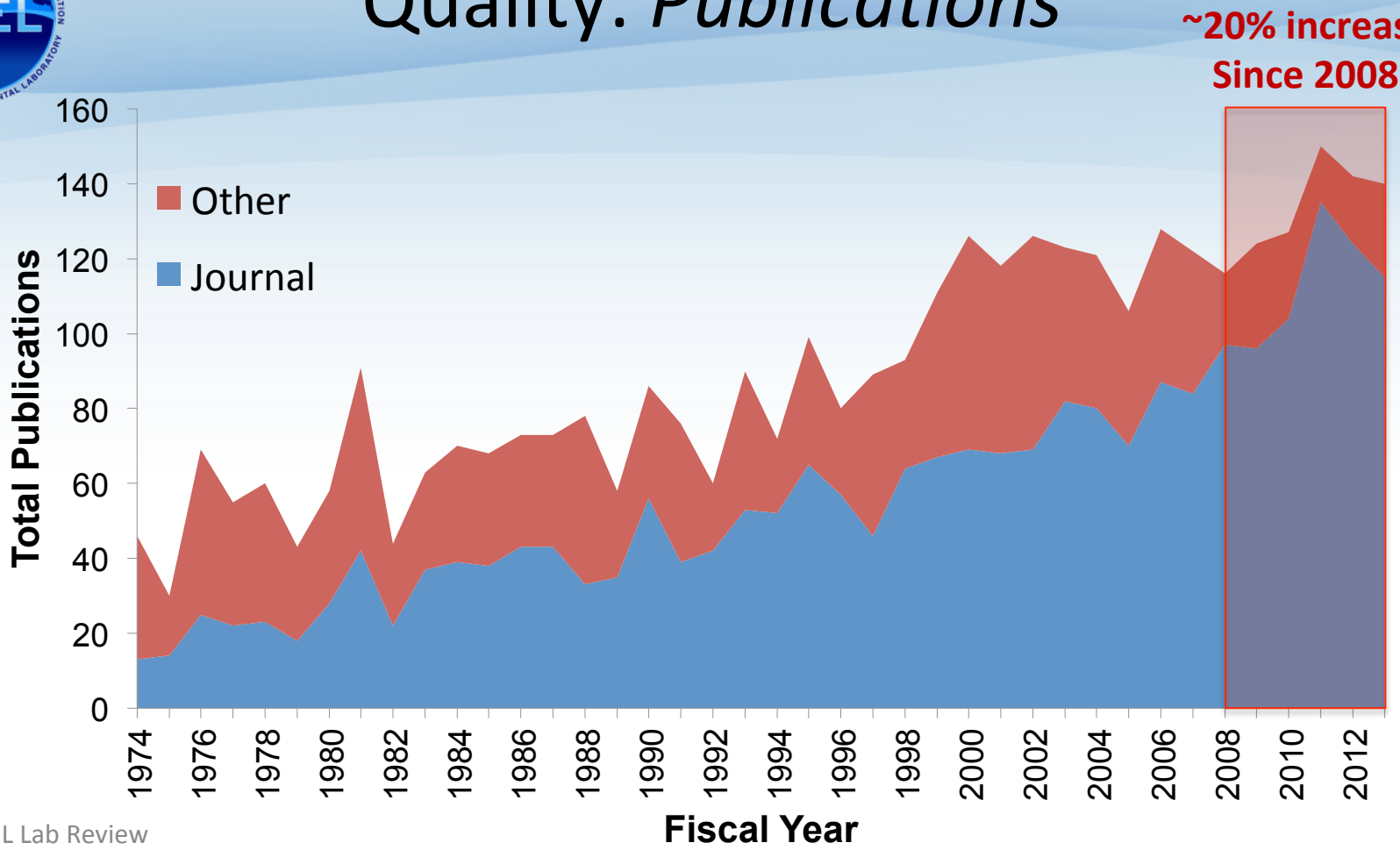
Criteria:

Quality

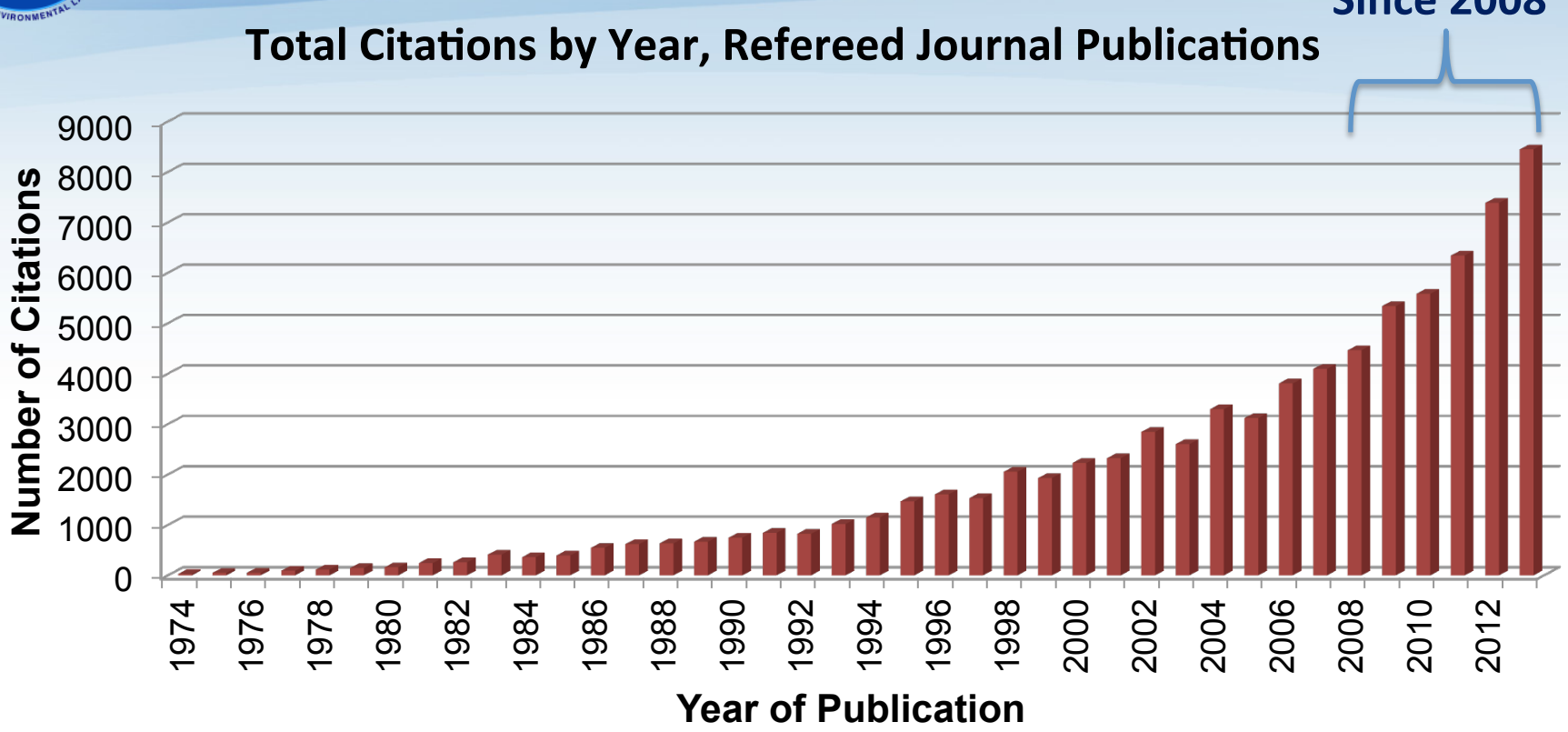
Relevance

Performance

Quality: *Publications*

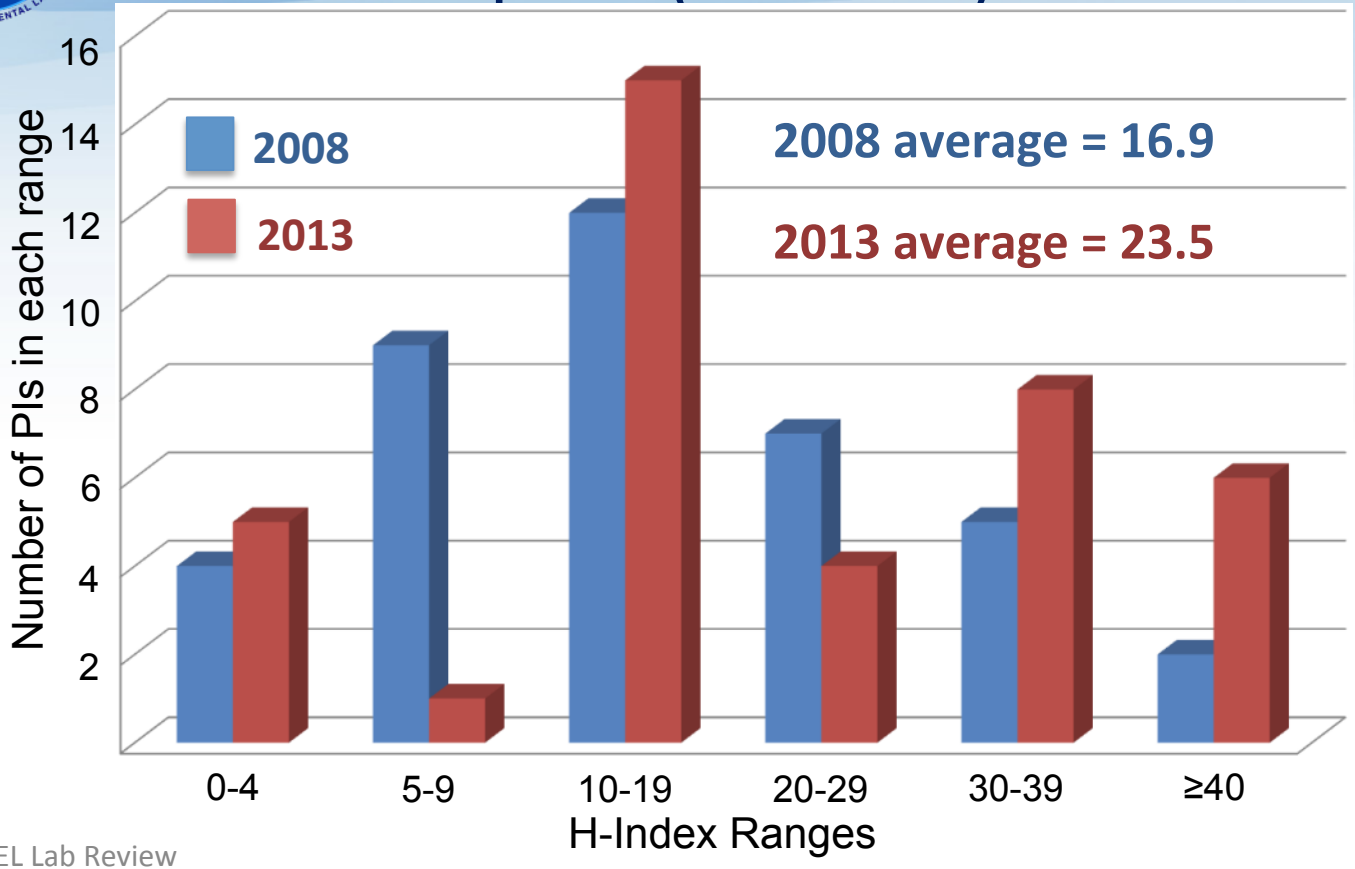


Quality: *Citations*



Quality: *H-index*

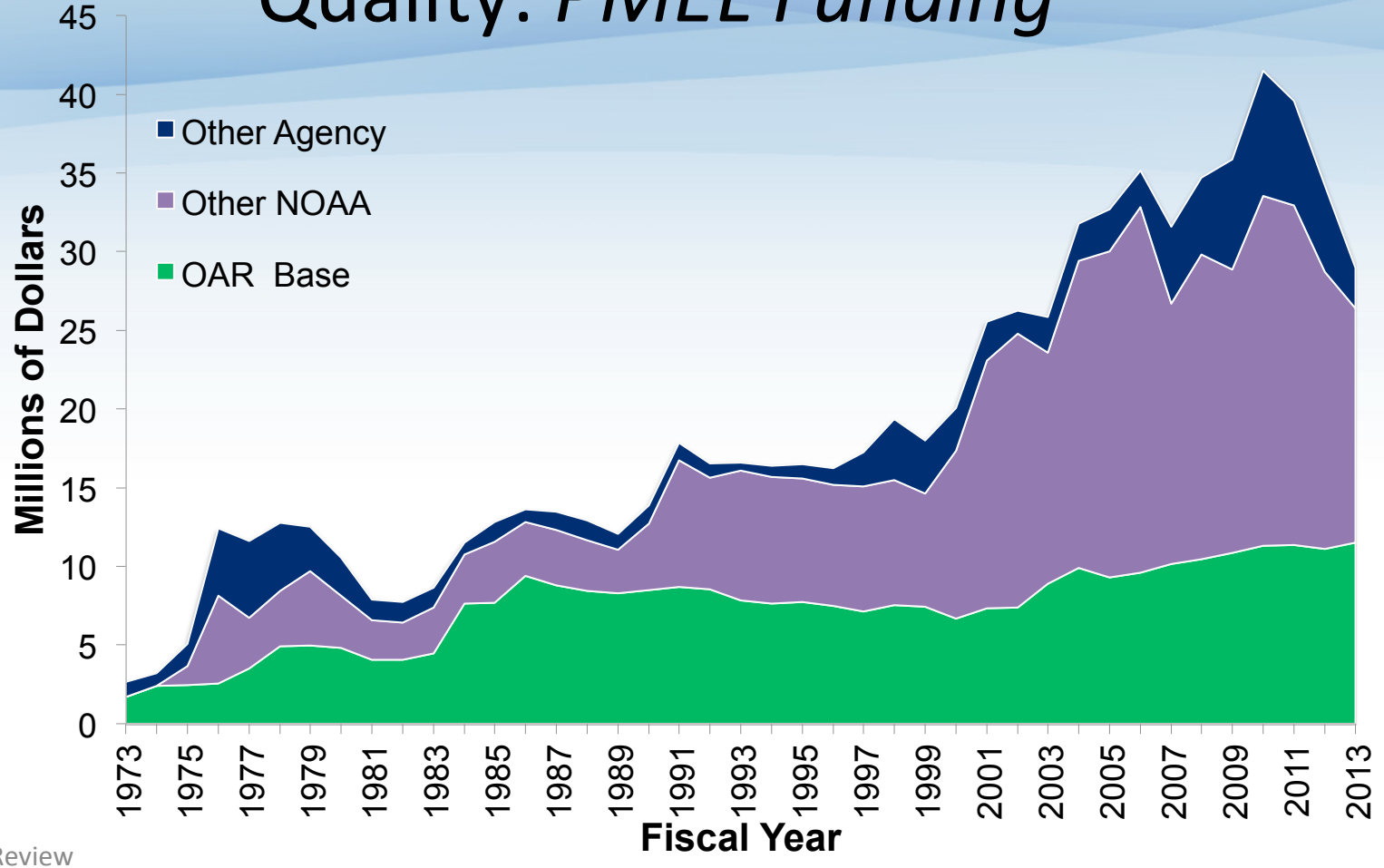
Hirsch-index Comparison (2008 to 2013) for PMEL's 39 PIs



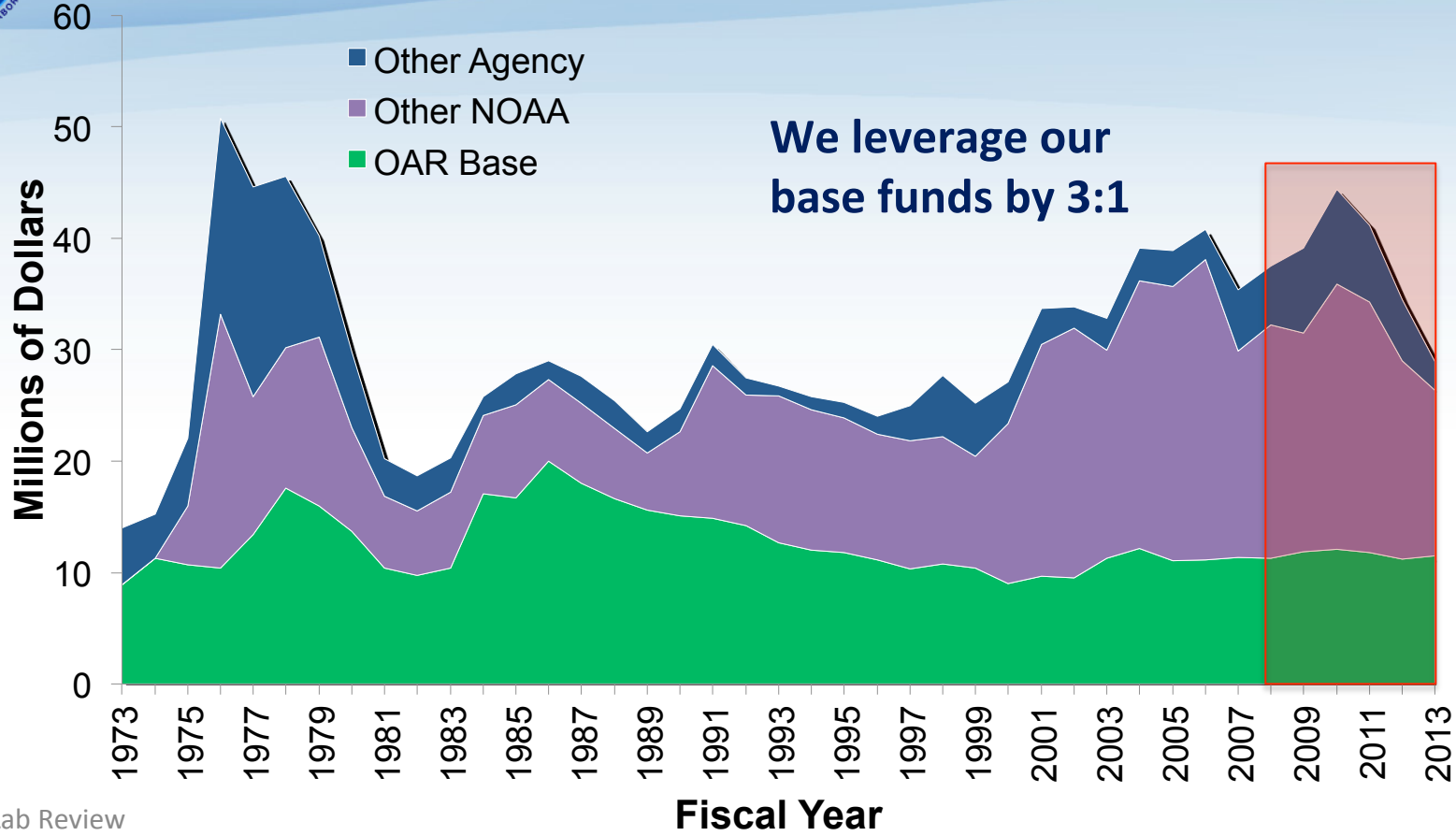
A scholar with an index of h has published h papers each of which has been cited in other papers at least h times.

Note: 7 PIs have changed since 2008

Quality: *PMEL Funding*



Quality: *Funding in 2013 Dollars*



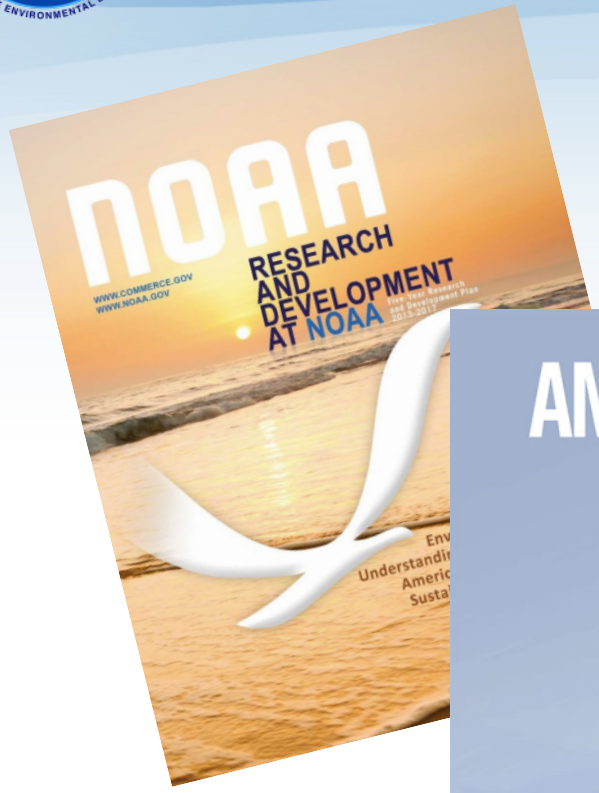
Quality: *Transfers to operations/applications*

10 Years

Green = Change in last 5 yrs

Project	Science Products	Science Planning	Exp. Design	Prototype Dev.	Implement	Transition to ops/app
DART Array	✓	✓	✓	✓	✓	✓
TAO Array	✓	✓	✓	✓	✓	✓
Tsunami Modeling	✓	✓	✓	✓	✓	✓
Repeat Hydrography	✓	✓	✓	✓	✓	✓
Ocean Carbon	✓	✓	✓	✓	Underway	
PIRATA & RAMA	✓	✓	✓	✓	Underway	
Alaska/Arctic Ecosys.	✓	✓	✓	UW (Arctic)	UW (Alaska)	
Ocean Acidification	✓	✓	✓	Underway		
Ocean Noise	✓	✓	✓	Underway		

Relevance: *Aligned with High-Level Strategic Planning*



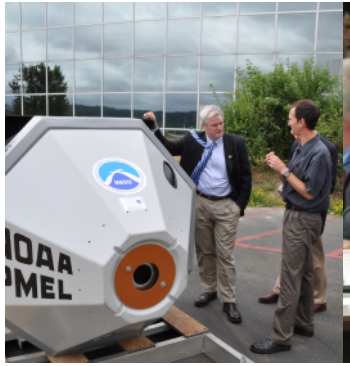
Relevance: *Community Connections*

Stakeholder Discussion Tomorrow

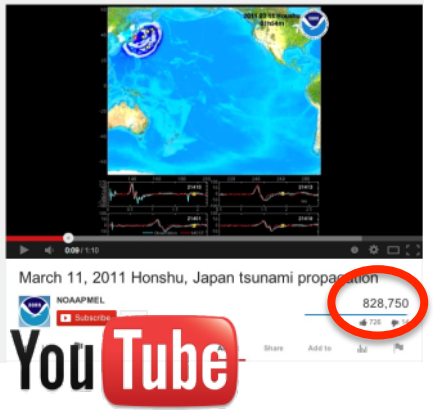
Public Outreach

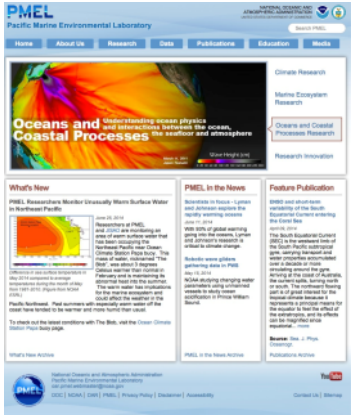
- Public outreach events from 2009-2013 reaching 29,000 people
- 12 yrs. of Science Camp has engaged >1,500 middle school kids
- 1,900 YouTube Channel subscribers and 2.4M views
- 733M PMEL home site hits 2009-2013 (5 years)
- November 2013 PMEL had 195K unique hits from 168 countries

Congressional Outreach

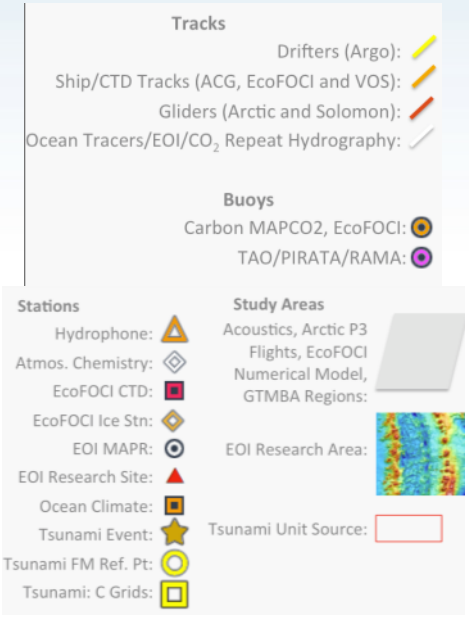


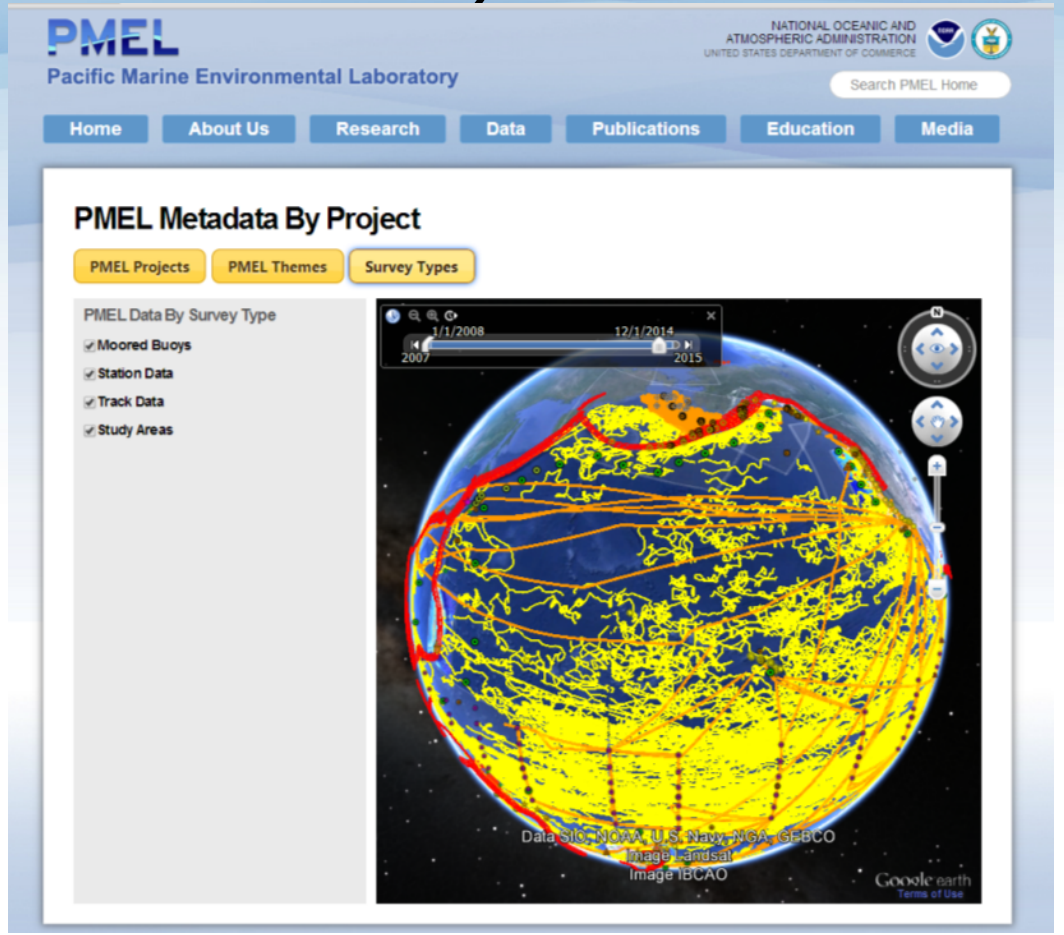
Web Outreach



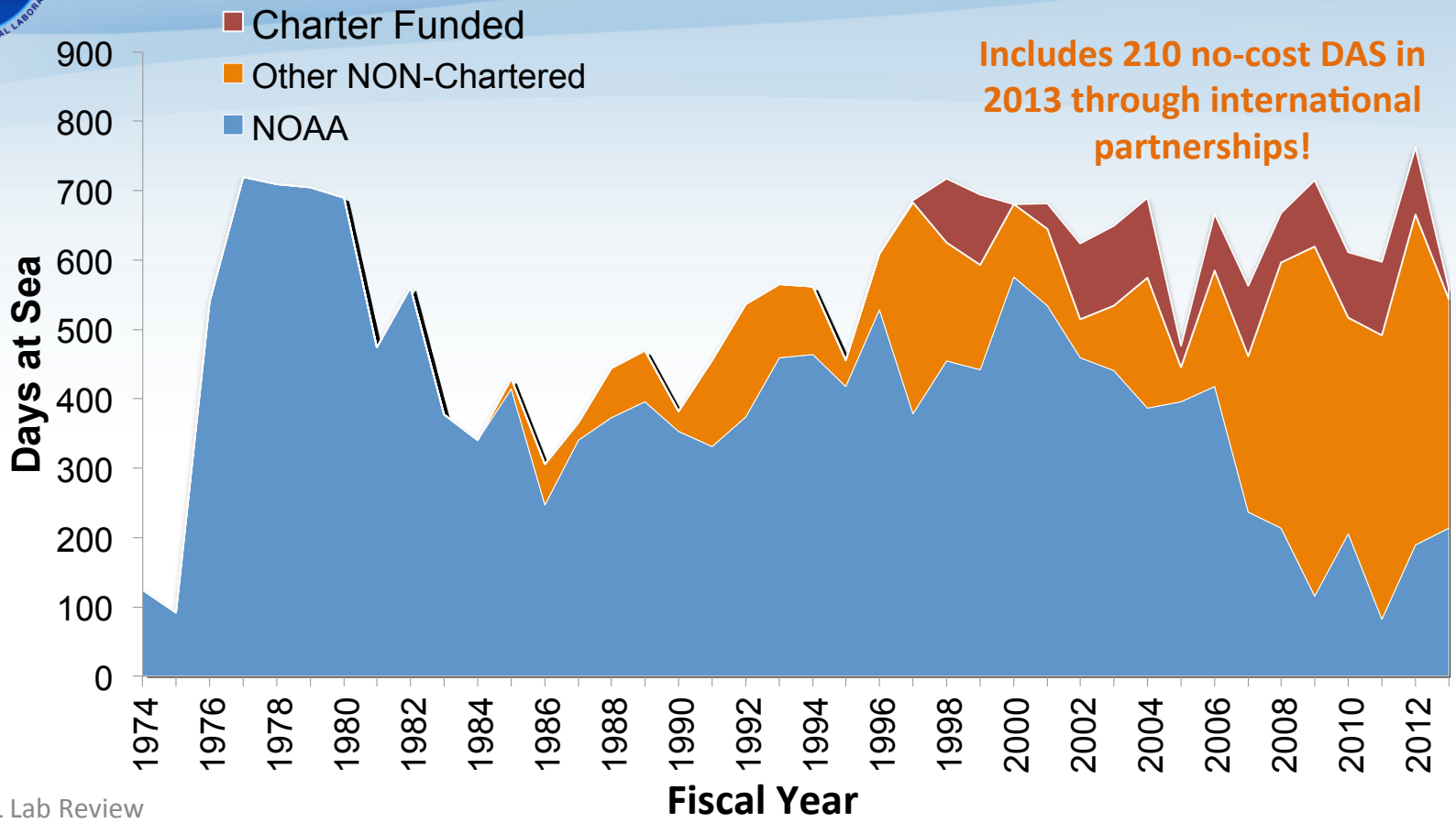


Performance: *Publicly Available Data*





Performance: *Ability to secure Ship Time*



Performance: *Harvard Business Review*

The best performing organizations typically display a set of performance attributes that align with the organization's strategy and reinforce the right employee behaviors. Our research revealed seven of these:

- **Honest**
- **Performance-focused**
- **Accountable and owner-like**
- **Collaborative**
- **Agile and adaptive**
- **Innovative**
- **Oriented toward winning**

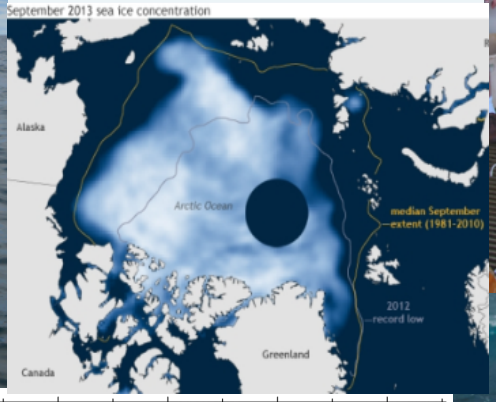
http://blogs.hbr.org/2013/12/the-definitive-elements-of-a-winning-culture/

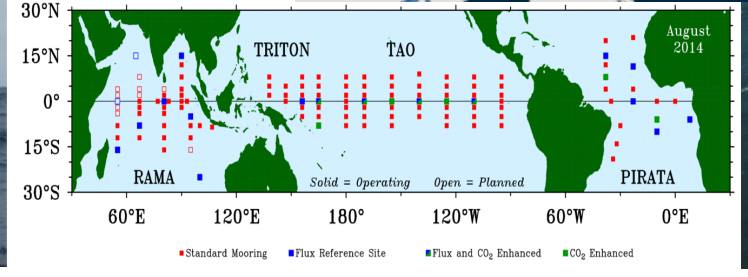
Climate Research Theme

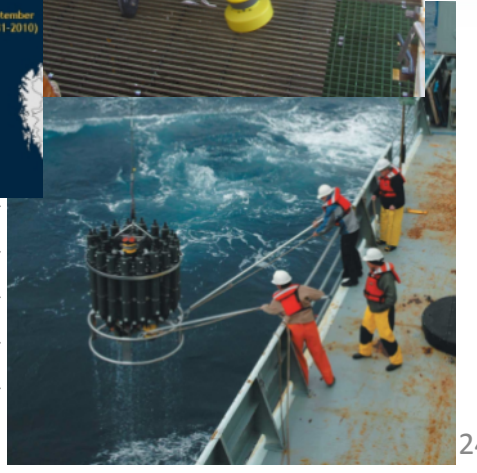
Understanding and predicting changes in climate, weather and the oceans

PMEL Projects in Climate Theme:

Tropical Moored Buoy Array
Thermal Modeling and Analysis Project
Pacific Western Boundary Currents
Large-Scale Ocean Physics
Ocean Climate Stations
Ocean Carbon
Arctic Climate Dynamics
Atmospheric Chemistry





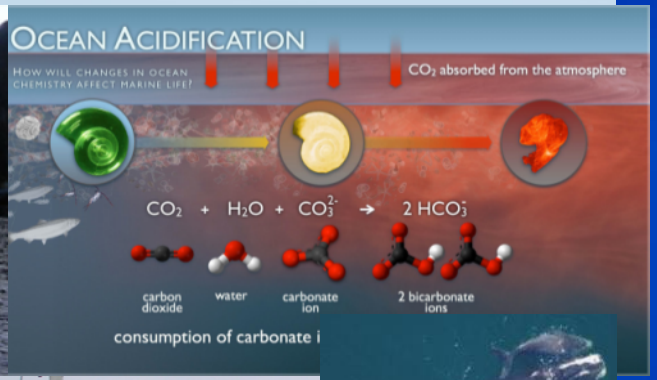


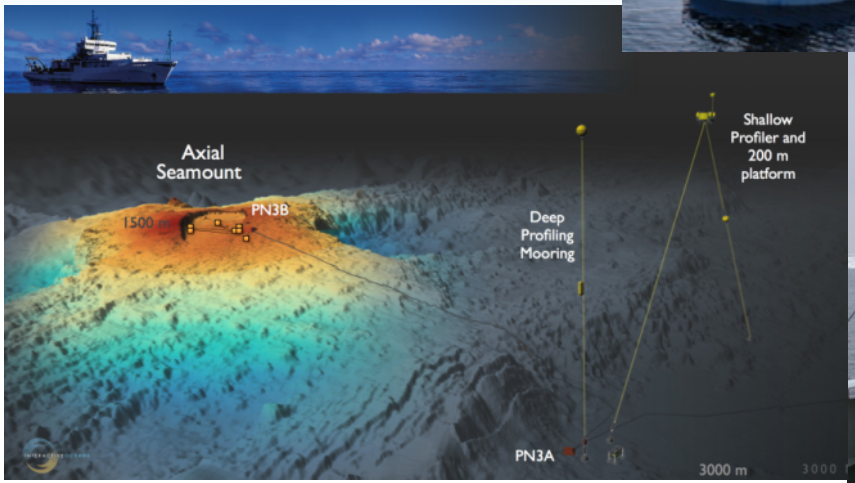
Marine Ecosystem Research Theme

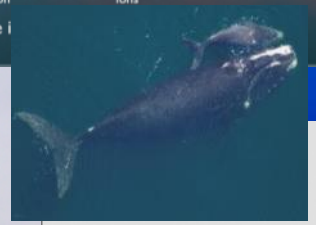
Understanding and predicting impacts of natural, physical, chemical, geological and anthropogenic processes

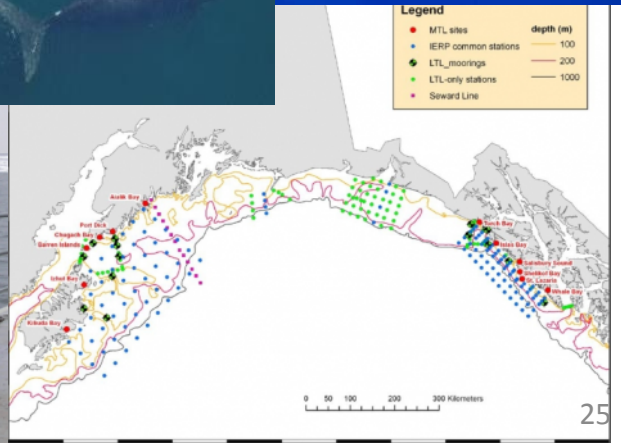
PMEL Projects in Ecosystem Theme:

Alaska Marine Ecosystems
Arctic Marine Ecosystems
Ocean Acidification
Acoustics
Earth-Ocean Interactions



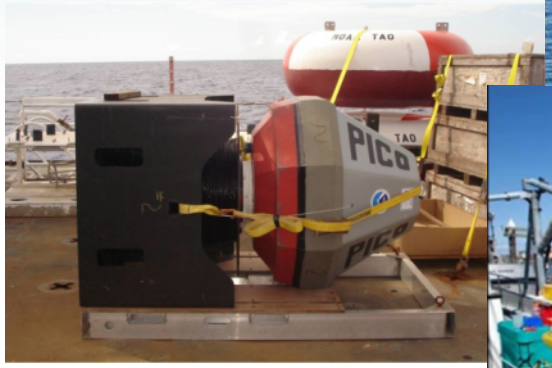


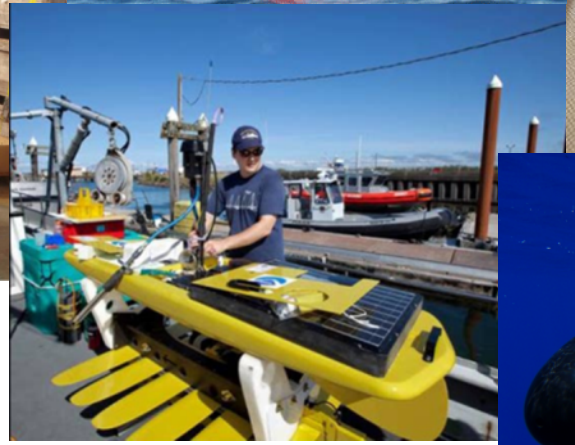




Research Innovation Theme

PMEL Projects in Research Innovation Theme:
Engineering Development
Research IT
Data Management





Oceans and Coastal Processes Research Theme

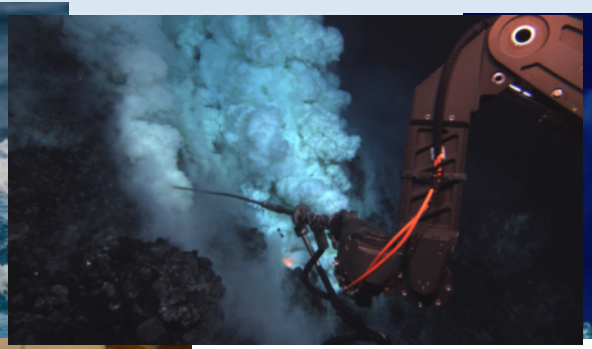
Understanding ocean physics and interactions between the ocean, the seafloor and atmosphere

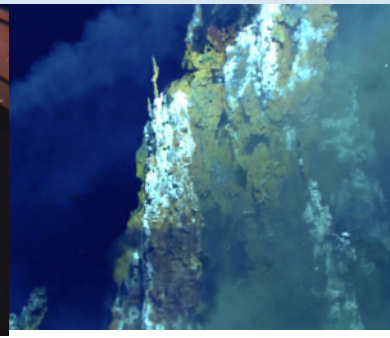
PMEL Projects in O&C Theme:

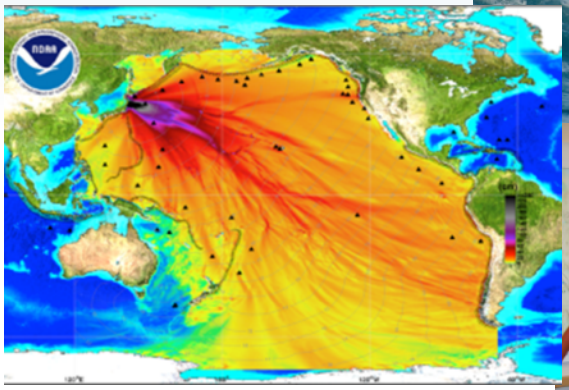
Ocean Tracers

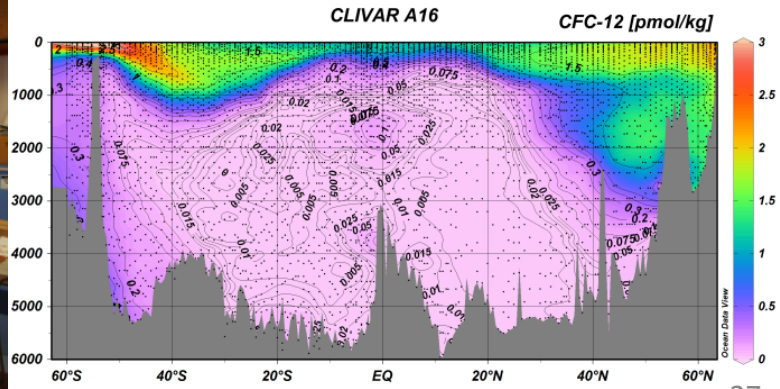
Earth-Ocean Interactions

Tsunami Research









Summary

- Although our name says we are the Pacific Marine Environmental Laboratory, we maintain a global focus.
- Our ability to take large multi-investigator and multi-institutional projects from inception to development to implementation to public dissemination and publication is a unique aspect of our lab and extremely valuable to the scientific community.
- PMEL's preeminence and legacy stems from our ability to collect large-scale sustained observations that are quickly made publicly available.
- Innovation is a critical component of our lab and an important key to our success.
- We are a cohesive collection of researchers who work closely together to learn from each other's experiences and find synergistic opportunities to promote multidisciplinary research.

Questions?