

# This Afternoon's Line-up



**13:30** Gretchen Hofmann, UCSB  
*Global change functional genomics in the study of ocean acidification*

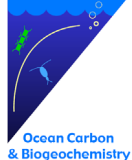


**14:00** David Hutchins, USC  
*Changing nutrient cycles and ocean biology in a high- $CO_2$  world*



**15:00** Joan Kleypas, NCAR  
*Update on U.S. ocean acidification*

**15:35** Cisco Werner, Rutgers  
*Addressing ecological thresholds in ocean acidification research*



# **OA Update**

**July 2008 – July 2009**

**in 5 minutes**

**OCB Activities**

**National Highlights**

**International Highlights**



# **OCB OA Activities**

## **Formation of the OCB Subcommittee on Ocean Acidification**

**Charge: Track current research on OA and make recommendations regarding future research needs**

### **Current Subcommittee Members:**

**Richard Feely** NOAA/PMEL (co-chair)

**Joan Kleypas** NCAR (co-chair)

**Barney Balch** Bigelow Laboratory

**Scott Doney** WHOI

**Vicki Fabry** CSU-San Marco

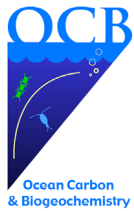
**Jean-Pierre Gattuso** CNRS, France (International Representative)

**David Hutchins** USC

**Chris Langdon** U. Miami

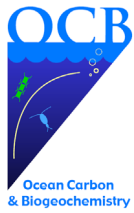
**Lisa Robbins** USGS

**Richard Zeebe** U. Hawaii



# OCB OA Activities

1. **Workshop Report:** Fabry, Langdon, et al. (2009) *Present and Future Impacts of Ocean Acidification on Marine Ecosystems and Biogeochemical Cycles*, report of the OCB Scoping Workshop on Ocean Acidification Research, 9-11 October 2007, La Jolla, CA, XX pp.
2. **White paper:** *Ocean Acidification: Recommended Strategy for a U.S. National Research Program*
3. **Response:** EPA Notice of Data Availability Ocean Acidification and Marine pH Water Quality Criteria [EPA-HQ-OW-2009-0224; FRL-8892-5]
4. **Response:** JSOST call for comments on Ocean Research Priorities Plan
5. **Contribution:** National Academies Response to Committee on America's Climate Choices Request for Ocean Acidification White Paper
6. **Ocean Acidification Short Course:** NSF-sponsored, 2-week, hands-on course in support of Investigators planning to do ocean acidification research
7. **OCB website on Ocean Acidification** [THANK YOU Heather Benway]
8. **Special Issue on Ocean Acidification in *Oceanography***
9. **National Research Council Panel on Ocean Acidification**



# **OCB OA Activities**

## **Ocean Acidification Short Course**

**DATES: November 2-13, 2009**

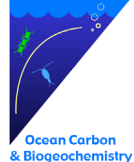
**LOCATION: Marine Biological Laboratory (MBL)  
and Woods Hole Oceanographic Institution  
(WHOI)**

**NUMBER OF PARTICIPANTS: ~50-60 participants  
(including instructors) from the OCB  
community, primarily targeted for junior to  
mid-level faculty and postdoctoral scientists**

**FORMAT: Lecture, laboratory, and field  
components as appropriate**

**OTHER: Lectures will be videotape and archived --  
possible inclusion in the ASLO Web Lecture  
Series**

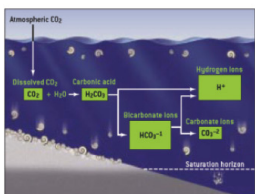




# OCB Ocean Acidification Website

## Ocean Acidification Resources for Scientists

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**WELCOME TO THE OCB OCEAN ACIDIFICATION WEBSITE**  
 Oceanic uptake of anthropogenic CO<sub>2</sub> is altering the seawater chemistry of the world's oceans with consequences for marine biota, ecosystems, and biogeochemistry. Understanding these impacts requires integrative approaches to understand the linkages among ecosystem components and feedbacks to climate. The [Ocean Carbon and Biogeochemistry \(OCB\) program](#) is a scientific community-driven coordinating body that promotes U.S. research and international cooperation to investigate the ocean's role in the global Earth system. With oversight from the [OCB Ocean Acidification Subcommittee](#), the OCB Project Office has developed this website as a clearinghouse of ocean acidification news and informational resources to support the ocean acidification research community.

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### the OCB Ocean Acidification Calendar

through time with the upper-left arrows. Click on any event to view details and a related URL. The events on this calendar are color-coded, with OCB meetings in blue, other relevant meetings and workshops in red, and funding targets and deadlines in gold. For more information about using this calendar and downloading events and deadlines to your own electronic calendar, please visit [www.google.com/support/calendar/](http://www.google.com/support/calendar/).

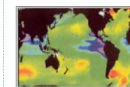
July 2009

Sun	Mon	Tue	Wed	Thu	Fri	Sat
28	29	30	Jul 1	2	3	4
		EPOCA Annual Meeting (Invitation only)	OCB Scoping Work			
5	6	7	8	9	10	11
12	13	14	15	16	17	18
		Decadal variations of the ocean's interior carbon cycle: Synthesis and vulnerabilities	National Institute of			
19	20	21	22	23	24	25
	OCB Summer Workshop					
26	27	28	29	30	31	Aug 1

Events shown in time zone: Eastern Time

- Research Aids
- Research Projects
- Tools and Resources
- Funding Opportunities

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**Research Projects**  
A list of ongoing ocean acidification research projects



**Data Tools and Resources**  
Data and modeling resources for the research community



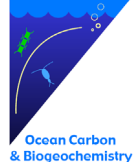
**Funding Opportunities**  
A list of federal agency funding opportunities for ocean acidification research

Last updated: May 20, 2009



### OCEAN ACIDIFICATION NEWS

- JULY 16, 2009:** Latest version of the [Science Policy Briefing on the "Impacts of Ocean Acidification"](#) now available
- JULY 10, 2009:** The sponsors (IOC, IGBP, Marine Environment Laboratories of the IAEA, and SCOR) of the [2nd Symposium on the Ocean in a High-CO<sub>2</sub> World](#) publish "Ocean acidification: Summary for Policymakers." Report is available at <http://www.ocean-acidification.net/>
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- MAY 12, 2009:** The [next U.S. Carbon Cycle Science Plan](#) is underway and needs your input! To comment on the CCSP [scoping document](#), please visit <http://carboncyclescience.blogspot.com/> or send your comments to the [OCB Project Office](#).
- APRIL 15, 2009:** EPA issues [request for information](#) regarding ocean acidification in order to reevaluate coastal water quality criteria.
- MARCH 25, 2009:** [Federal Ocean Acidification Research And Monitoring \(FOARAM\) Act passes Congress](#)



# FOARAM Act

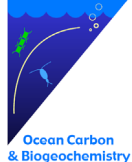
## Federal Ocean Acidification Research and Monitoring Act

**March 30, 2009: Signed into Law by President Obama, as part of the Omnibus Public Land Management Act of 2009**

**Funds appropriated (but not yet allocated):**



Year	NOAA \$ millions	NSF \$ millions
2009	8	6
2010	12	8
2011	15	12
2012	20	15



# National Research Council Report

## *Development of an Integrated Science Strategy for Ocean Acidification Monitoring, Research, and Impacts Assessment*

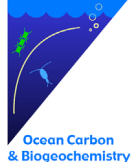
### Panelists:

- François Morel (CHAIR)** Princeton University  
**David Archer** University of Chicago  
**James Barry** Monterey Bay Aquarium Research Institute  
**Garry Brewer** Yale University School of Management  
**Jorge Corredor** University of Puerto Rico at Mayagüez  
**Scott Doney** Woods Hole Oceanographic Institution  
**Victoria Fabry** California State University, San Marcos  
**Gretchen Hofmann** University of California, Santa Barbara  
**Daniel Holland** Gulf of Maine Research Institute  
**Joan Kleypas** National Center for Atmospheric Research  
**Frank Millero** Univ. Miami Rosenstiel Sch. Marine and Atmospheric Science  
**Ulf Riebesell** Leibniz Institute of Marine Sciences, Kiel, Germany

### Timeline:

- 2 of 3 meetings completed  
Draft Report -- Sep/Oct 2009  
Final Report -- Jan-Mar 2010





# International Programs & Meetings

## Dedicated Programs:



Biological Impacts of Ocean ACIDification

## Meetings:

Oceans in a High CO<sub>2</sub> World, II – Monaco

Workshop on Best Practices in Ocean Acidification Research and Data Reporting – Kiel

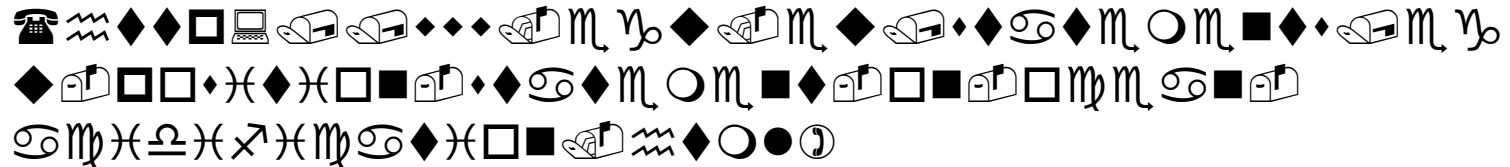
Symposium on Rising CO<sub>2</sub>, Ocean Acidification, and Their Impacts on Marine Microbes, Hawaii

2<sup>nd</sup> Annual EPOCA Workshop – Plymouth

# Declarations on Ocean Acidification

**The Second International Symposium on the Ocean in a High-CO2 World:  
The Monaco Declaration**

**European Geosciences Union Position Statement on Ocean Acidification**

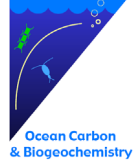


**European Science Foundation Policy Briefing (August 2009) *Impacts of Ocean Acidification***

**International Society for Reef Studies (2008) *Briefing Paper 5: Coral Reefs and Ocean Acidification***

**The Nature Conservancy and IUCN (2008) *The Honolulu Declaration on Ocean Acidification and Reef Management*, The World Conservation Union (IUCN)**

**Australian Department of Climate Change and the Antarctic Climate & Ecosystems Cooperative Research Centre (Australia) “The Hobart Communiqué” (2008): *Ocean Acidification: Australian Impacts in the Global Context***



# Media



**Scott Doney interview TODAY at 9:30 am**

**The Cape and Islands NPR station (WCAI)  
"The Point" with Mindy Todd**

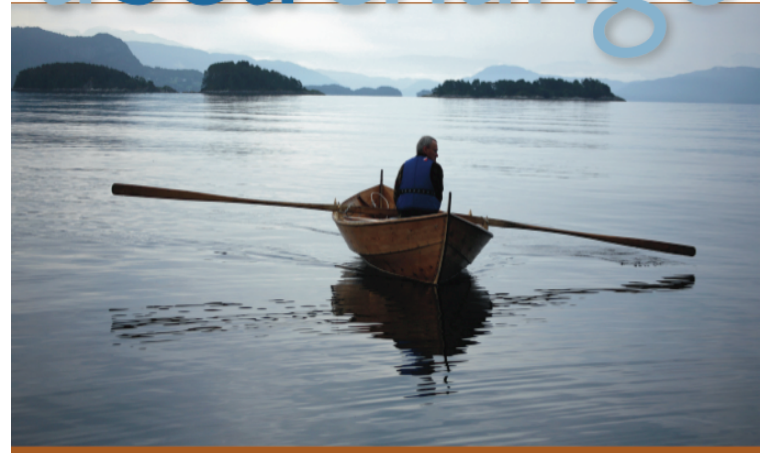


**Audio available online today at:**  
[http://www.wgbh.org/cainan/article?item\\_id=480593](http://www.wgbh.org/cainan/article?item_id=480593)

Scott's interview will be the last of three ~10 minute segments.

The Woods Hole Film Festival and the U.S. Ocean Carbon & Biogeochemistry Program present

# a seachange



*Global warming is only half the story. Excess carbon dioxide is dissolving in our oceans, changing sea water chemistry, and ultimately threatening the fish 1 billion people depend upon for their source of protein.*

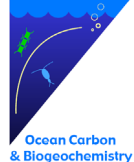
Join us for a special film screening  
**Monday, July 20**  
**7:00 pm**

followed by a panel discussion with film makers and scientists  
in Lillie Auditorium, 7 MBL St., Woods Hole

\$10 per ticket, \$8 for WGBH members  
\$7 for students and seniors

**IMAGINE  
A WORLD  
WITHOUT**





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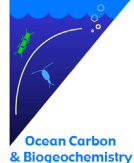


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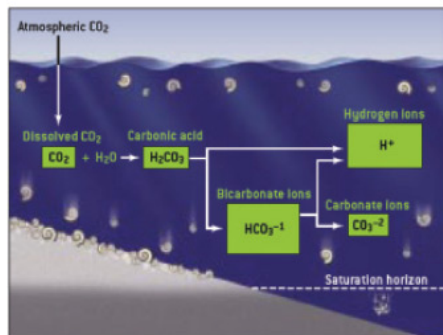
## Ocean Acidification

Studying ocean acidification's effects on marine ecosystems and biogeochemistry

Home | Calendar | Who's Who | Research Aids | Publications | Outreach

### Ocean Acidification Resources for Scientists

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#### WELCOME TO THE OCB OCEAN ACIDIFICATION WEBSITE

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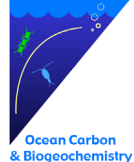
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# OCB Subcommittee on Ocean Acidification



## Ocean Acidification

Studying ocean acidification's effects on marine ecosystems and biogeochemistry

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### Calendar

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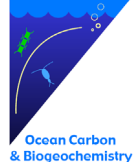
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Today ◀ ▶ July 2009 Print Week Month Agenda

Sun	Mon	Tue	Wed	Thu	Fri	Sat
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		EPOCA Annual Meeting (Invitation only)	OCB Scoping Work			
5	6	7	8	9	10	11
12	13	14	15	16	17	18
	Decadal variations of the ocean's interior carbon cycle: Synthesis and vulnerabilities National Institute of					
19	20	21	22	23	24	25
	OCB Summer Workshop					
26	27	28	29	30	31	Aug 1

Events shown in time zone: Eastern Time Google Calendar



**Ocean Acidification**  
*Studying ocean acidification's effects on marine ecosystems and biogeochemistry*

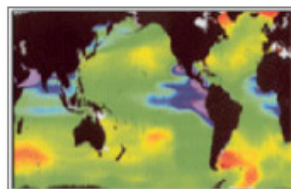
Home / Calendar / Who's Who / **Research Aids** / Publications / Outreach

The banner features a blue background with a large, semi-transparent "OCB" watermark. On the left, there is a diagram showing CO<sub>2</sub> entering the ocean, reacting with H<sub>2</sub>O to form H<sup>+</sup> ions. The text "Ocean Acidification" is prominently displayed in white, with the subtitle "Studying ocean acidification's effects on marine ecosystems and biogeochemistry" in yellow. Below the banner is a navigation menu with links for Home, Calendar, Who's Who, Research Aids (highlighted in green), Publications, and Outreach.

- Research Aids
- Research Projects
- Data Tools and Resources
- Funding Opportunities

## Research Aids

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### [Research Projects](#)

A list of ongoing ocean acidification research projects



### [Data Tools and Resources](#)

Data and modeling resources for the research community



### [Funding Opportunities](#)

A list of federal agency funding opportunities for ocean acidification research

*Last updated: May 20, 2009*