

OCB2019 Meeting Documents

Ocean Carbon & Biogeochemistry **2019 Summer Workshop** **June 24-27, Woods Hole, MA**

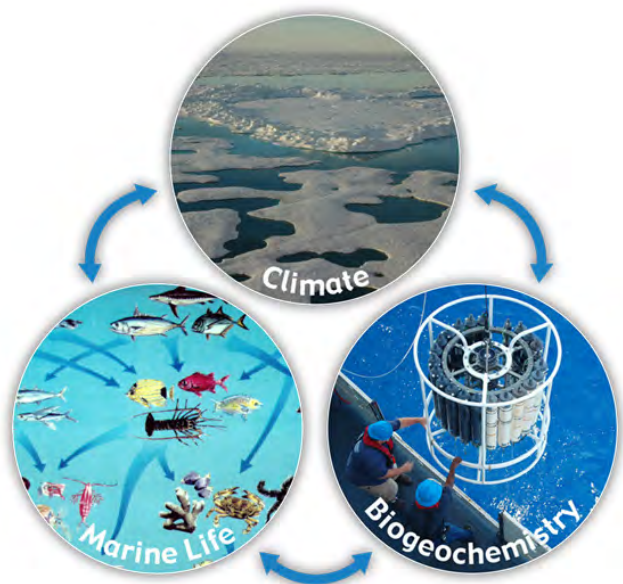
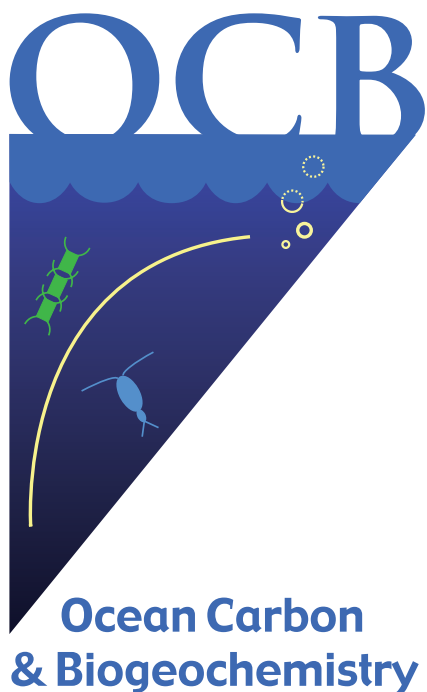


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Additional documents online at web.whoi.edu/ocb-workshop

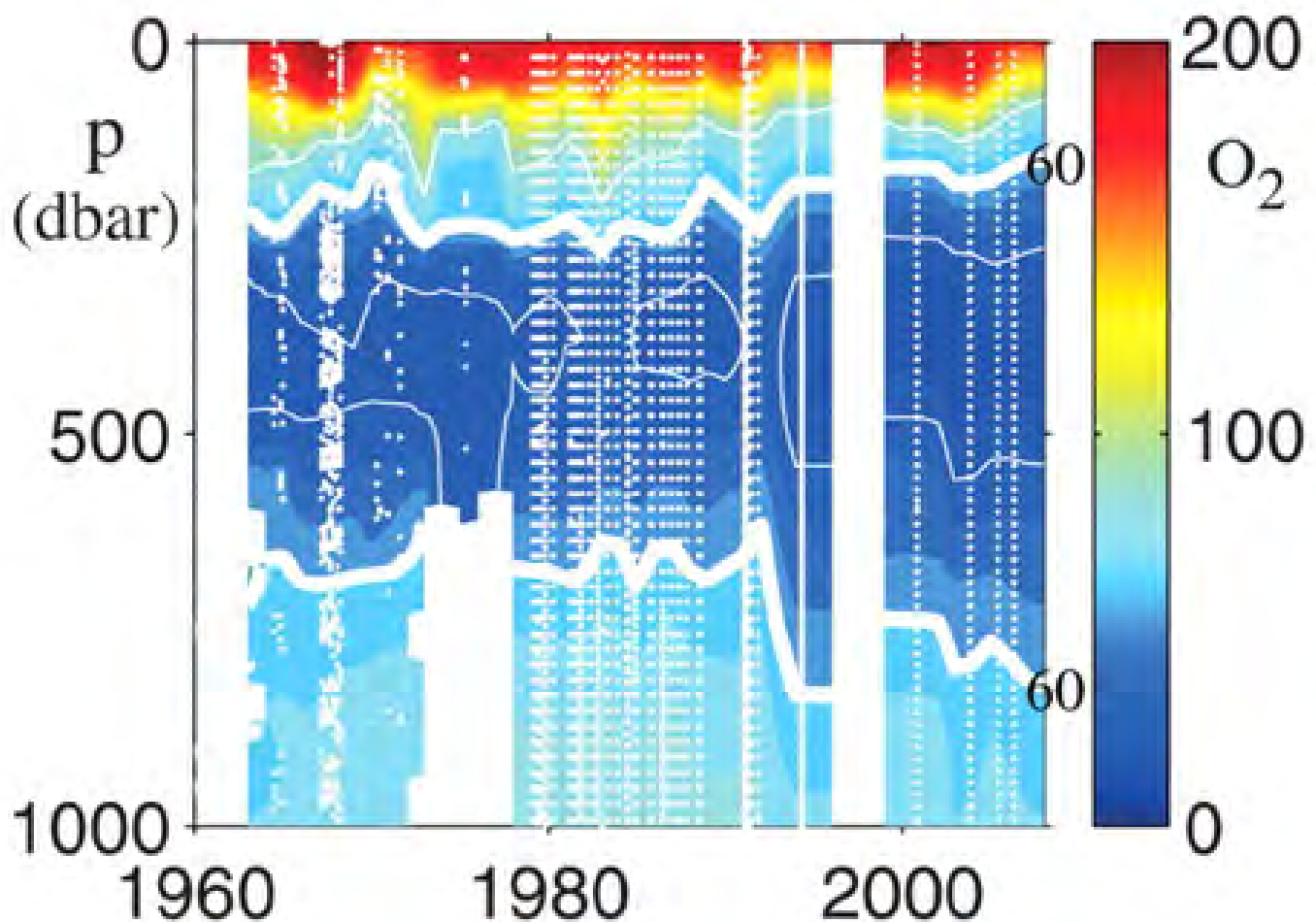
- OCB2019 Poster Abstracts
- OCB Activities Compendium 2019

Anthropogenic changes in ocean oxygen: Coastal and open ocean perspectives (Monday, June 24)

Chairs: Julie Granger, Adam Martiny, Alyson Santoro, and Ben Twining

Session Description: Warming waters, shifting circulation and ventilation, and coastal eutrophication are driving changes in dissolved oxygen levels in the coastal and open oceans. These changes have impacts on carbon and nutrient biogeochemistry, as well as the health of pelagic and benthic communities. At the same time, naturally occurring seasonal and interannual variability in dissolved oxygen complicates discerning the magnitude and even the sign of long term trends. This session will explore changes in oxygen concentrations observed across a range of environments (coastal to open ocean), while considering a range of physical, biological, and anthropogenic drivers of these changes, as well as their impacts.

Speakers: Andreas Oschlies (GEOMAR), Matthew Long (NCAR), Samantha Siedlecki (Univ. Conn), Malcolm Scully (WHOI), Jerry Tjiputra (UniResearch, Norway), Mariona Claret (U. Washington), Jeremy Testa (UMCES), Marjorie Friedrichs (VIMS)



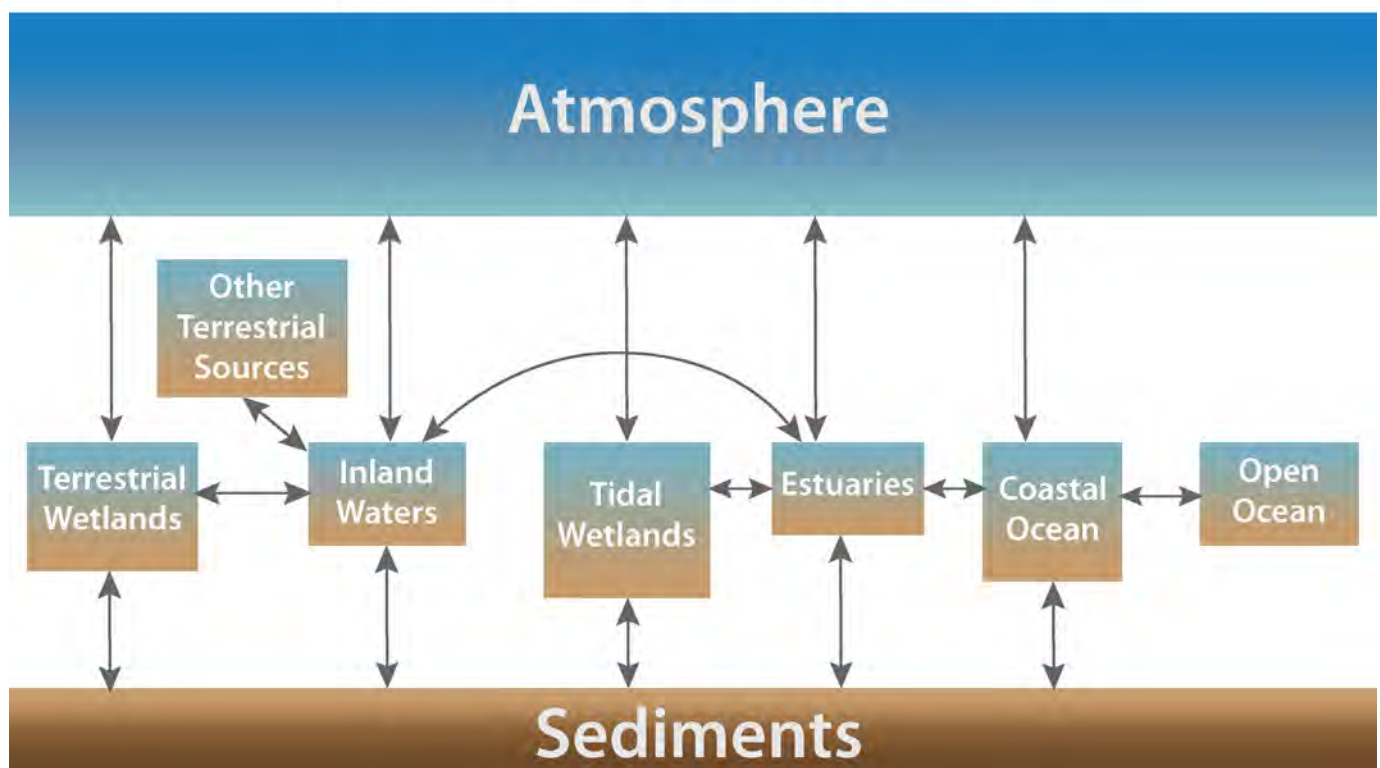
Approaches and challenges to understanding biogeochemical cycling across the land-ocean aquatic continuum (Tuesday, June 25)

Chairs: Marjy Friedrichs, Eileen Hofmann, Raleigh Hood, and Maria Tzortziou

Session Description: Despite their small area, the network of rivers, estuaries, and continental shelf waters that comprise the land-ocean continuum are central to global biogeochemical cycling, which has significant implications for ecosystem services such as carbon sequestration. Changes in land use and the effects of climate change are altering biogeochemical cycling across this interlinked continuum, often with detrimental effects, manifested as hypoxia and coastal acidification, for example. The ability to predict outcomes resulting from these changes and to develop scenarios for projections of possible future states is limited by understanding of linkages across this continuum. This session is intended to provide assessments of the current state of understanding of biogeochemical cycling across the land-ocean continuum, evaluations of current and needed approaches for observing and modeling system components, assessment of fluxes to the coastal ocean, and discussions of the challenges of development of future state scenarios.

Speakers: Xiao Liu (Princeton University and NOAA GFDL), Tom Bianchi (Univ. Florida), Iris C. Anderson (VIMS), Lee Cooper (UMCES), Joel Rowland (LANL)

Carbon and nutrient cycling across the land-ocean interface

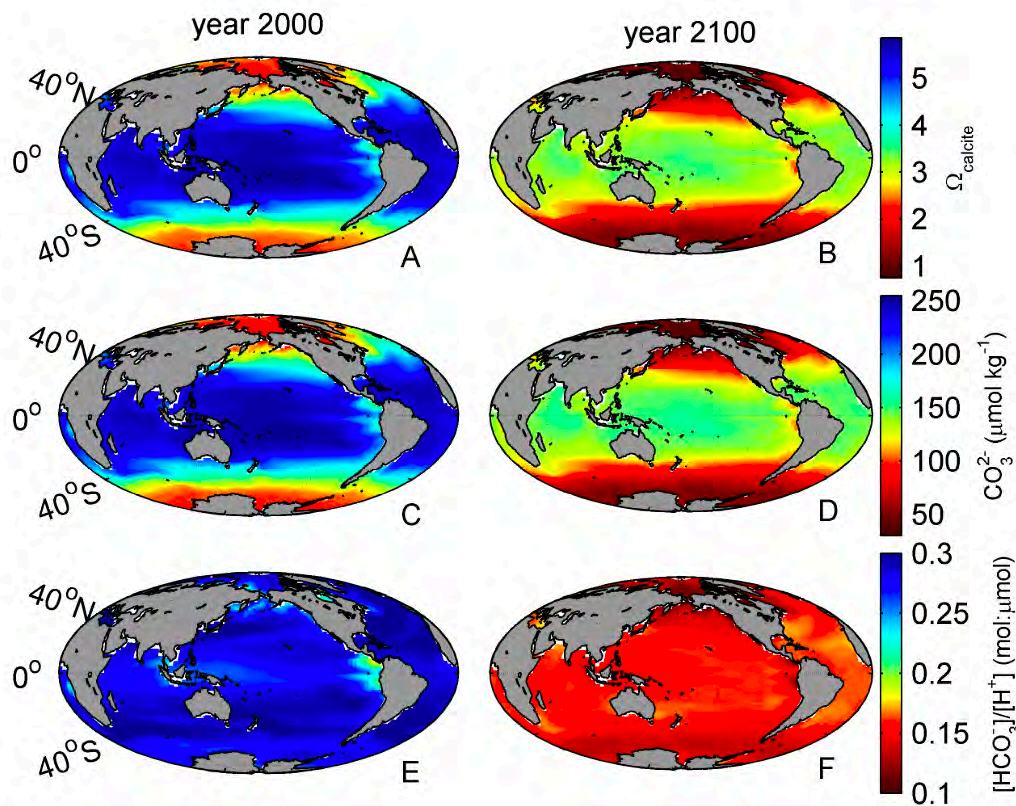


Calcification and the carbon cycle (Wednesday, June 26)

Chairs: Andrea Fassbender and Jessica Cross

Session Description: 2018 was a year of notable discovery regarding ocean carbonate chemistry, prompting community reflection on important aspects of the marine carbon cycle that are not yet fully understood. One of the major findings relates to changing seasonal cycle amplitudes for carbonate system parameters (e.g., $p\text{CO}_2$, $[\text{H}^+]$, and saturation state) caused by rising ocean temperatures and anthropogenic carbon concentrations. This phenomenon has been anticipated and hypothesized in the literature for over a decade; however, observational evidence at a global scale was just documented for $p\text{CO}_2$ in 2018. Complementary modeling work in the last year has also highlighted some of the implications for marine organisms that may be sensitive to pH and calcium carbonate saturation states in both coastal and open ocean regions. In recognition of these findings, this session will consider linkages between ocean chemistry and marine calcification from observational and modeling perspectives. This topic is particularly relevant due to an ongoing discussions in the community regarding which component of the carbonate chemistry (e.g., dissolved inorganic carbon and $[\text{H}^+]$ vs. saturation state) drives calcification.

Speakers: Andrea Fassbender (MBARI), Lennart Bach (GEOMAR/IMAS Hobart), Bernard Boudreau (Dalhousie), Weifu Guo (WHOI), Kristen Krumhardt (NCAR), George Waldbusser (OSU)



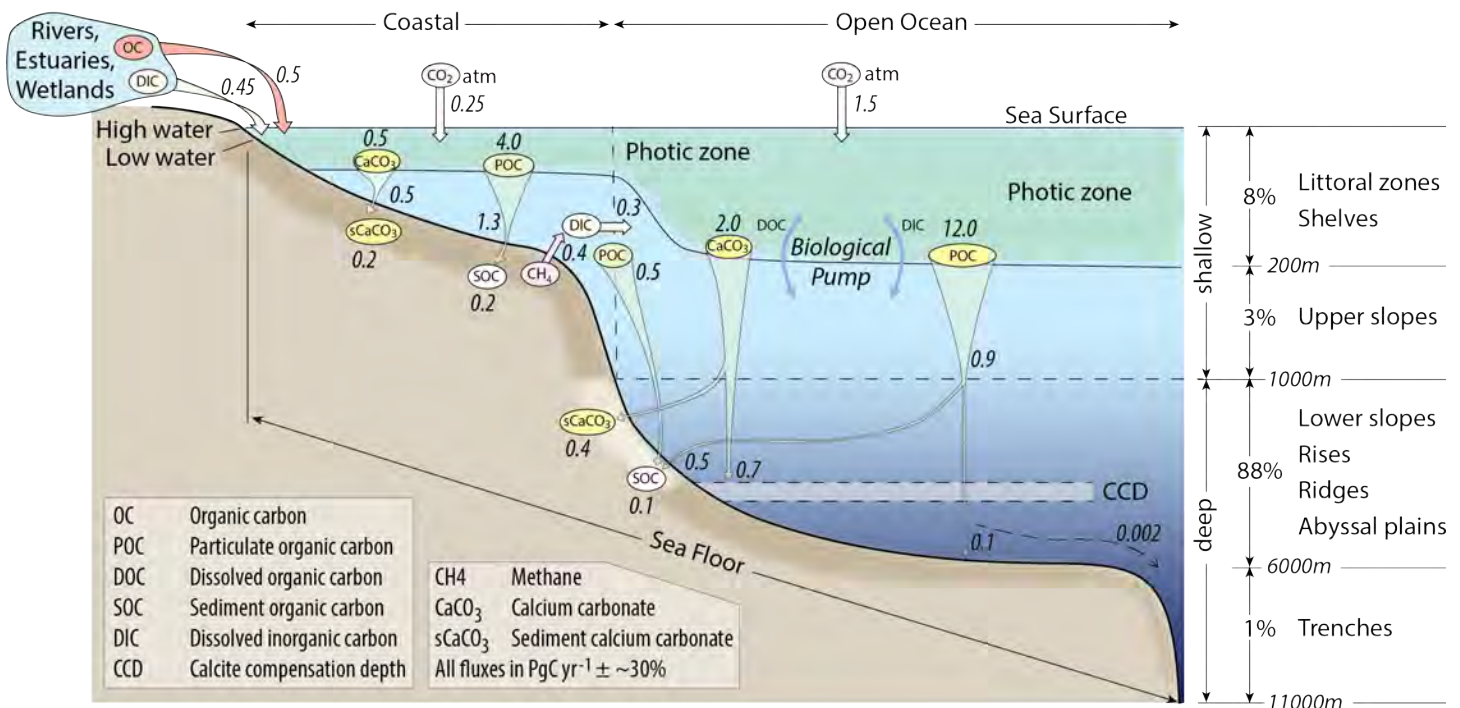
Carbon cycle feedbacks from the seafloor (Wednesday, June 26)

Chair: Clare Reimers

Session Description: The seafloor from shallow coastal regimes to the hadal ocean is an interface where carbon is cycled between dissolved and particulate forms, and organic and inorganic pools. This cycling can be the basis of major ecosystems and critical to the biogeochemical cycling of other elements. This session will focus on recent advances in approaches for characterizing the dynamics of benthic carbon cycling and fluxes and on the consequences of these processes. Topics will include seasonal assessments of benthic carbon metabolism within nearshore and shelf regions, the effects of anthropogenic CO₂ invasion into the ocean on calcification and carbonate dissolution in sediments, the effects of warming on gas hydrate destabilization, and carbon mineralization in ocean trenches.

Speakers: Clare Reimers (OSU), Kristen Fogaren (Oregon State Univ.), Amelie Berger (Univ. Virginia), Ronnie Glud (Univ. Southern Denmark), Katy Sparrow (FSU), Olivier Sulpis (McGill Univ.)

Principal Fluxes in the Present-Day Oceanic Carbon Cycle






The effect of size on ocean processes (allometry) and implications for export (Thursday, June 27)

Chair: Amy Maas

Session Description: Currently many major models use a suite of allometric relationships to describe and simplify complex interactions in natural systems and predict biogeochemical cycling. This session will describe current effective marine applications of allometry at a range of scales (organismal to ecosystem), but will also present research on the physiology and ecology of oceanic groups that highlight when allometry fails to constrain important variation. We will discuss a suite of alternative/supplementary “master traits” that appear to be informative, as well as the feasibility of including these in modeling efforts.

Speakers: Amy Mass (BIOS), Nick Nidzieko (UCSB), Anand Gnanadesikan (The Johns Hopkins Univ.), Karen Stamieszkin (VIMS), Ken Andersen (Technical University of Denmark)

Allometric Scaling!

- 1** Works across a wide range of species!

- 2**  Easy to calculate!
- 3**  Insufficient to adequately capture all important physiological variability

Ocean Carbon & Biogeochemistry (OCB) Summer Workshop

June 24-27, 2019 (Woods Hole Oceanographic Institution)

WORKSHOP AGENDA

SUNDAY, JUNE 23

6:30 pm Early career mixer (Grumpy's Pub, 29 Locust St., Falmouth)

MONDAY, JUNE 24

7:00 First shuttle pickup at Inn on the Square and Holiday Inn (2 separate shuttles)

7:30-8:30 Breakfast (tent outside of Redfield)

7:45 Second shuttle pickup at Inn on the Square and Holiday Inn (2 separate shuttles)

8:15-8:30* Final shuttle pickup at Inn on the Square and Holiday Inn (*You will miss breakfast)

Note: All shuttles will stop at Quissett parking lot before heading to Redfield

Welcome remarks

8:30-8:40 Mark Abbott (President & Director, WHOI)

8:40-8:50 Bethany Jenkins (Chair, OCB Scientific Steering Committee)

8:50-9:00 Heather Benway (Executive Officer, OCB Project Office)

Plenary Session 1. Anthropogenic changes in ocean oxygen: Coastal and open ocean perspectives (Redfield Auditorium)

Chairs: Julie Granger (Univ. Conn), Adam Martiny (UCI), Alyson Santoro (UCSB), Ben Twining (Bigelow)

9:00-9:25 Patterns of deoxygenation in the global ocean (Andreas Oschlies, GEOMAR)

9:25-9:50 Forced and unforced variations in ocean oxygen (Matthew Long, NCAR)

9:50-10:15 Oxygen as a proxy for detecting circulation and ventilation changes (Jerry Tjiputra, UniResearch, Norway)

10:15-10:40 Coastal deoxygenation in the northwest Atlantic due to a large-scale ocean circulation shift over the last century (Mariona Claret, JISAO/Univ. Washington)

10:40-11:10 Break

11:10-11:35 Processes that drive variability of hypoxia in the coastal ocean: Examples from the west coast of the US (Samantha Siedlecki, Univ. Connecticut)

11:35-12:00 Physical controls on dissolved oxygen and inorganic carbon dynamics in estuaries: Insights from simplified numerical models (Malcolm Scully, WHOI)

12:00-1:30 Lunch (tent outside of Redfield)

1:30-1:55 Biogeochemical controls on oxygen depletion across multiple scales in estuaries and the coastal ocean (Jeremy Testa, UMCES)

- 1:55-2:20 Long-term changes in Chesapeake Bay oxygen: impacts from global climate change and local anthropogenic stressors (Marjorie Friedrichs, VIMS)
- 2:20-2:45 Panel discussion

Community and agency updates

- 2:45-3:15 Agency updates and announcements (10 minutes each)
NSF - Hedy Edmonds, Mike Sieracki
NASA – Laura Lorenzoni
NOAA – Kathy Tedesco
- 3:15-3:30 Break
- 3:30-3:45 NASA PACE (Ivona Cetinić, NASA)
- 3:45-4:00 NASA EXPORTS (David Siegel, UCSB)
- 4:00-4:15 NASA Arctic-COLORS (Maria Tzortziou, CUNY)
- 4:15-4:30 Biogeochemical-Argo (Kenneth Johnson, MBARI)
- 4:30-5:15 **Student/postdoc lightning session**
- 5:15-5:30 Workshop shuttles transport participants to Clark building, Quissett Campus
- 5:30-6:00 Tours of NOSAMS and LOSOS (only for participants who signed up)
- 5:30-7:30 **Poster session and welcome reception** (Clark 5th floor)
- 7:00-8:00 Shuttles transport participants back to hotels

TUESDAY, JUNE 25

- 7:00 First shuttle pickup at Inn on the Square and Holiday Inn (2 separate shuttles)
- 7:30-9:00 Breakfast (Clark 5th floor, WHOI Quissett campus)
- 7:45 Second shuttle pickup at Inn on the Square and Holiday Inn (2 separate shuttles)
- 8:15-8:30 Final shuttle pickup at Inn on the Square and Holiday Inn
- 8:00-10:00 **Poster session** (Clark 5th floor)
- 10:00-10:30 Workshop shuttles transport participants to Redfield Auditorium, Village Campus

Plenary Session 2. Approaches and challenges to understanding biogeochemical cycling across the land-ocean aquatic continuum (Redfield Auditorium)

Chairs: Marjorie Friedrichs (VIMS), Eileen Hofmann (ODU), Raleigh Hood (UMCES), Maria Tzortziou (CUNY)

- 10:30-10:35 Session introduction and overview (Marjorie Friedrichs, VIMS)
- 10:35-11:05 Impacts of freshwater discharge patterns on the carbon cycle in microtidal estuaries (Iris Anderson, VIMS)

- 11:05-11:35 Carbon remineralization and burial in the coastal margin: Linkages in the Anthropocene (Thomas Bianchi, Univ. Florida)
- 11:35-12:05 Simulating nitrogen cycling and transport across the river-coast-ocean continuum: a global perspective (Xiao Liu, NOAA GFDL)
- 12:05-12:45 Panel discussion - Panelists: Anderson, Bianchi, Liu, Raymond Najjar (Penn State Univ.), Goulven Laruelle (Free Univ. Brussels)
- 12:45-2:00 Lunch (tent outside Redfield) (***NOTE: BCO-DMO data tool demo in Redfield Auditorium**)
- 2:00-2:45 Lightning talks

ARCTIC MINI SESSION

- 2:45-3:15 Changing freshwater fluxes to the Arctic Ocean: A tale of melted ice, river runoff, and the Bering Strait (Lee Cooper, UMCES)
- 3:15-3:45 Recent work on riverine fluxes to the Arctic Ocean with a brief overview of Earth System modeling gaps in linking land to ocean (Joel Rowland, LANL)
- 3:45-4:30 Panel discussion - Panelists: Cooper, Rowland, Jessica Cross (NOAA/PMEL), Paty Matrai (Bigelow)
- 4:30 Free time and dinner on your own (Shuttle will transport participants from Redfield to Quissett parking lot and hotels)

WEDNESDAY, JUNE 26

- 7:00 First shuttle pickup at Inn on the Square and Holiday Inn (2 separate shuttles)
- 7:30-8:30 Breakfast (tent outside of Redfield)
- 7:45 Second shuttle pickup at Inn on the Square and Holiday Inn (2 separate shuttles)
- 8:15-8:30* Final shuttle pickup at Inn on the Square and Holiday Inn (*You will miss breakfast)
- Note: All shuttles will stop at Quissett parking lot before heading to Redfield**

Plenary Session 3. Calcification and the carbon cycle (Redfield Auditorium)

Chairs: Andrea Fassbender (MBARI), Jessica Cross (NOAA/PMEL)

- 8:30-8:55 Session introduction and overview (Andrea Fassbender, MBARI)
- 8:55-9:20 Are we there yet? Predicting coral calcification response to ocean acidification: From microscale mechanisms to macroscale responses (Weifu Guo, WHOI)
- 9:20-9:45 Understanding the complex controls on biocalcification: A closer look at SIR and saturation state (George Waldbusser, OSU)
- 9:45-10:10 Carbonate chemistry control on coccolithophore calcification: New findings and future directions (Lennart Bach, GEOMAR/IMAS Hobart)
- 10:10-10:45 Break

- 10:45-11:10 The multifaceted response of coccolithophores to increasing CO₂: Recent observations and modeling (Kristen Krumhardt, NCAR)
- 11:10-11:35 The role of calcification in carbonate compensation (Bernard Boudreau, Dalhousie)
- 11:35-12:00 Panel discussion
- 12:00-1:30 Lunch (tent outside Redfield) (***NOTE: BGC-Argo lunch discussion in Redfield Auditorium** – anyone who is interested in learning more and/or applying BGC-Argo floats to their research is invited to this informal lunch discussion)

Plenary Session 4. Carbon cycle feedbacks from the seafloor (Redfield Auditorium)

Chair: Clare Reimers (OSU)

- 1:30-1:55 Carbon cycle feedbacks from the seafloor: Session introduction and overview (Clare Reimers, OSU)
- 1:55-2:20 Temperate seagrass bed metabolism and carbon sequestration (Amelie Berger, Univ. Virginia)
- 2:20-2:45 Seasonal benthic metabolism on the shelf of the northern California Current System (Kristen Fogaren, OSU)
- 2:45-3:10 The fate of sediment storehouses of ancient methane in a warming Arctic Ocean (Katy Sparrow, Florida State Univ.)
- 3:10-3:45 Break
- 3:45-4:10 Current CaCO₃ dissolution at the seafloor caused by anthropogenic CO₂ (Olivier Sulpis, McGill Univ.)
- 4:10-4:35 Hadal trenches hot spots for organic carbon cycling in the deep ocean (Ronnie Glud, Univ. Southern Denmark)
- 4:35-5:00 Panel discussion
- 4:45 Shuttle will transport participants from Redfield to Quissett parking lot and hotels)
- 5:00-6:30 **Agency program manager panel with early career scientists** (Smith Conference Room, Village Campus)
- 5:45 Shuttle starts looping from hotels with stop at Quissett parking lot to workshop dinner
- 6:30-9:00 **Workshop dinner**
- 8:00-9:30 Shuttle transports participants back to Quissett parking lot and hotels

THURSDAY, JUNE 27

- 7:00 First shuttle pickup at Inn on the Square and Holiday Inn (2 separate shuttles)
- 7:30-8:30 Breakfast (tent outside Redfield)
- 7:45 Second shuttle pickup at Inn on the Square and Holiday Inn (2 separate shuttles)
- 8:15-8:30* Final shuttle pickup at Inn on the Square and Holiday Inn (*You will miss breakfast)

Note: All shuttles will stop at Quissett parking lot before heading to Redfield

Plenary Session 5. The effect of size on ocean processes (allometry) and implications for export (Redfield Auditorium)

Chair: Amy Maas (BIOS)

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|-------------|--|
| 8:30-8:55 | Size: The master trait (for better and for worse) (Amy Maas, BIOS) |
| 8:55-9:20 | Allometric scaling of community metabolism in estuaries and large oceanic provinces (Nicholas Nidzieko, UCSB) |
| 9:20-9:45 | Allometry in large-scale models of ocean biogeochemistry: Underlying patterns and processes (Anand Gnanadesikan, Johns Hopkins Univ.) |
| 9:45-10:15 | Break |
| 10:15-10:40 | Using allometry to model copepod-mediated carbon flux - how well do we estimate key rates and variables? (Karen Stamieszkin, VIMS) |
| 10:40-11:05 | The mechanistic trait-based approach to ocean life (Ken Andersen, Technical Univ. Denmark) |
| 11:05-11:30 | Panel discussion |
| 11:30-12:00 | Overview and outcomes of the US GO-SHIP review facilitated by OCB and US CLIVAR (Alison Macdonald, WHOI and Heather Benway, OCB/WHOI) |
| 12:00-12:30 | OCB Phytoplankton Taxonomy Working Group Report (Heidi Sosik, WHOI and Aimee Neeley, NASA GSFC) |
| 12:30-12:45 | Adjourn workshop and closing remarks |
| 12:45-2:00 | Lunch (tent outside Redfield) |
| 1:00 | Shuttles start transporting participants back to Quissett parking lot and hotels |
| 1:30 | OCB Scientific Steering Committee (SSC) Meeting (Watson 201, Quissett Campus, SSC members and agency representatives only) |

OCB2019 POSTER LIST (alphabetical by author)

Presenting Author	Poster Title	Session/Topic
Archibald, Kevin	Grazer-mediated coexistence of competing phytoplankton species using the Kill-the-Winner functional response	Allometry
Bishop, James	Autonomous optics of the ocean biological carbon pump: PIC	Calcification
Blanco-Bercial, Leocadio	Zooplankton community response to seasonality at BATS by metabarcoding	General
Bourbonnais, Annie	Temporal changes in nitrous oxide sources and sea-air fluxes in the Southern Benguela	Land-ocean continuum
Buesseler, Ken	EXPORTS: using high resolution studies of thorium-234 at Ocean Station PAPA to elucidate spatial and temporal variability in particle export and attention	General
Busecke, Julius J.M.	The equatorial undercurrent and the Oxygen Minimum Zone in the Pacific	Oxygen
Carberry, Luke	Correcting in situ chlorophyll fluorescence time series observations for non-photochemical quenching and tidal variability reveals non-conservative phytoplankton variability in coastal waters	Land-ocean continuum
Chaichitehrani, Nazanin	Remote sensing-derived zooplankton biomass and grazing: Analyzing errors associated with models	General
Cliff, Ellen	Glacial deep ocean deoxygenation driven by biologically enhanced air-sea disequilibrium	General
Cruz, Bianca N.	Investigating zooplankton mediation of sinking particle flux in the Sargasso Sea	General
D'Sa, Eurico	Hurricane floodwater impact on optical-biogeochemical properties and carbon fluxes in a large estuary from ocean color	Land-ocean continuum
Da, Fei	Impacts of atmospheric nitrogen deposition and coastal nitrogen fluxes on oxygen concentrations in Chesapeake Bay	Oxygen

OCB2019 POSTER LIST (alphabetical by author)

Presenting Author	Poster Title	Session/Topic
Doney, Scott	Geostatistical analysis of mesoscale ocean biophysical variability in the western North Atlantic from field observations, remote sensing and numerical modeling	General
Dufault-Thompson, Keith	Metabolic remodeling under temperature acclimation: a case study in the <i>Shewanella</i> genus	General
Durkin, Colleen	A visual tour of carbon export pathways by sinking particles across ocean basins, depth, and time	EXPORTS/ Biological Pump
Estapa, Meg	Episodic particle flux: a sampling artifact?	Allometry
Feng, Zhixuan	Modeling the phytoplankton bloom dynamics on the northwest Atlantic Shelf: Spatial heterogeneity and interannual variability	Land-ocean continuum
Floge, Sheri	Marine viruses stimulate carbon flux to lower and higher trophic levels	General
Fong, Michael	Distribution of excess alkalinity in the open ocean	General
Fowler, Bethany	One million matrices: Size-structured modeling reveals in situ phytoplankton dynamics.	General
Garcia, Catherine	Remote sensing of global ocean surface phosphate concentrations	General
Gill, Sophie	The calcification response of coccolithophores to elevated ocean alkalinity	Calcification
Grubb, Austin	The costs and benefits of calcification on coccolithophore physiology	Calcification
Guerra, Roberta	Porewater alkalinity in the Bay of Cádiz (north east Atlantic)	Seafloor
Hagstrom, George	Drivers of phytoplankton C:N:P	General
Holder, Christopher	Comparing biogeochemical model outputs using neural network ensembles	General
Holland, Laura	Interannual comparison of diatom community composition in the Western Antarctic Peninsula	General

OCB2019 POSTER LIST (alphabetical by author)

Presenting Author	Poster Title	Session/Topic
Irving, John	Quantifying the sequestration time of remineralized CO ₂ in the California Current ecosystem using the MITgcm Lagrangian Floats Package	Land-ocean continuum
Ito, Taka	An Earth System Model large ensemble with increased access for ocean biogeochemistry	Oxygen
Johns, Christopher	Coccoliths as adsorptive reservoirs	Calcification
Kelly, Thomas	The biogeochemical impact of an across-shore filament in the California Current Ecosystem	General
Kinjo, Lumi	Measuring noble gas fluxes at high wind speeds in the SUSTAIN wind-wave tank	General
Lange, Priscila	Methods to distinguish phytoplankton groups from remote-sensing reflectance in subtropical waters	General
Li, Xinyu	Purified meta-cresol purple dye perturbation: how much will it influence spectrophotometric pH measurement?	General
Li, Yun	Desynchronization between sea ice and phytoplankton bloom in a changing Antarctic	General
Long, Jacqueline	Climatological context for the 2018 North Pacific EXPORTS field campaign	EXPORTS/ Biological Pump
Lopez, Chelsi N.	Seasonal dynamics of organic carbon in the deep eastern North Pacific	General
Maas, Amy	Zooplankton metabolism, active flux, and contribution to aou in the N.E. Pacific Ocean	EXPORTS/ Biological Pump
Marrec, Pierre	Plankton population dynamics and food web structure on the Northeast US Shelf (NES-LTER): Early indication of seasonal shifts in production regimes	General
Mayot, Nicolas	Springtime coupling between Arctic sea ice export and phytoplankton blooms in the Greenland Sea	General
McNair, Heather	Tight coupling between herbivorous predation and phytoplankton production in the oligotrophic North Pacific (EXPORTS)	EXPORTS/ Biological Pump

OCB2019 POSTER LIST (alphabetical by author)

Presenting Author	Poster Title	Session/Topic
Menendez, Alana	Optical characterization of water quality in the Long Island Sound	Land-ocean continuum
Michaud, Cynthia	Effects of phytoplankton composition and biominerals on the episodic pulses of particulate organic carbon to abyssal depths	General
Moriarty, Julia	Redistribution of particulate matter following marsh lateral erosion in a back-barrier estuary	Land-ocean continuum
Neeley, Aimee	The NASA and IOCCG protocols renewed: Reestablishing best practices for exceptional in situ measurements	General
Neuer, Susanne	<i>Synechococcus</i> and <i>Prochlorococcus</i> : A tale of two cyanobacteria	General
Nickford, Sarah	Direct wintertime pCO ₂ observations from the Saildrone Gulf Stream mission	General
Oddo, Matias	Running PCA on the world ocean	Allometry
Ouyang, Zhangxian	Sea-ice loss amplifies summer-time decadal CO ₂ increase in the western Arctic Ocean	Calcification
Pavia, Frank	A global database of size fractionated POC and PIC concentrations compared to satellite-based estimates	General
Pham, Anh	Anthropogenic Fe and N deposition alters the ecosystem and carbon balance of the southern Indian Ocean	General
Rafter, Patrick	Anomalous >2000 year old surface ocean radiocarbon points to increased carbon flux from seafloor during deglaciation	Seafloor
Roca Martí, Montserrat	Polonium-210 and Lead-210 as tracers of particle export and attenuation on the first EXPORTS cruise at Station PAPA	EXPORTS/ Biological Pump
Rutherford, Krysten	Model-data assessment of Scotian Shelf carbon dynamics: A spatially varied and biologically active system	Land-ocean continuum
Schultz, Cristina	Modeling the biogeochemistry and carbon cycle of the West Antarctic Peninsula	Land-ocean continuum
Shepherd, Adam	BCO-DMO: Accelerating scientific discovery through responsive data management practices	Data Management

OCB2019 POSTER LIST (alphabetical by author)

Presenting Author	Poster Title	Session/Topic
Sheu, Jessica	Automated identification of sinking marine particle images using transfer learning	General
Siegel, David	The EXport Processes in the Ocean from RemoTe Sensing (EXPORTS) Field Campaign	EXPORTS/ Biological Pump
Sosik, Heidi M.	The Ocean Twilight Zone Project	General
Sosik, Heidi	Quantitative size and biomass distributions from particle images: An improved algorithm applied to IFCB observations	Allometry
Steinberg, Deborah	Mesozooplankton community structure and diel vertical migration in the subarctic N.E. Pacific Ocean, Station P	EXPORTS/ Biological Pump
Stöven, Tim	Ventilation and oxygen supply of the eastern tropical North Atlantic Oxygen Minimum Zone	Oxygen
Su, Jianzhong	A bay-wide self-regulated pH buffer mechanism in response to eutrophication and acidification in Chesapeake Bay	Calcification
Takeshita, Yuichiro	Performance of the Deep-Sea-Durafet pH sensor on a spray glider in the central California Current System	General
Tang, Weiyi	Data-driven modeling of the distribution of diazotrophs in the global ocean	General
Thibodeau, Tricia	Environmental controls on pteropod metabolism along the Western Antarctic Peninsula	Allometry
Thomas, Jennifer	Impacts of estuarine dynamics on CO ₂ air-sea exchange	General
Tsao, Shou En	Quantifying processes controlling the surface water carbon dynamics: Case study at the PN Line Time Series data and HOTS Station	Calcification
Tseng, Chun-Mao	Characterizing the spatiotemporal pCO ₂ dynamics associated with water masses in the river-dominated East China Sea	General
Wagner, Charlotte	Ocean biogeochemistry drives sustained seawater concentrations of persistent organic pollutants	General

OCB2019 POSTER LIST (alphabetical by author)

Presenting Author	Poster Title	Session/Topic
Wang, Jiaze-	Rapid adaption of the microbial community to abrupt environmental change in the Gulf of Mexico modeled with the Genome-based EmergeNt Ocean Microbial Ecosystem Model	General
Whitmore, Laura	To the North Pole and back: A pan-Arctic barium synthesis	General
Widner, Brittany	Quantification of dissolved metabolites in seawater and diatom cultures	General
Woosley, Ryan	Freshening of the western Arctic negates anthropogenic carbon uptake potential	General
Wyatt, Abigale	Spatial and temporal variability of the biological pump in the northeast Pacific	EXPORTS/ Biological Pump
Xue, Z. George	Understanding and quantifying carbon export to global oceans through deltaic systems	Land-ocean continuum
Ziegler, Lisa	Finite Volume Community Ocean Model (FVCOM) provides high spatio-temporal hydrodynamics to inform biogeochemical wetland-estuarine models.	Land-ocean continuum

Ocean Carbon and Biogeochemistry Summer Workshop
Woods Hole Oceanographic Institution, Woods Hole, Massachusetts
June 24-27, 2019
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Workshop Basics

Wireless Network: WHOI_Meeting

SharedKey/Password (case-sensitive): OCBSummer2019

Thirsty? Fill your water bottle at the water station in the Redfield Lobby.

Get Social Post about the meeting on Twitter with #OCB2019 Follow OCB @US-OCB

WHOI Phones: Dial 9 to get an outside line. The local area code is 508.

Need to print something, make copies or have a logistics question? See Mary Zawoysky at the reception desk

Local Places

Cafes near Redfield

Coffee Obsession (directly across the street)

Pie in the Sky (across street ½ block to the left)

Stretch your legs

- Take a short hike to the Knob [PDF Brochure with Map](#) - open 8am-sunset **Blue line on map below**
- Walk/jog/bike the [Shining Sea Bikeway](#), the section between the Village and Quissett campus is ~2 miles (total path is 10.7 miles long) **Pink line on map below**
- [Quissett Campus Fitness Trail](#) (1.5 miles through woods with exercise stations)
- [Walk to Nobska Light and a small beach](#) (~1 mile from the village: via Woods Hole Road or the Bikeway, take a right on Church Street) **Green line on map below**
- Stroll through six acre [Spohr Gardens](#), by Oyster Pond just off the Bikeway, open 8am to 8pm

Woods Hole and Main Street in Falmouth have a variety of shops to peruse

Indoor sights:

- [WHOI Exhibit Center & Gift Shop](#) Open Monday-Saturday 10am to 4:30pm at 15 School Street *Workshop attendees will receive a 10% discount at the gift shop* **Green label on map below**

-

Some Suggested Local Restaurants

Woods Hole:

[Captain Kidd](#) (bar/restaurant) 77 Water Street 508-548-8563

[Coffee Obsession](#) (internet café) 38 Water Street 508-540-8130

[Jimmy's Sandwich Shop](#) 22 Luscombe Ave. 508-540-6823

(hot dogs, hamburgers, sandwiches: take-out mostly, only a few tables)

[Pie in the Sky](#) (bakery, sandwiches) 10 Water Street 508-540-5475

[Landfall Restaurant](#) 9 Luscombe Ave. 508-548-1758

[Quicks Hole Taqueria](#) 6 Luscombe Ave. 508-495-0792

[Quicks Hole Tavern](#) 29 Railroad Ave. 508-495-0048

[Shuckers Raw Bar in Woods Hole](#) 91A Water Street 508-540-3850

[The 41-70](#) 71 Water Street 508-457-3100

[Water Street Kitchen and Public House](#) 56 Water Street 508-540-5656

Woods Hole Market and Provision (small grocery store with sandwiches, pizza available)

87 Water Street Open 6:30 a.m. to 9:00 p.m. 508-540-4792

Falmouth:

[The British Beer Company](#) (pub) 263 Grand Avenue 508-540-9600

[Anejo Mexican Bistro and Tequila Bar](#) (Mexican) 188 Main St. 508-388-7631

[Casino Wharf FX](#) (water view) 286 Grand Ave. 508-540-6160

[Chapoquoit Grill](#) (local favorite) 410 West Falmouth Highway 508-540-7794

[Coonamesett Inn Restaurant](#) 311 Gifford St. 508-548-2300

[The Flying Bridge](#) (water view- some outdoor dining) 220 Scranton Ave. 508-548-2700

[Glass Onion](#) (pricey and very good) 37 North Main St. 508-540-3730 (reservations for 6+ only)

[Simply DiVine Pizza](#) (great pizza) 271 Main St. 508-548-1222

[Osteria La Civetta](#) (Italian) 133 Main St. 508.540.1616

[C-Salt Wine Bar and Grille](#) 75 Davis Straits (Rt. 28) 774-763-2954

Golden Swan (Indian cuisine) 323 Main St. 508-540-6580

[La Cucina Sul Mare](#) (Italian cuisine) 237 Main St. 508-548-5600

Maison Villatte (French bakery) 267 Main St. 774-255-1855

[Liam Maguire's Irish Pub & Restaurant](#) 273 Main St. 508-548-0285

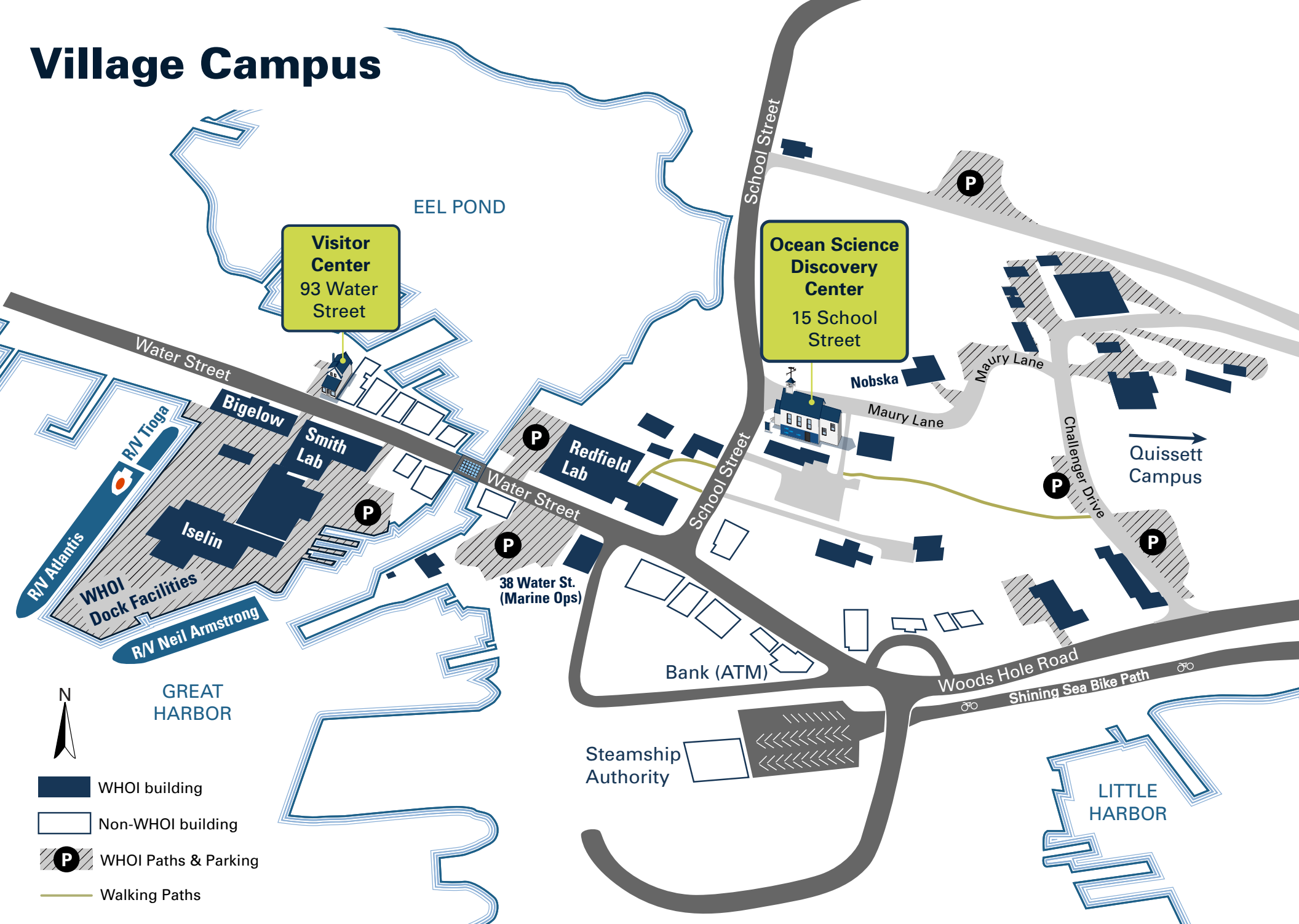
[Gourmet Garden](#) (Chinese) 452 Main St. 508-540-8204

[Quarterdeck Restaurant](#) 164 Main St. 508-444-8090

(bar/restaurant, cozy atmosphere)

This is just a sampling of the many restaurants around Falmouth and Woods Hole. Ask the locals for recommendations, or if you are looking for something specific.

Village Campus



Quisset Campus

