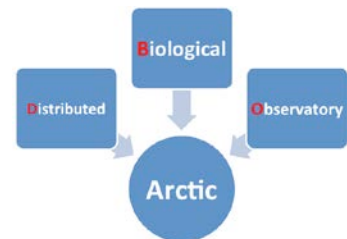
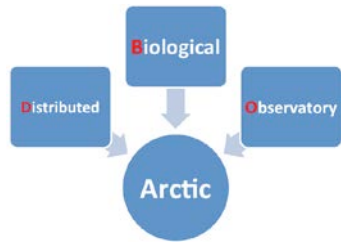


# UPDATES: DBO DSR Special Issue, OSM18\_DBO Session and MECT Town Hall

Jacqueline M. Grebmeier  
Chesapeake Biological Laboratory  
University of Maryland Center for Environmental Science, Solomons, MD, USA

4<sup>th</sup> DBO Data Workshop  
November 9, 2017  
NOAA/PMEL  
Seattle, Washington, USA



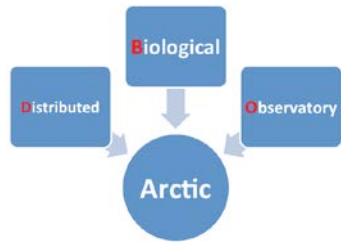


## INTRODUCTION

1. **The Distributed Biological Observatory as a marine change detection array in the Pacific Arctic: An introduction** (Lead: Jackie Grebmeier, Sue Moore, Lee Cooper, Karen Frey)

## SATELLITE OBSERVATIONS, SEA ICE AND PHYSICAL OCEANOGRAPHY

2. Trends in satellite observations of sea ice cover, sea surface temperature, and chlorophyll biomass across the Distributed Biological Observatory in the Pacific Arctic region (Lead: Karen Frey, coauthors: Joey Comiso, Jackie Grebmeier, Lee Cooper, et al.)
3. The ecological importance of grounded sea ice at Hanna Shoal: observations and data gaps (Lead: Olivia Lee, Hajo Eicken, Andy Mahoney, Jackie Grebmeier, Lewis Shapiro, Stefan Hendricks, Tom Weingartner, Bill Sringer)
4. Seasonal to mesoscale variability of water masses and atmospheric conditions in Barrow Canyon, Chukchi Sea (Lead: Robert Pickart, Carolina Nobra, Peigen Lin, Kevin R. Arrigo, Carin J. Ashjian, Catherine Berchok, Lee W. Cooper, Jacqueline M. Grebmeier, Ian Hartwell, Jianfeng He, Motoyo Itoh, Takashi Kikuchi, Svein Vagle) – in revision
5. On the nature of wind-forced upwelling in Barrow Canyon (Lead: Maria Pisareva, co-authors: Robert S. Pickart<sup>2</sup>, Paula S. Fratantoni<sup>2\*</sup>, Thomas J. Weingartner) – in revision
6. Characteristics and transformation of Pacific winter water on the Chukchi Sea shelf in late-spring (lead: Astrid Pacini, R. Pickart, G.W.K. Moore, C. Nobre, F. Bahr, K. Våge, K. Arrigo) – in revision
7. Characteristics and dynamics of wind-driven upwelling in the Alaskan Beaufort Sea based on six years of mooring data (Lead: Peigen Lin, Robert Pickart, Kent Moore, Michael Spall, Jianyu Hu) – in revision
8. Pathways and timing of Pacific winter water from Bering Strait to the Beaufort Sea (Lead: Emily Shroyer, co-author R. Pickart) – in revision
9. A study of the northern Bering and southern Chukchi Sea flow field responses to variable wind forcing (Lead: Seth I. Danielson, co-authors: Katherine S Hedstrom, et al.)
10. Autumn upwelling in the Alaskan Beaufort Sea influences gray whale call occurrence, lead: Robert Pickart, co-authors: Daniel Torres, Carin Ashjian and Sue Moore co-authors- in revision
11. Seasonal and annual variability in water properties along DBO lines in the Bering and Chukchi Seas: Observations from international ship occupations 2010-2015 (Lead: Svein Vagel et al.)
12. Mooring results from M8 (DBO1) in the northern Bering Sea (Lead: Phyllis Stabeno et al.)



## HYDROGRAPHY

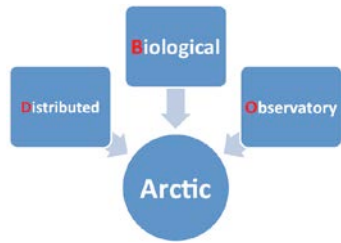
1. **Nutrients and chlorophyll patterns during the DBO2012-2017 field program (Lead: Lee Cooper; co-authors: TBD)**
2. **Primary production and phytoplankton composition on the DBO time series lines (Lead: Karina Giesbrecht, co: Diana Varela, Józef Wiktor, Jackie Grebmeier) – in review**
3. **Relationship between bottom oxygen concentration and primary production in the southern Chukchi Sea biological hotspot (Lead: Amane Fujiwara, co-authors: Toru Hirawake, Shigeto Nishino)**
4. **Estimating multi-year chromophoric dissolved organic matter (CDOM) variations in the northern Bering and Chukchi Seas of the Pacific Arctic Region; Lead: Santiago, Melishia, K.E. Frey, F. Guillemette, J.M. Grebmeier, L.W. Cooper, R.G.M. Spencer)**

## PHYTOPLANKTON, ZOOPLANKTON AND BENTHOS

5. **Impact of spatiotemporal variability in phytoplankton size structure on benthic macrofaunal distribution in the Pacific Arctic (Lead: Hisatomo Waga, Toru Hirawake, Amane Fujiwara, Jacqueline Grebmeier, Sei-Ichi Saitoh) – in revision**

**Distribution shift in dominant benthic macrofaunal composition and biomass and environmental drivers within the DBO Change Detection Array in the Pacific Arctic (Lead: Jackie Grebmeier, co: Lee Cooper, Monika Kedra)**

6. **Biodiversity, community structure and functioning of benthic macrofauna in the northern Bering and Chukchi Seas (Lead: Monika Kedra, co: Jackie Grebmeier, Lee Cooper)**
7. **Epibenthos, fish and macrofauna inside and outside the DBO bounding boxes in the Chukchi Sea (Lead: Katrin Iken, Franz Mueter, Jackie Grebmeier, Lee Cooper)**
8. **Ecosystem studies on the new 2016 DBO lines in the Beaufort Sea (Lead: Ken Dunton, co: Bodil Bluhm, Susan Schonberg)**
9. **Compound-specific isotopic analyses of amino acids in dominant benthic species across the latitudinal gradient in the northern Bering and Chukchi Seas (Lead: Monika Kedra, co-authors: Mengjie Zhang, Lee Cooper, Jackie Grebmeier)**
10. **Changes in abundance, biomass, and dominant size classes of the bivalve *Macoma calcareo* in the northern Bering Sea and the southeastern Chukchi Sea from 1998-2012 (Lead: Christina Goethel, co-authors: Jacqueline Grebmeier, Lee Cooper) – in revision**



## MARINE FISHES, BIRDS and MAMMALS

1. **Pink salmon as sentinels for climate change in the Arctic (Lead: Ed Farley, co-authors: Wess Strasburger, Jeanette Gann, and Kris Cieciel)**
2. **Interannual variability in acoustic detections of marine mammals with the DBO 6 region (Lead: Kate Stafford, co-authors: Steve Okkonen, Robert Pickart)**
3. **Marine birds and mammals and seabirds as ecosystem sentinels in and near Distributed Biological Observatory regions: an abbreviated review of published accounts (Lead: S E Moore, and Kathy J. Kuletz)**
4. **Seabird communities within and among the Distributed Biological Observatory array in the Pacific Arctic (Lead: Kathy Kuletz, co-authors: Daniel Cushing, Eric Osnas, Elizabeth Labunski, Adrian Gall, Tawna Morgan)**
5. **Physical & biological influences on seabird distribution between DBO4, 5 and how different wind/current regimes impact seabird distributions seasonally and inter-annually during 2010-2015, July-Sept (Lead: Adriane Gail, co-authors: Bob Day)**
6. **Correlation of marine mammal distribution off Point Hope, AK to biophysical parameters (title to be revised) (Lead: Catherine Berchok, co-authors: Phyllis Stabeno, Bob Pickart, Jackie Grebmeier, Janet Clarke, Lee Cooper, Joey Comiso, Monika Kedra, Lisa Eisner)**
7. **Relationship Between Large Whale Occurrence and Physical Oceanography During the Open Water Season in the Northeastern Chukchi Sea, 2010-2016 (Lead: Janet Clarke, co-authors: Megan Ferguson, Carol Ladd, Amelia Brower, Amy Willoughby)**
8. **Integration of visual and acoustic marine mammal data in Distributed Biological Observatory sites. (Lead: Manuel Castellote, co-authors: Megan Ferguson, Kate Stafford, Catherine Berchok, Janet Clarke)**
9. **Year-round acoustic detections of four marine mammal species in the Chirikov Basin macrobenthic hot-spot, 2012-2015 (Lead: Dana Wright, Jacqueline Grebmeier, Catherine Berchok, Stephanie Grassia, Phillip Clapham et al.)**

## SUMMARY/NEXT STEPS

10. **The Arctic Marine Pulses (AMP) model as a framework for DBO sampling (Lead: Sue Moore, Jackie Grebmeier, Phyllis Stabeno, Wei Cheng Stephen Okkonen)**

**n=32 papers**

**AGU/ASLO/TOS Ocean Science Meeting 2018\_DBO Oral and Poster Session**  
**Co-Chairs: Jackie Grebmeier (CBL/UMCES) and Sue Moore (NOAA)**

**Monday, February 12, 2018 , 10:30 AM - 12:30 PM; Oregon Convention Center- B110-B112**

**The Distributed Biological Observatory:  
An Expanding Change Detection Array in the Marine Arctic**

Arctic marginal seas are undergoing historically unprecedented reductions in sea ice volume and extent, concomitant with increasing ocean temperatures. It is uncertain how the marine ecosystem is responding to these sea ice thinning trends and alterations in the timing of seasonal sea ice retreat and formation. The scope of these possible changes include primary production, planktonic and benthic biomass, migration patterns of upper trophic level consumers, and overall biogeochemical cycling. In order to systematically track biological responses to sea ice loss and associated environmental changes, an international consortium of scientists have developed the “Distributed Biological Observatory” (DBO), which integrates biological measurements at multiple trophic levels with physical oceanographic sampling from ships, satellites and moorings. The DBO initially focused on five biological “hotspot” regions distributed along a latitudinal gradient extending from the northern Bering Sea through the Chukchi Sea; subsequently, three DBO regions were added in the Beaufort Sea. An Atlantic-DBO, comprised of five transect lines, is being developed in the northern Barents Sea and Fram Strait, and DBO lines have been proposed for Baffin Bay. This session provides a forum to present recent multi-disciplinary scientific findings associated with physical forcing and ecosystem response detected through the DBO change detection array.

# OSM 2018 IARPC MECT Town Hall

**Town Hall Title: Activities of the Marine Ecosystems Collaboration Team within the US Interagency Arctic Research Policy Committee (Jacqueline Grebmeier (CBL/UMCES), Guillermo Auad (BOEM), Danielle Dickson (NPRB))**

**Date and Time: Wednesday, February 14, 2018: 12:45 PM - 1:45 PM**

**Location: Oregon Convention Center, D139-D140**

The Marine Ecosystems Collaboration Team (MECT) is one of nine teams within a unique U.S. Federal/Non-federal collaboration framework created within the Interagency Arctic Research Policy Committee (IARPC). The MECT is a new team created as part of U.S. [Arctic Research Plan 2017-2021](#), combining elements of the previous U.S Arctic Research Plan 2013-2017's Distributed Biological Observatory Collaboration Team and Chukchi & Beaufort Seas Collaboration Team. This Town Hall session will provide a general description of IARPC's unique Federal/non-federal collaboration model and then highlight the particular workings and achievements of the MECT to address its 13 research objectives and associated performance elements. Case studies of ongoing interagency collaborative research projects will be presented. We will also provide recent organizational updates as well as an outlook of potential leveraging opportunities within ongoing and planned research programs through a planned community input link via the MECT web portal. The co-chairs of the MECT are Guillermo Auad (Bureau of Ocean Energy Management), Danielle Dickson (North Pacific Research Board), and Jackie Grebmeier (University of Maryland Center for Environmental Science). Further information on the MECT is available at: <https://www.iarpccollaborations.org/teams/Marine-Ecosystems>.