

2nd DBO DATA WORKSHOP - FINAL AGENDA

October 29-31, 2014

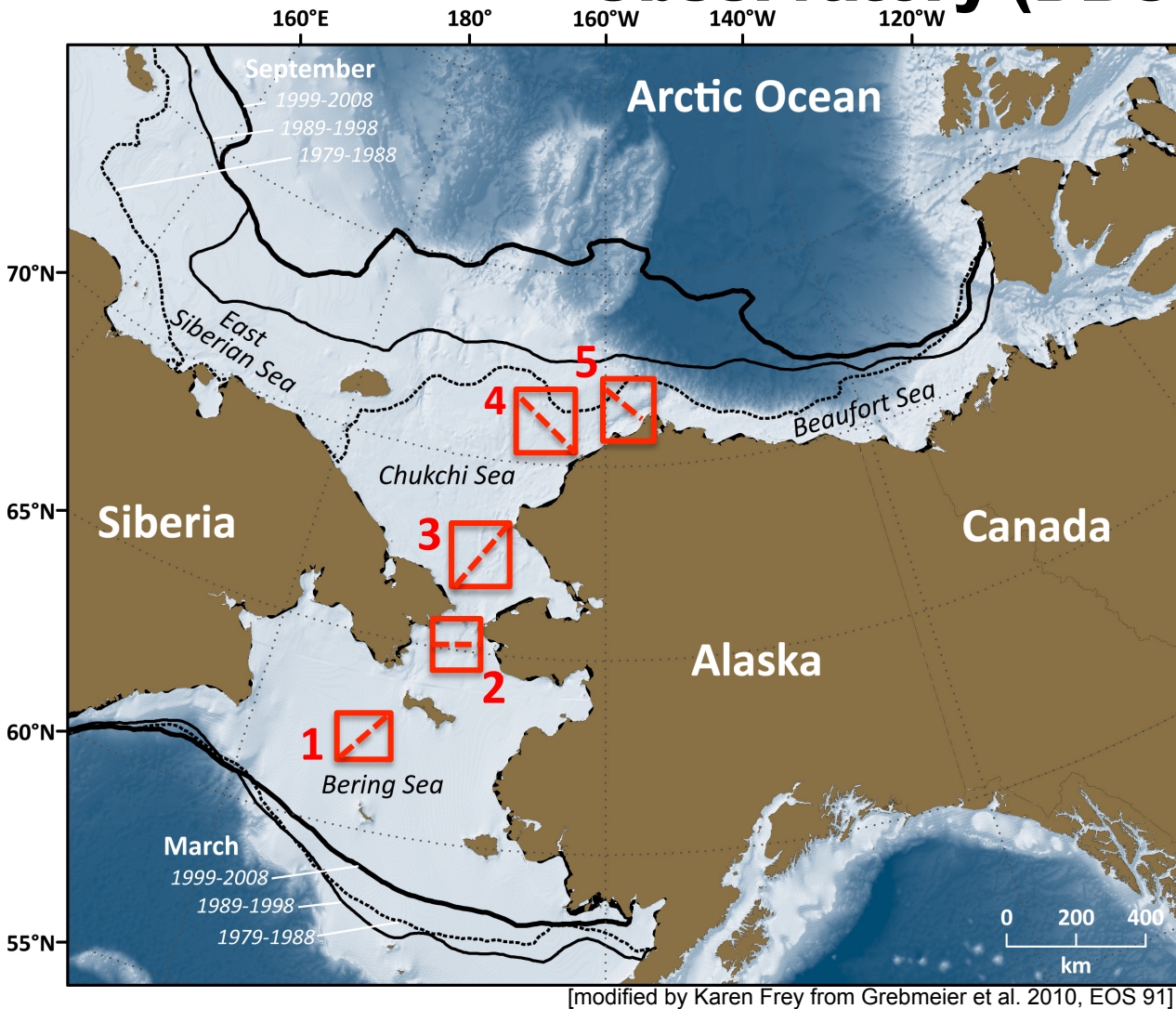


Pacific Marine Environmental Laboratory (PMEL)/National Oceanic and Atmospheric Administration (NOAA), 7600 Sand Point Way NE, Bldg. 3, Oceanographer Room, Seattle, WA 98115 USA

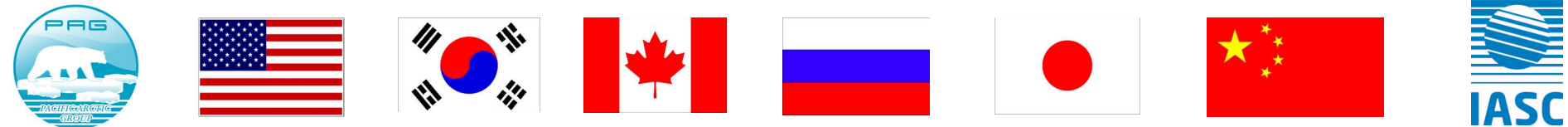
Wednesday-29 October 2014

- 1330 Welcome, Logistics and Overview of US-IARPC DBO CT activities: Sue Moore
- 1345 Meeting Objectives and Overview of the DBO: Jackie Grebmeier
- 1400 DBO composite result summaries by field collections (2010-2014) (max = 30 min/each bulleted and sub-bulleted topic; **BOLD** is discussion lead; **Session lead: Grebmeier**)
- Physical oceanography: **Pickart**/Nobre, Cho, Danielson, Itoh, Kikuchi, Pisareva, Stabeno, Vagle
 - Mooring data results: **Stabeno**, Danielson, Kikuchi, Pickart
 - Biochemical oceanography and export production: **Cooper**, Frey, Lalande
 - Biological oceanography
 - Lower trophics: **Grebmeier**, Ashjian, Blanchard, Eisner, Ha, Hopcroft, Jung, Kang, D. Lee, J. Lee, Mitani, Nelson, Varela, Yang, Yun
 - Upper trophics: **Berchok**, Clarke, Ferguson, Kuletz, Coon, Mitani, S. Moore
 - Sea Ice, atmosphere, chl satellite coverage: **Frey**, Comiso, Qun, Kim
 - Broad scale studies to put DBO in perspective (**M Wang**, Danielson)
- 1530 Coffee break
- 1600 Continuation of DBO data results (2010-2014)
- 1700 End Day 1 and van transport back to hotel, Dinner on own

Linking Physics to Biology: the Distributed Biological Observatory (DBO)



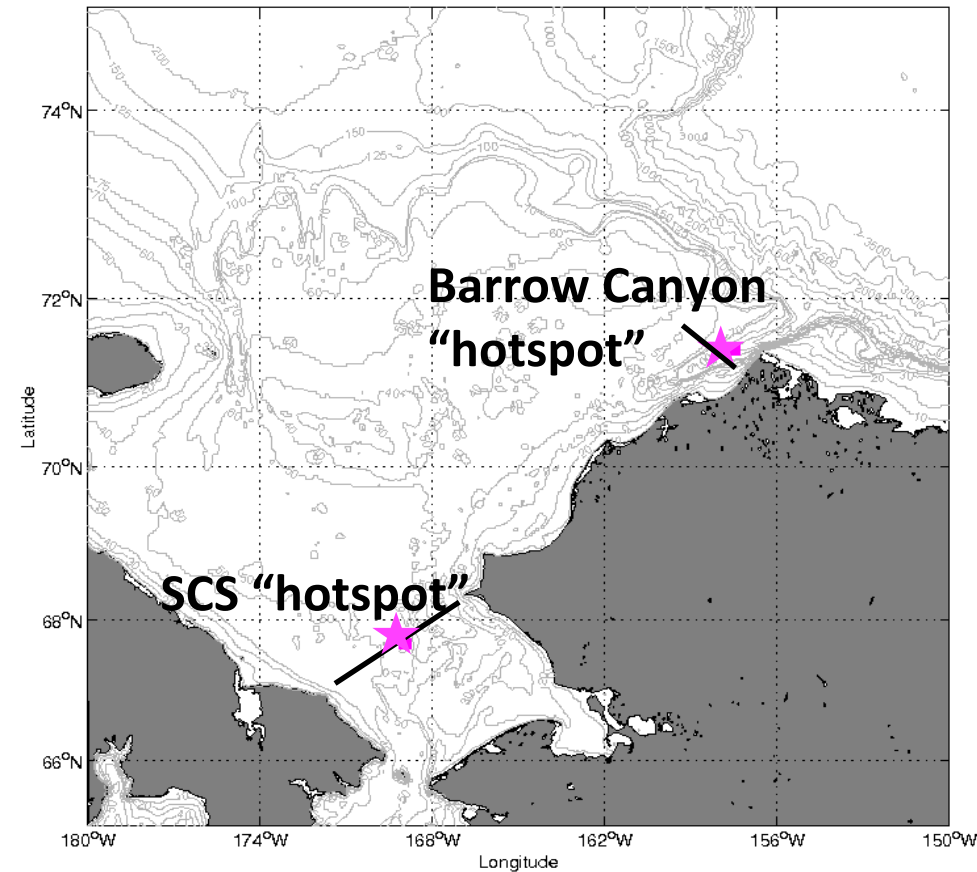
- DBO sites (red boxes) are regional “hotspot” transect lines and stations located along a latitudinal gradient
- DBO sites are considered to exhibit high productivity, biodiversity, and overall rates of change
- DBO sites will serve as a change detection array for the identification and consistent monitoring of biophysical responses
- Sites occupied by national and international entities with shared data plan



Rationale of the DBO

- Tracking biological responses to physical drivers in the Arctic requires coordinated, multidisciplinary field sampling
- Many developing observation systems in the Arctic are focused on physical sensors, but biological sampling across a range of spatio-temporal scales is required to detect ecological shifts in response to environmental forcing
- Coordinated ship-based sampling, coincident with data streams from satellites and moorings, will provide an early detection system for biological shifts in the Arctic

DBO Pilot Study: 2010-2014



9 to 11 cruises/year
Focus on DBO 3 & 5

<http://www.arctic.noaa.gov/dbo/>
<http://pag.arcticportal.org>

Vessel	Country	PI
<i>Moana Wave, Healy</i>	USA	Grebmeier
<i>Healy</i>	USA	Arrigo, Cooper, Grebmeier
<i>Xuelong</i>	China	He
<i>Mirai, Oshuru-Maru</i>	Japan	Hirawake, Itoh, Kikuchi
<i>Laurier</i>	Canada	Vagle
<i>Araon</i>	Korea	Chung/Kang
<i>Khromov, Norseman II</i>	Russia and USA	Woodgate/ Crane
<i>Alaskan Enterprise</i>	USA	Napp, Berchok
<i>Annika Marie</i>	USA	Ashjian
<i>Healy</i>	USA	Pickart
<i>Westward Wind</i>	USA	Day

Distributed Biological Observatory Standardized Sampling Protocols



Core ship-based sampling:

- CTD and ADCP
- Chlorophyll
- Nutrients
- Ice algae/Phytoplankton (size, biomass and composition)
- Zooplankton (size, biomass and composition)
- Benthos (size, biomass and composition)
- Seabird surveys (standard transects)
- Marine mammal surveys (standard transects)

Second tier ship-based sampling:

- Fishery acoustics (less effort than standardized bottom trawling)
- Bottom trawling (every 3-5 years)

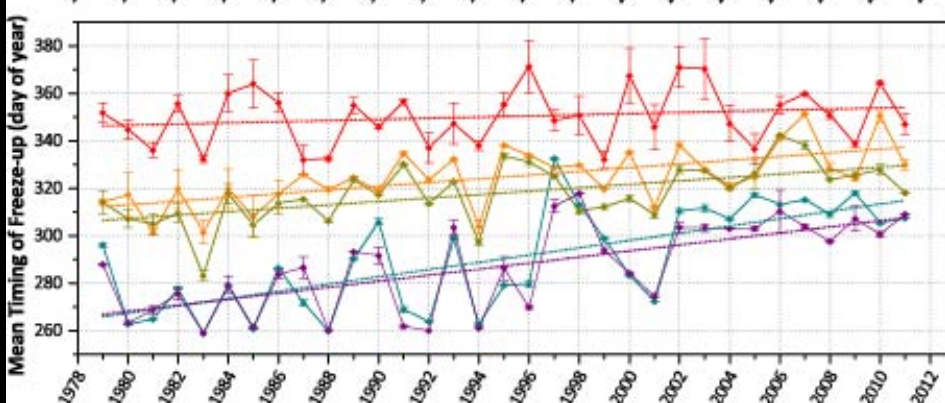
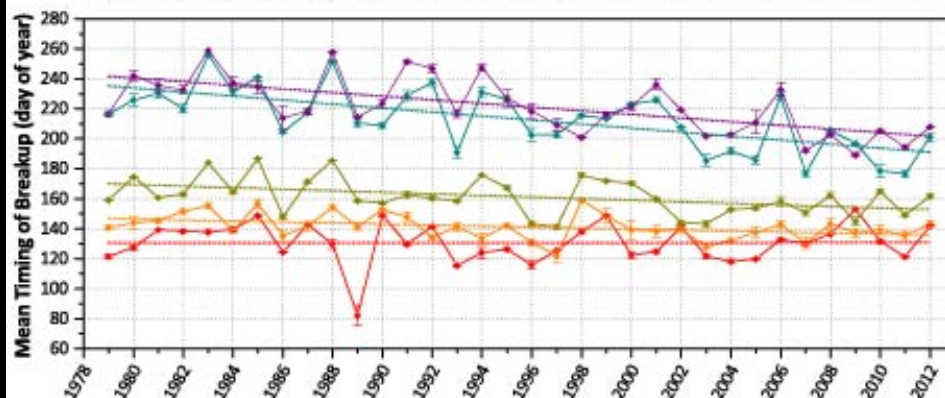
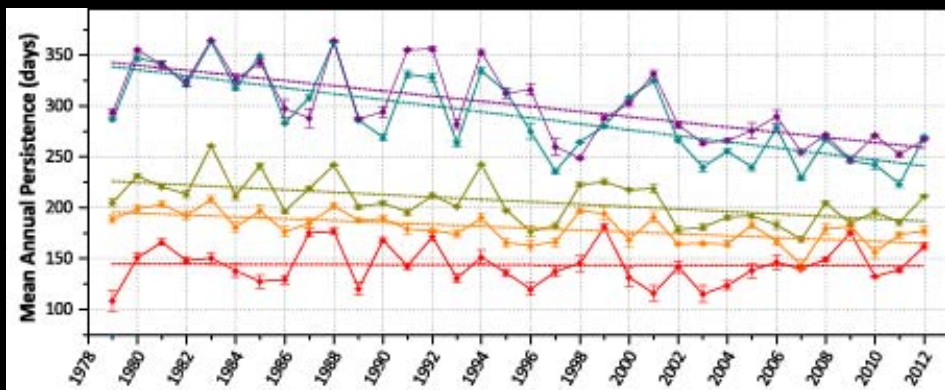
DBO sampling by national & international science programs

INTERNATIONAL



- the DBO also serves as part of a framework for international research coordination via the Arctic Council's Circumpolar Biodiversity Monitoring Program (CBMP), and is recognized as a task of the pan-arctic Sustaining Arctic Observing Network (SAON) program
- New multidisciplinary projects:
 - Arctic Marine Biodiversity Observing Network (AMBON) project in the Chukchi Sea linked to CBMP and includes DBO lines

Sea Ice Persistence, Timing of Break-up, and Freeze-Up from DBO1 (south) to DBO5 (north)



Annual Sea Ice Persistence

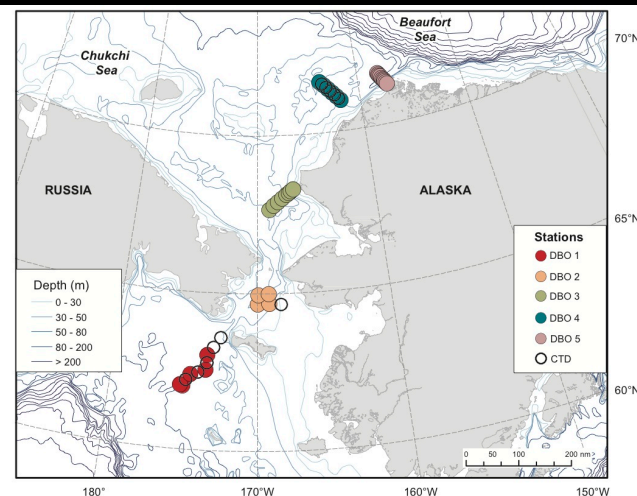
DBO 1
DBO 2 (-9.21 days/decade)
DBO 3 (-11.84 days/decade)
DBO 4 (-29.50 days/decade)
DBO 5 (-25.30 days/decade)

Timing of Sea Ice Breakup

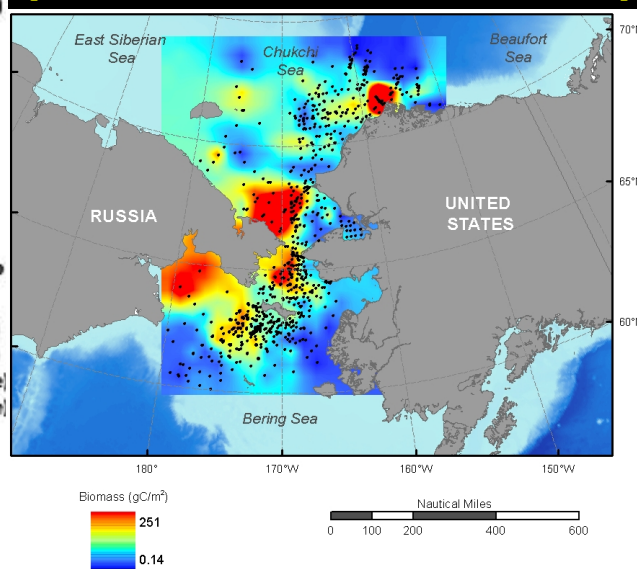
DBO 1
DBO 2 (-3.29 days/decade)
DBO 3 (-5.22 days/decade)
DBO 4 (-13.37 days/decade)
DBO 5 (-12.12 days/decade)

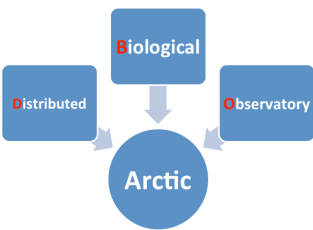
Timing of Sea Ice Freeze-up

DBO 1
DBO 2 (+7.84 days/decade)
DBO 3 (+7.22 days/decade)
DBO 4 (+15.32 days/decade)
DBO 5 (+12.72 days/decade)



[macrofaunal biomass- 1976-2012]





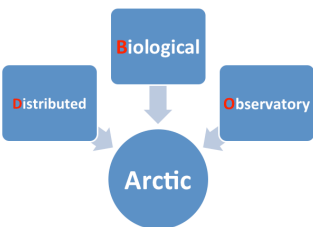
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Workshop Overview: We have 4 objectives for this workshop:

- Present results from the 2010-2014 DBO field program and determine a basis for multidisciplinary papers to showcase results of the DBO international effort,
- Evaluate the DBO data submission effort through the AOOS-DBO data workspace, EOL open data site, and discuss linkage to national archives,
- Determine the location of new DBO transect lines in the Beaufort Sea, western Chukchi Sea, and possibly other international lines, such as in the northern Barents Sea, and
- Discuss a plan for full implementation for the DBO.



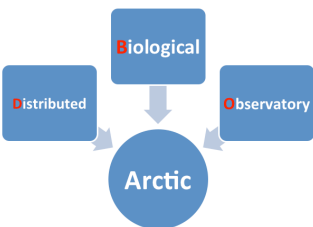
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Thursday-30 October 2014

- 0830 Brief summary of Day 1 and objectives for Day 2 (Grebmeier)
- 0845 Continuation of Invited participant summaries (2010-2014)
- 1015 Coffee break
- 1045 Open discussion on presentations – possibilities for group analyses & papers
- 1230 Lunch in PMEL cafeteria (no-host)
- 1330 DBO Data Policy & Discussion (Grebmeier)
- 1400 DBO WHOI physical oceanography DBO website (Carolina Nobre)
- 1415 DBO Data Visualization AXIOM website (Chris Turner/William Koeppen)
- 1445 DBO Data Archive EOL DBO website (Jim Moore/Don Stott)
- 1515 Coffee break
- 1545 Finalize DBO Data Policy (Grebmeier)
- 1600 PAG data needs/direction; Open discussion (Grebmeier)
- 1700 End day and van transport to hotel
- 1800 Group Dinner at local restaurant (Piatti Ristorante & Bar, University Village), 2695 NE Village Lane, Seattle, WA 98105, 206-524-9088 (meet in Silver Cloud Inn lobby at 6:45 pm if you want to walk over together)



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Friday-31 October 2014

- 0830 Lis Jorgensen (Norway), Joey Comiso (website), Jessica Rohde (IARPC website)
- 0845 Breakouts to 3 Groups for detailed discussion and identification of available data sets for physical/biochemical data and biological data, data policy, interest in publication DSR
DBO Special issue? Data products
- Physical/chemical
 - Biological
 - Data policy
- 1015 Coffee break
- 1045 Group presentation from breakout groups (10 min each) and open discussion; list of analysis projects and anticipated papers
- 1130 Start New DBO regions in Beaufort Sea/Climate Line; possible pan-Arctic lines (Grebmeier lead discussion, with 5-10 min presentations), D. Holiday (Beaufort Sea), Bob Pickart, others
- 1230 Lunch in PMEL cafeteria (no host)
- 1330 Continue discussions
- 1500 End workshop and van transport to hotel