

# **Pacific Arctic Group (PAG) Meeting**

## **US Ship operations-JG part**

**Jacqueline M. Grebmeier**

Chesapeake Biological Laboratory, University of Maryland Center for  
Environmental Science, Solomons, Maryland, USA

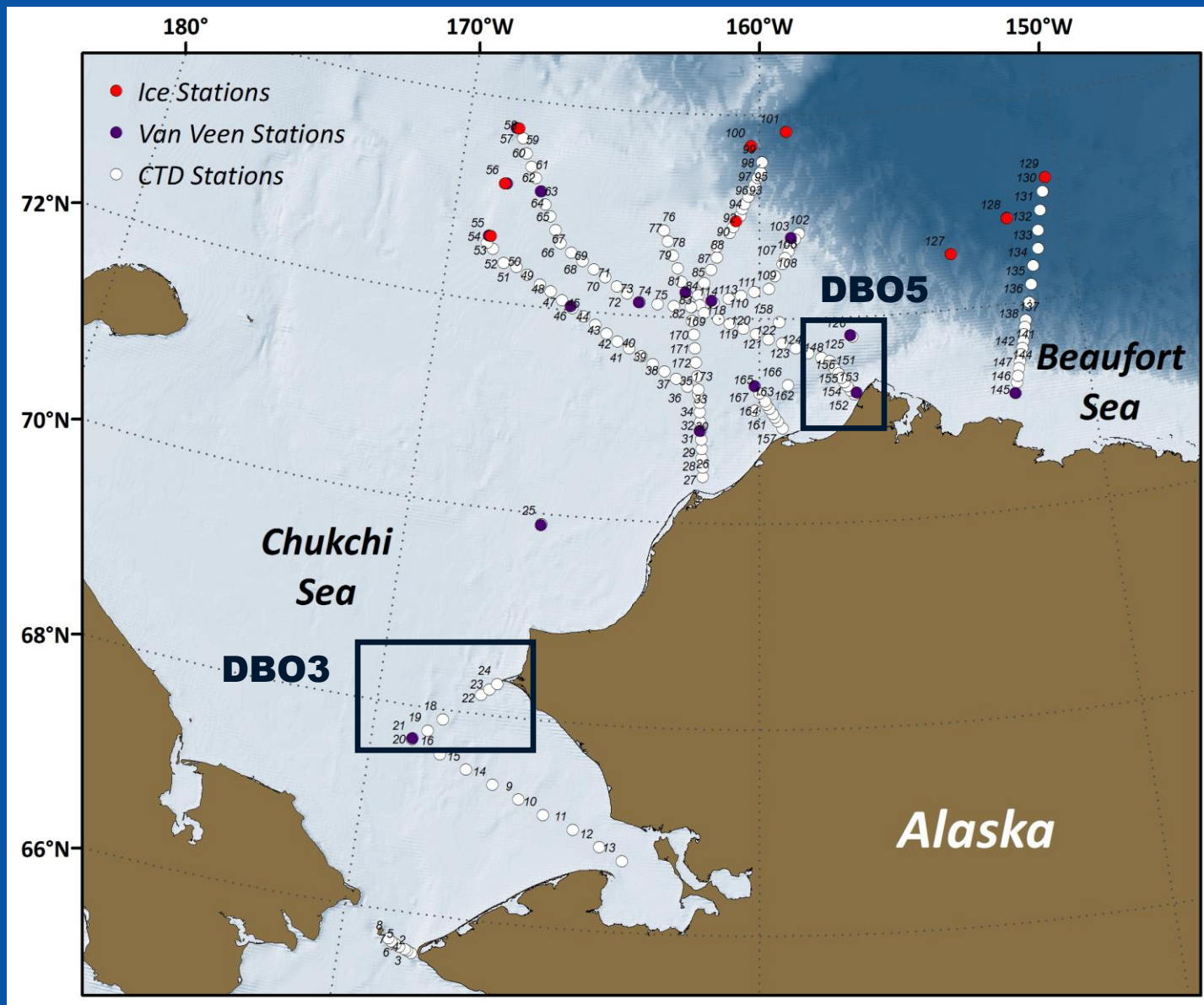
16 November 2011

PAG Meeting IOS

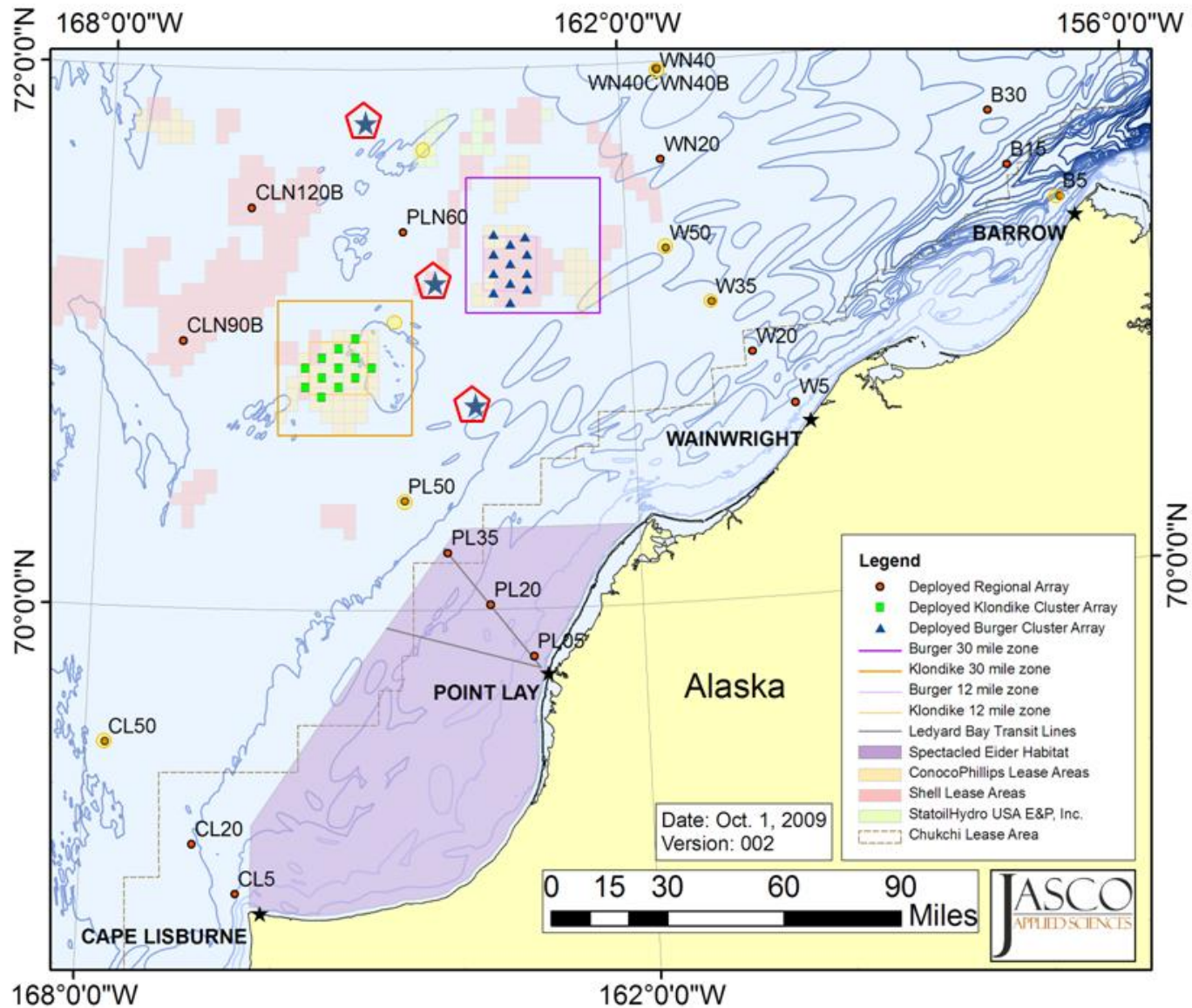
Sidney, BC, Canada



# HLY1101 ICESCAPE (*Impacts of climate on ecosystems and chemistry of the Arctic Pacific environment*) USCGS Healy 2011 cruise



# CHAOZ 2011 and 2012: Chukchi Sea Acoustics, Oceanography, and Zooplankton cruise (Napp, Berchok, Moore, et al., NOAA/BOEMRE (August-Sept))



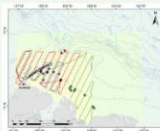


# The Bowhead Whale Feeding Ecology Study (BOWFEST)

David Rugh • NMML, AFSC, NOAA Fisheries  
 Carin Ashjian • Woods Hole Oceanographic Institution  
 Mark Baumgartner • Woods Hole Oceanographic Institution  
 Catherine Berchok • NMML, AFSC, NOAA Fisheries  
 Bob Campbell • University of Rhode Island  
 Craig George • North Slope Borough Dept. Wildlife Management  
 Kimberly Goetz • NMML, AFSC, NOAA Fisheries  
 David Mellinger • Oregon State University  
 Julie Mocklin • NMML, AFSC, NOAA Fisheries  
 Steve Otkonen • University of Alaska Fairbanks  
 Gay Sheffield • ADFG/NSB Dept. Wildlife Management  
 Mari Smultea • Smultea Environmental Sciences  
 Kate Stafford • University of Washington/ Applied Physics Lab



## Aerial Surveys



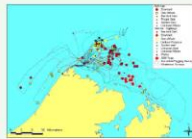
Aerial surveys were conducted on 5 days between 29 Aug and 18 Sept 2009. Totals of aerial sightings of bowheads were 16 in 2007, 56 in 2008, and 25 in 2009.

## Photo Analysis



Aerial photography provides images of bowheads used to identify individuals and measure their lengths.

## Boat-based Surveys

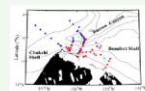


Boat-based surveys in 2009. Bowhead sightings are indicated with red marks.



Photo of a group of bowhead whales feeding at the sea surface. Photo by Henry Elorog.

## Mooring and Browscale Oceanography



The blue symbols are locations of stations with few krill, the red symbols are locations of stations with krill, and the green asterisks are locations of bowhead whales seen from the Annika Marie.



Annika Marie used for oceanography.



## Passive Acoustics



Locations of passive acoustic recorders deployed in 2009.



Passive acoustic recorders.

## Stomach Content Analyses

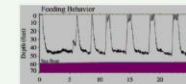


This stomach contained fresh undigested euphausiid-like prey with very little fluid.

## Tagging and Fine Scale Oceanography



Launched tag immediately prior to attaching to a bowhead.



Time since tag attachment (minutes).

## Acknowledgments

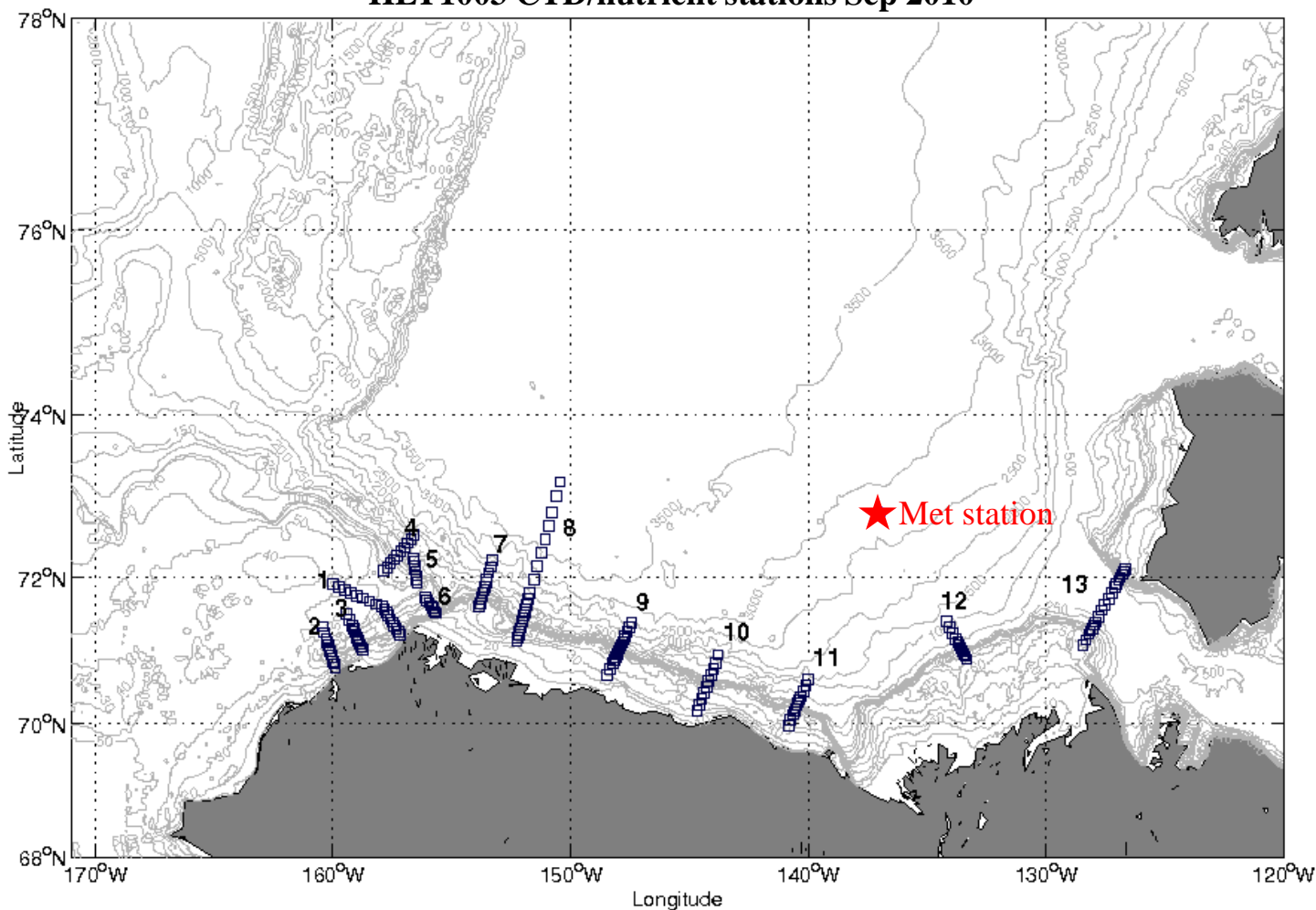
- Funding for this study was provided by the Minerals Management Service, with ongoing support from Chuck Monnett.
- The National Marine Mammal Lab, AFSC, NOAA Fisheries, was the conduit of research funds to eight institutions (see the author list).
- Studies of bowhead whales were conducted under MMPA Research Permits 782-1719 and 369-1757-01.
- Fieldwork has been coordinated with the North Slope Borough, Alaska Eskimo Whaling Commission, Barrow Whaling Captains' Association, and Alaska Department of Fish and Game.



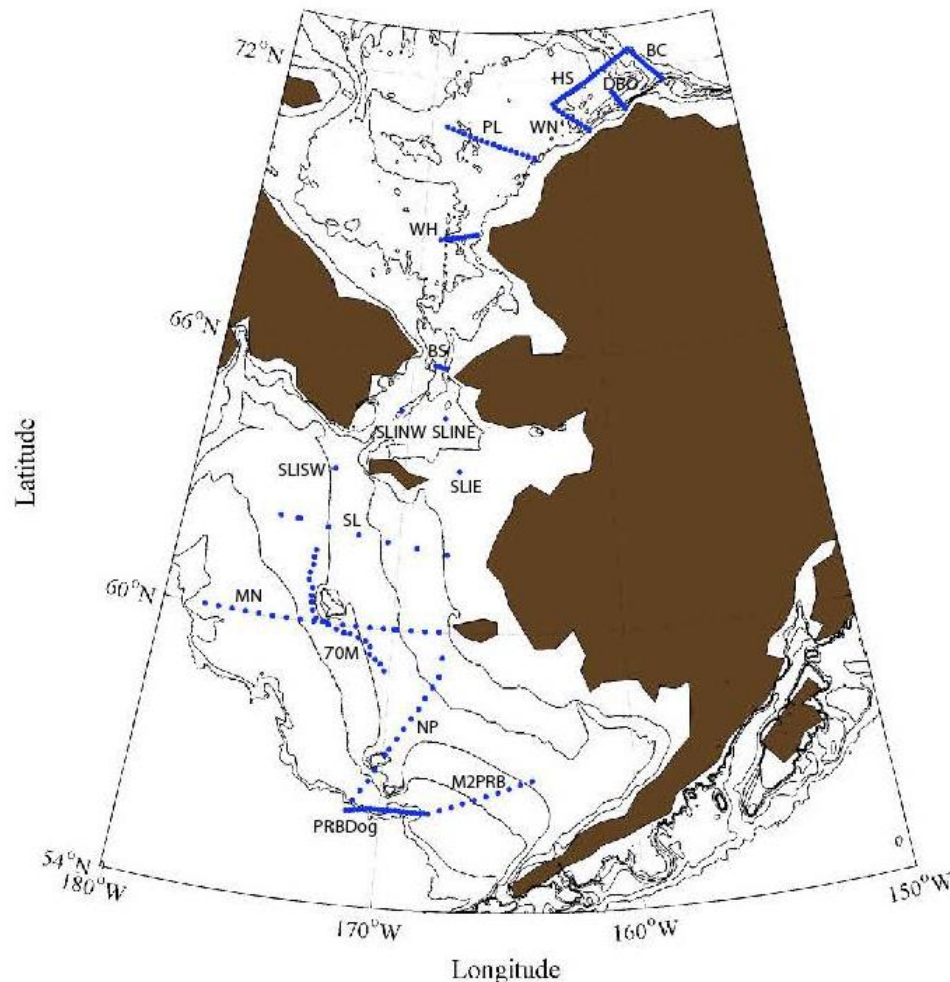


# HLY1103 Arctic Observing Network *(Assessing the Western Arctic boundary current and its role in the Arctic ecosystem and climate change)*

HLY1003 CTD/nutrient stations Sep 2010



**Nov 7 – Dec 2011, Seward AK to Dutch Harbor AK.**  
**“Early Winter Oceanography in the Bering and Chukchi Seas” Chief Scientist Carin Ashjian (cashjian@whoi.edu)**



- This cruise will collect some of the first information on early winter biology and physics of these seas. The cruise will work along a set of key cross-shelf-slope transects and will conduct physical (water temperature, salinity, circulation), chemical (nutrients), and biological (phytoplankton, zooplankton) sampling.
- primarily in the Bering and Chukchi Seas but hope to sample the western Beaufort as well, ice depending

# **BOEM COMIDA Hanna Shoal: 2011-2016**

## **Project Objectives:**

- **Conduct open-water baseline measurements of biological and chemical parameters, with specific focus on trophic structure and the potential for bio-accumulation of anthropogenic chemicals into food webs in the Hanna Shoal region**
- **Examine the current spatial structure of the ecosystem to better understand the seasonal, inter-annual, and long-term climate change impacts on the ecosystem.**

## **Project Tasks:**

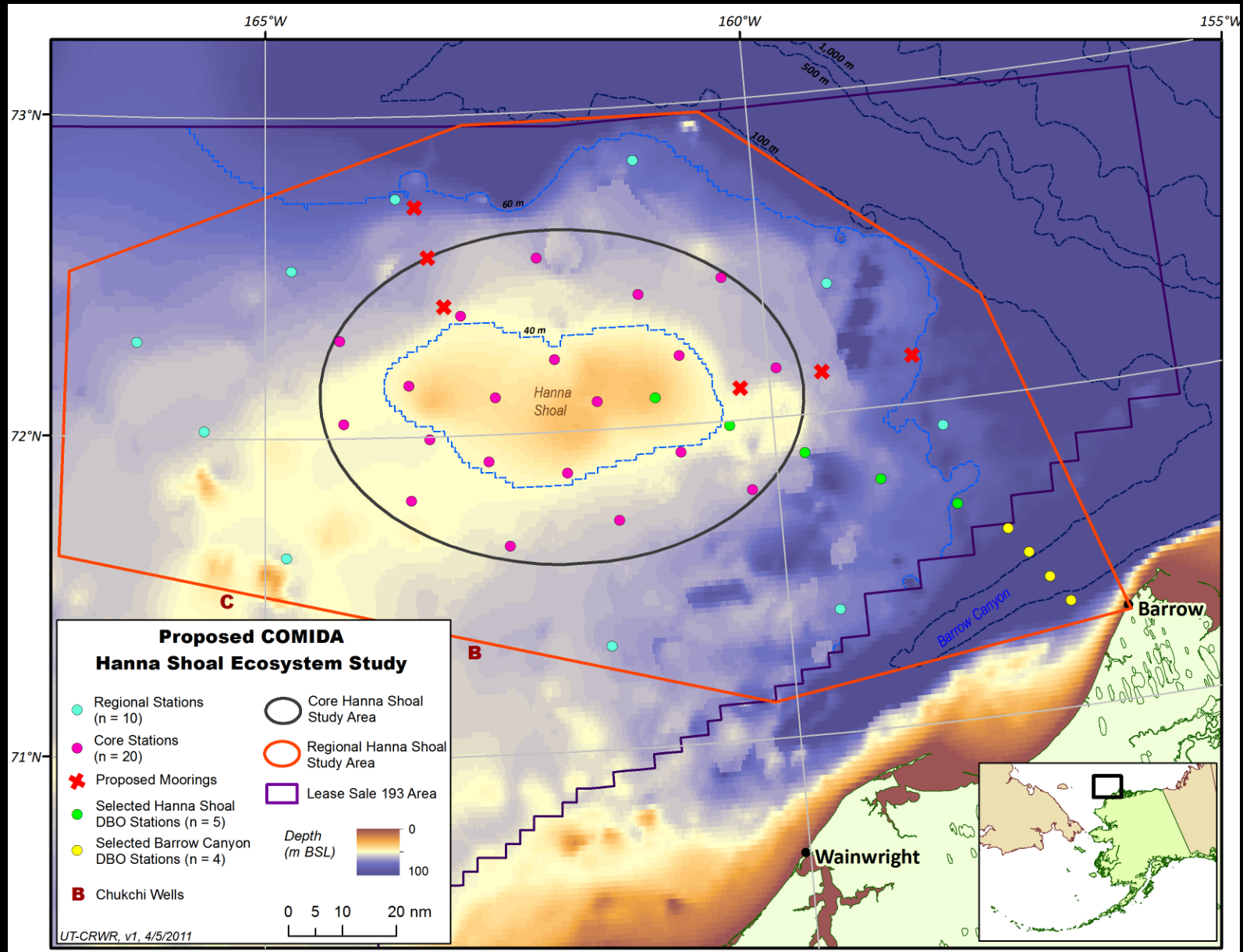
- **Physical oceanography and moorings, focus Hanna Shoal and surrounding areas**
- **Collect hydrographic, plankton, benthos, sediment chemistry and hydrocarbon data**
- **Develop a conceptual food web model**
- **Examine the spatial variability in biotic and abiotic parameters**
- **Conduct geostatistical modeling**
- **Sampling along Chukchi Sea DBO lines**

**BOEM Cruises: August 7-30, 2012 USCGS Healy and August 2012, USCGC Healy; Chief Scientist: JM Grebmeier, CBL/UMCES**

**PIS: Ken Dunton, Carin Ashjian, Lee Cooper, Jackie Grebmeier, Rodger Harvey, Brenda Konar, John Trefry, and Tom Weingartner**



# Proposed sampling sites COMIDA HS August 7-30, 2012 (USCGC Healy)



Moorings will be deployed on roughly the 35, 50, and 60 m isobaths

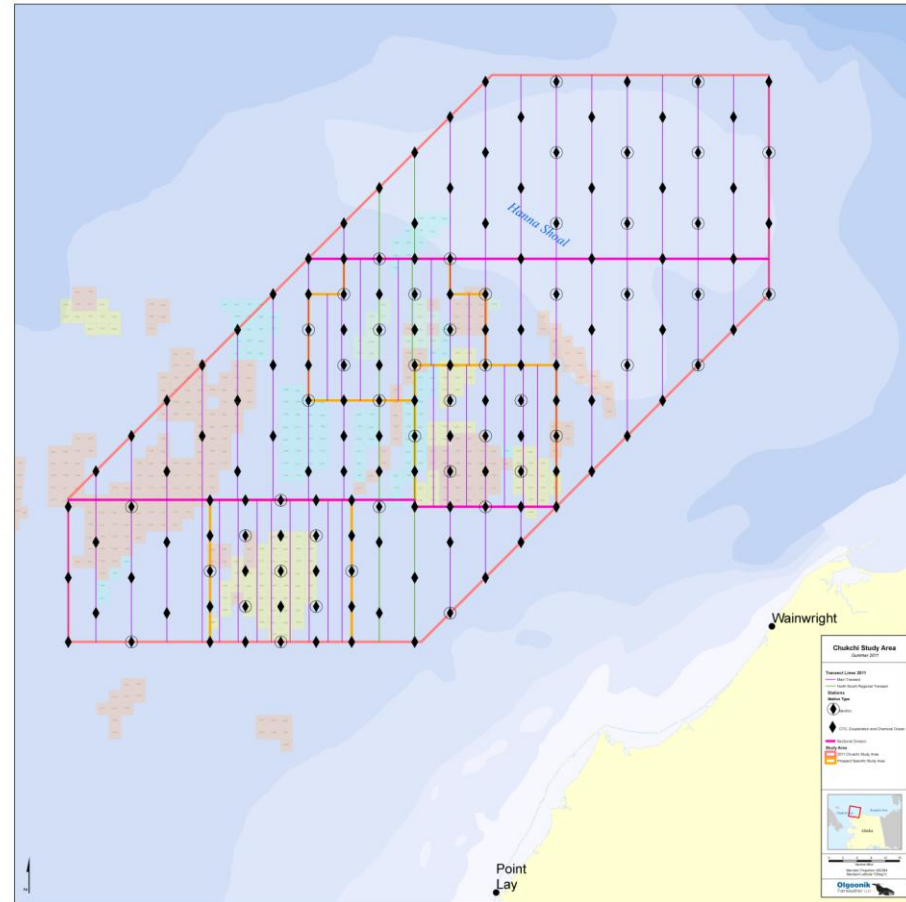
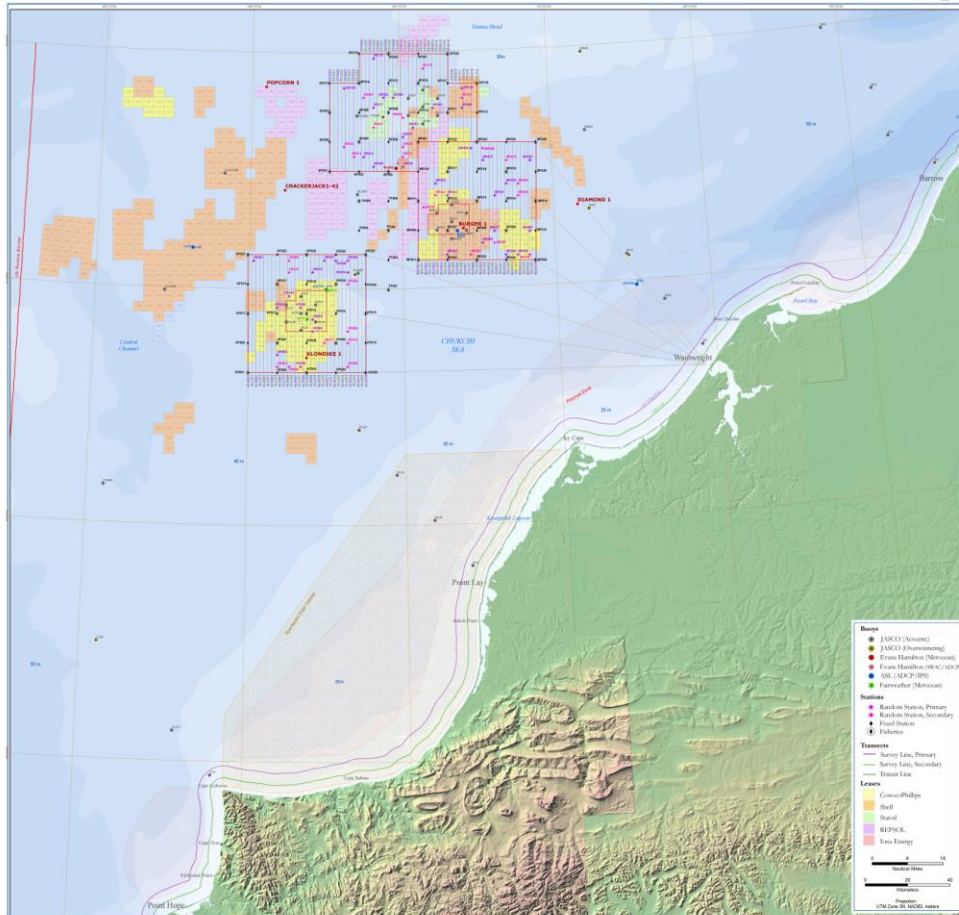


# Shell-Conoco Phillips-StatOil 2010 (left panel) and 2011 (right panel) cruises

2010 Chukchi Baseline Studies Program

As of July 17, 2010

**Olgoonik**  
Fairweather LLC



## **USCGC Healy 2012 DRAFT Underway schedule**

Dep/Arr Start Port/End Port PI/Project Cruise code

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17 Jul/06 Aug Barrow/ Barrow Pickart/NSF HLY1201

07 Aug/30 Aug Barrow/ Dutch Harbor Grebmeier/BOEMRE HLY1202

11 Sep/14 Sep Seward/ Dutch Harbor Transit HLY12TC

15 Sep/26 Oct Dutch/ Dutch Harbor Mayer/UNH HLY1203