



**POLAR  
TREC**

# *Live from IPY!*

*12 June 2007*

*From the USCGC Healy in the Bering Sea*



*Benthic Predators in the Northern Bering Sea*



# Welcome to Wimba!

Slides will be shown here

Raise your hand to ask a question

List of all participants

Return to the Lobby or Exit

'Chat' with one person or the entire group

Connecting to server...  
You have connected successfully!  
You have entered the lobby.  
You have entered 'Arctic Research Consortium of the United States (ARCUS)'.  
Your media format is Third-party Conference Call.

Yes No ?

Name  
Helen\_Wiggins

Exit Lobby - Help

ARCUS



## *What is PolarTREC?*

PolarTREC is a professional development experience in which K-12 teachers are paired with researchers in authentic polar research experiences.

In the next three years 36 teachers from around the United States will join scientists in the Arctic and Antarctic in celebration of the International Polar Year!

***[www.polartrec.com](http://www.polartrec.com)***



# *International Polar Year (IPY)*

## *2007-2009*

The International Polar Year (2007-2009) is an exciting scientific campaign focusing on the world's polar regions!

IPY is a time for discovery, science, learning, and awareness about the polar regions with activities for youth, scientists, and the public.

[\*www.ipy.org\*](http://www.ipy.org)



***Jackie Grebmeier***

*Chief Scientist  
Healy 07 02*

# *Who else are we talking with today?*



**Researcher**  
**Lee Cooper**  
University of Tennessee



**Researcher**  
**Jim Lovvorn**  
University of Wyoming



**USCGC Healy Captain**  
**Ted Lindström**

## ***Climate-Driven Change in Impacts of Benthic Predators in the Northern Bering Sea***



### ***Goal of the project:***

*Conduct transects over the northern Bering Sea to inventory the benthic population and document changes in the marine food web.*

### ***Dates:***

*16 May - 18 June 2007*

### ***Location:***

*Aboard the US Coast Guard Cutter Healy,  
in the Bering Sea*



**USCGC Healy**



# Where is the Bering Sea?



# *Area of Study: Northern Bering Sea*



# PolarTREC #3 - Northern Bering Sea Cruise

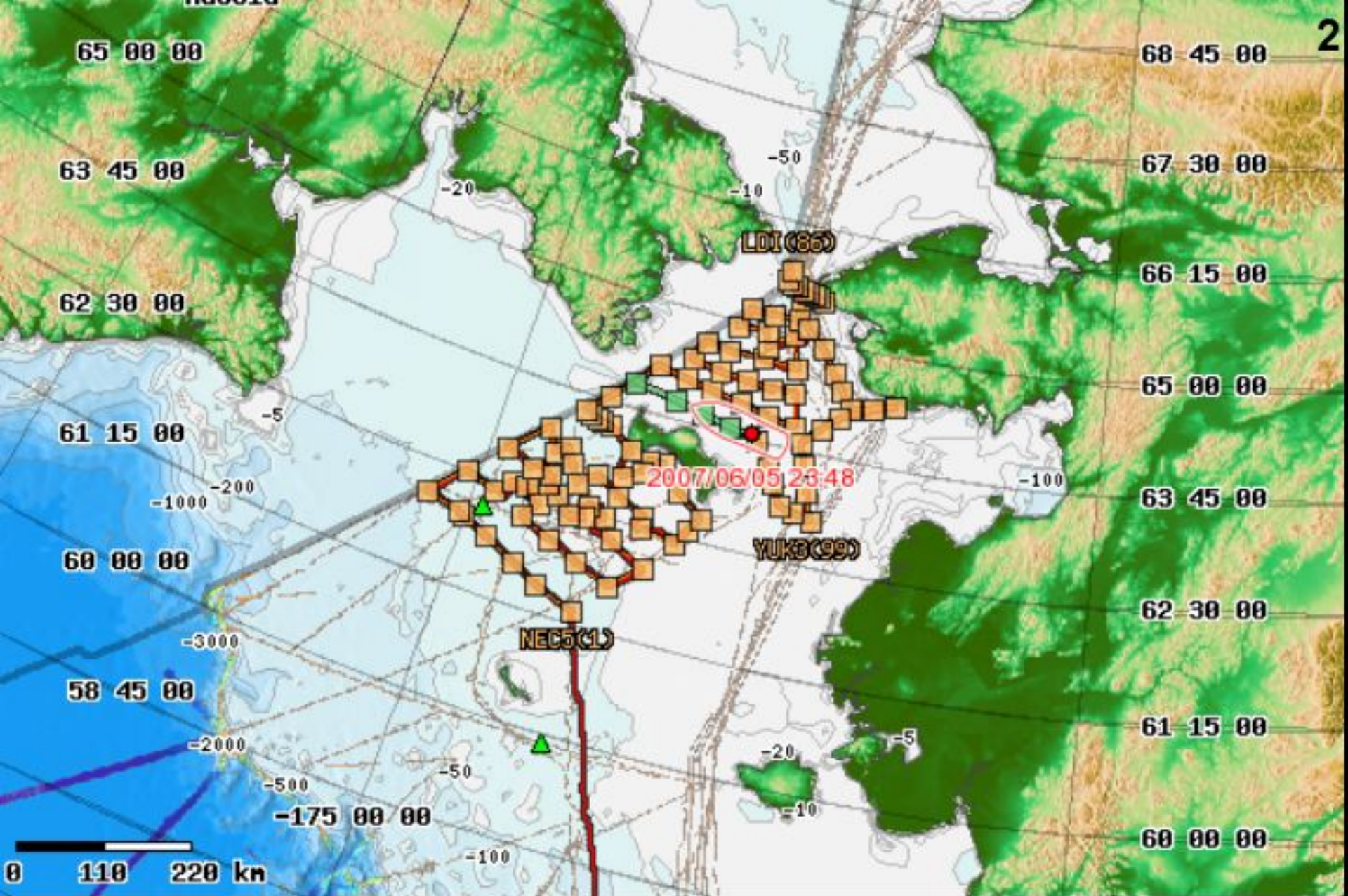
1



**CLIMATE-DRIVEN CHANGES IN IMPACTS OF BENTHIC  
PREDATORS IN THE NORTHERN BERING SEA  
USCGC Healy (HLY0702): 16 May-18 June 2007**

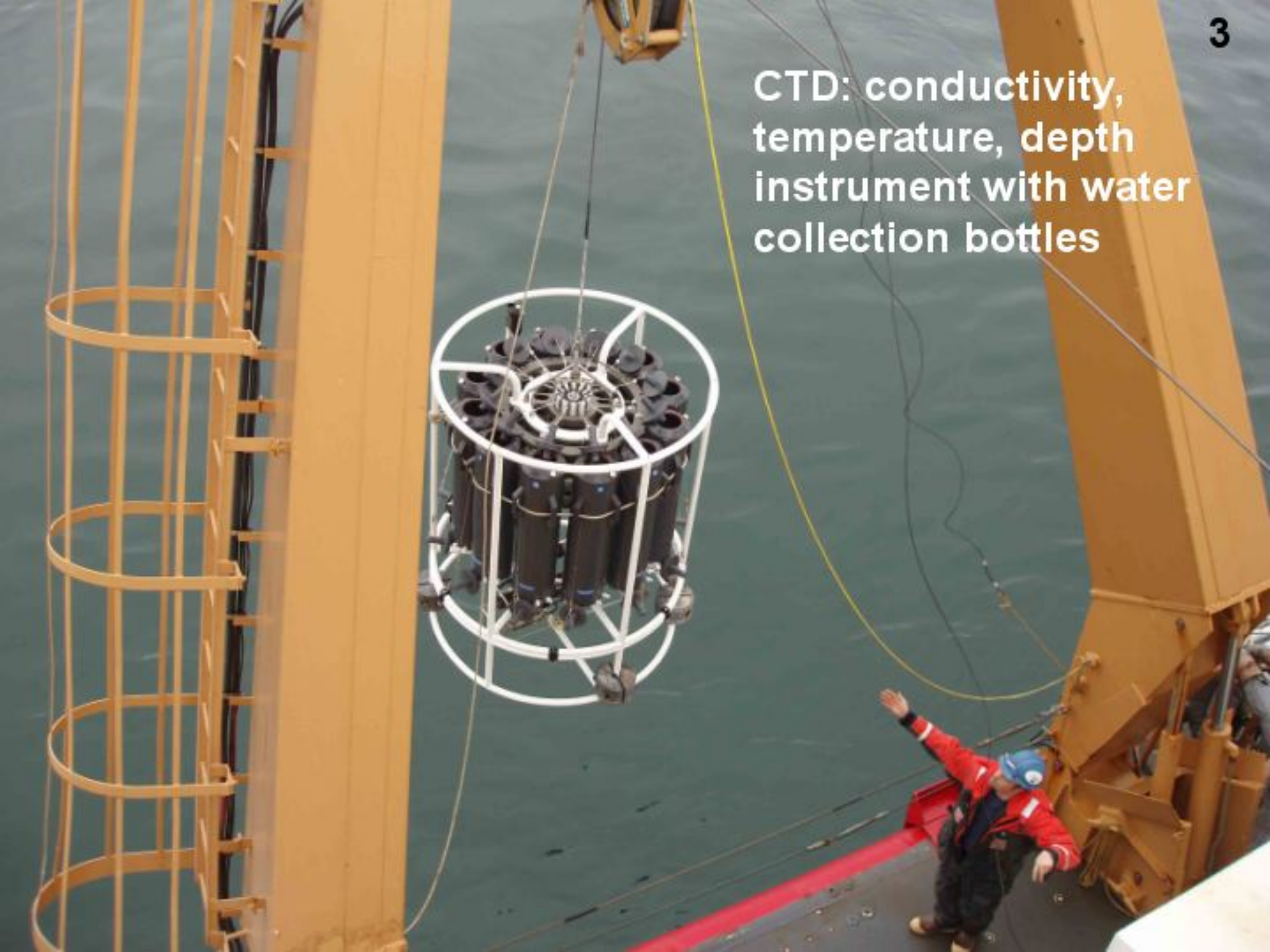
**12 June 2007 Participants:**

**Capt. Ted Lindstrom, USCGC Healy, Jackie Grebmeier and Lee Cooper,  
University of Tennessee, Knoxville, and Jim Lovvorn, University of  
Wyoming**

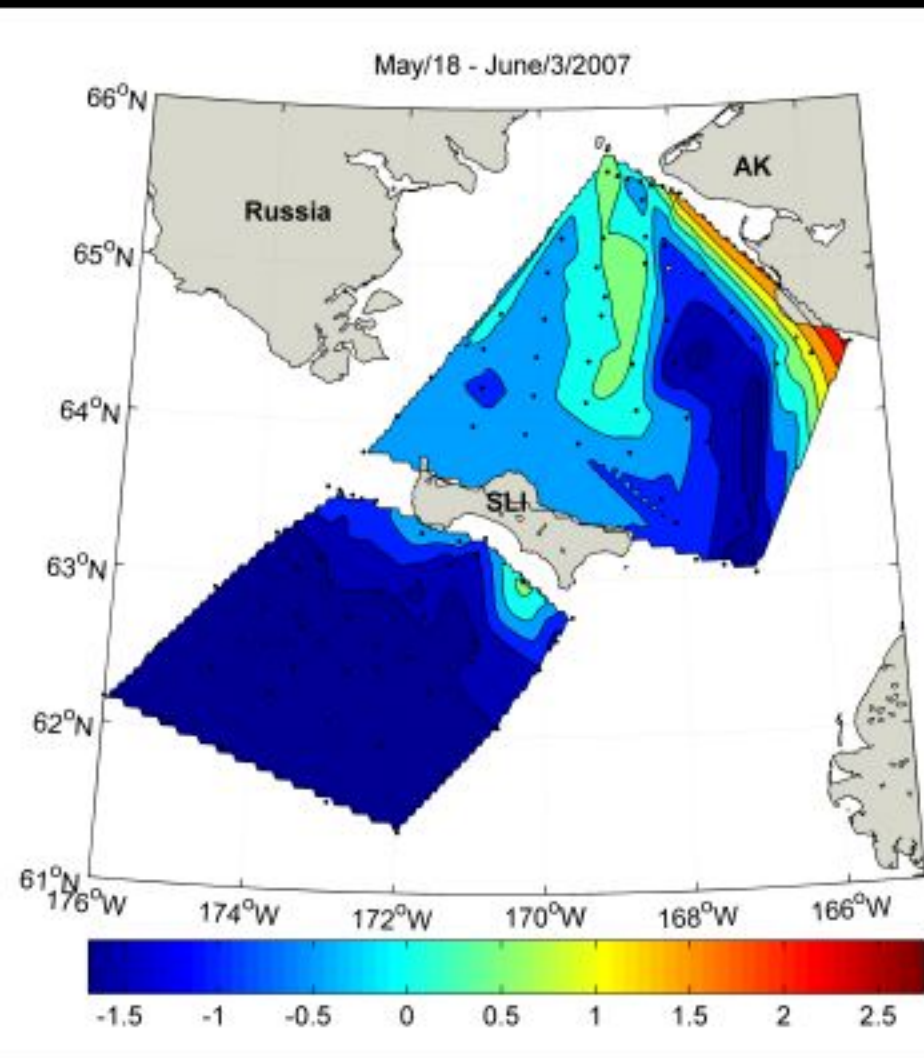


**HLY0702: May 16-June 18, 2007**

**CTD: conductivity,  
temperature, depth  
instrument with water  
collection bottles**

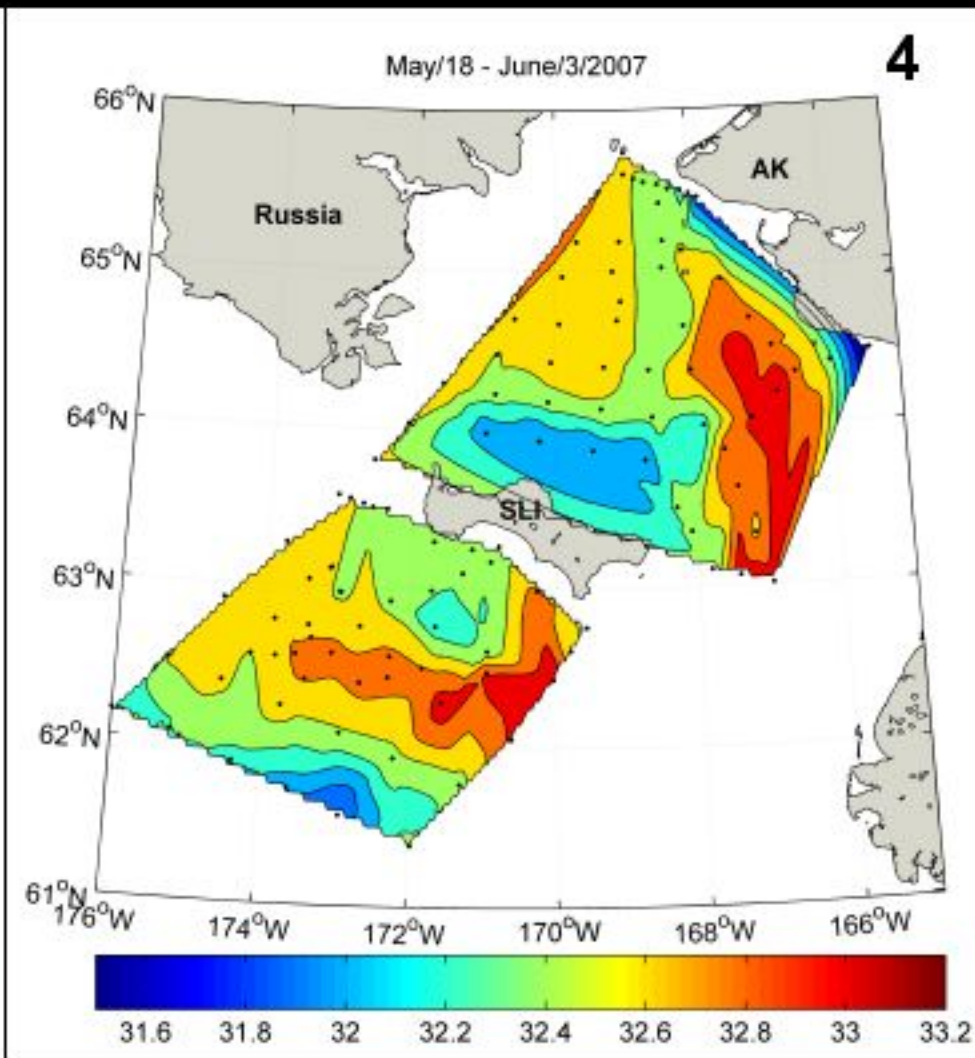


# SPATIAL BOTTOM WATER TEMPRATURE AND SALINITY-HLY0702



**Temperature (°C)**

• **low temperature water**

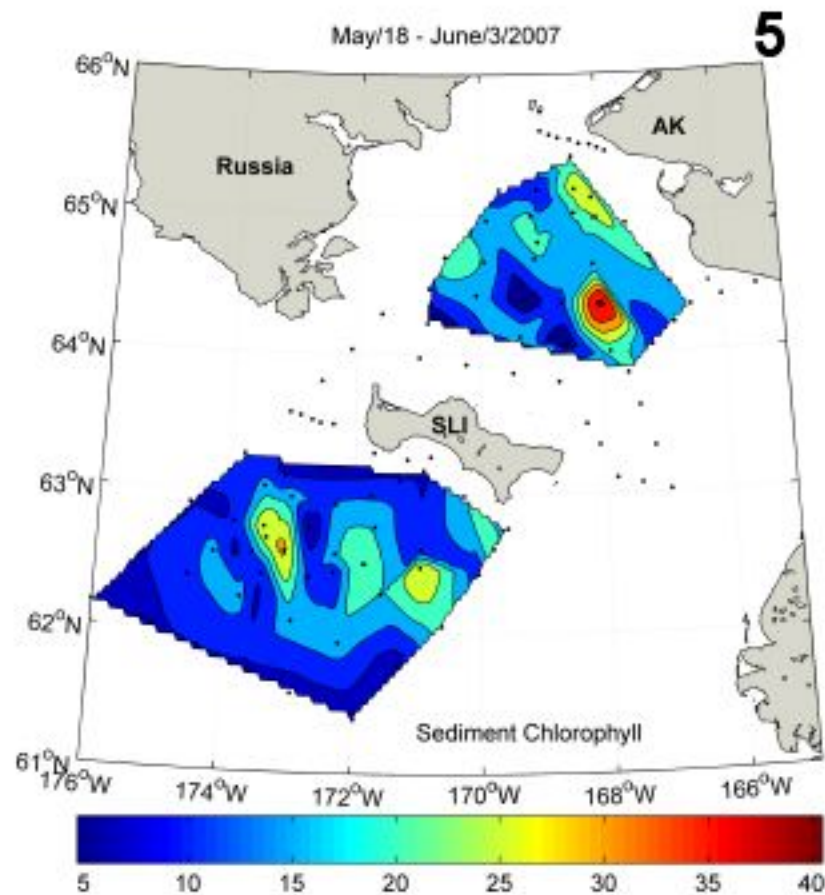
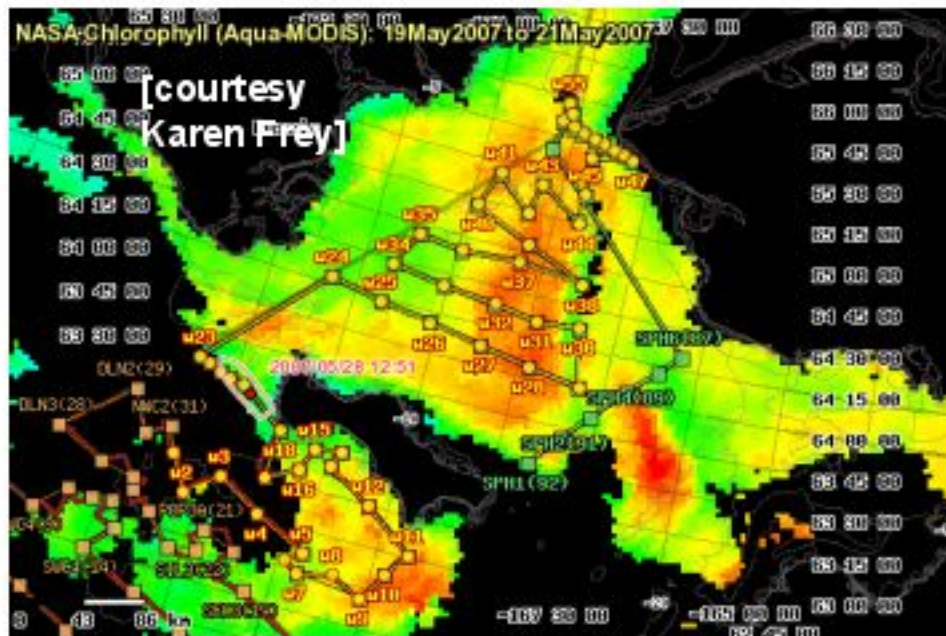


**Salinity (psu)**

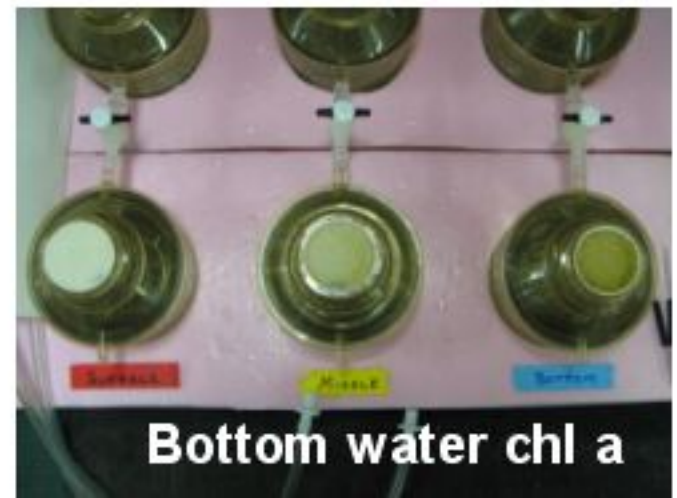
• **High salinity winter water**

4

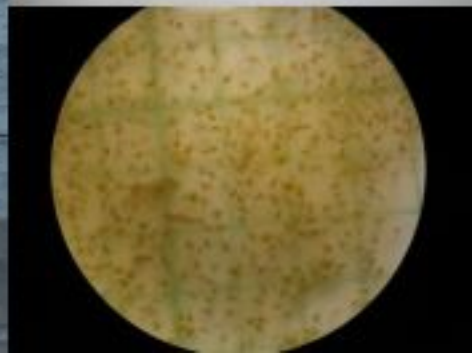
[courtesy Markus Janout]



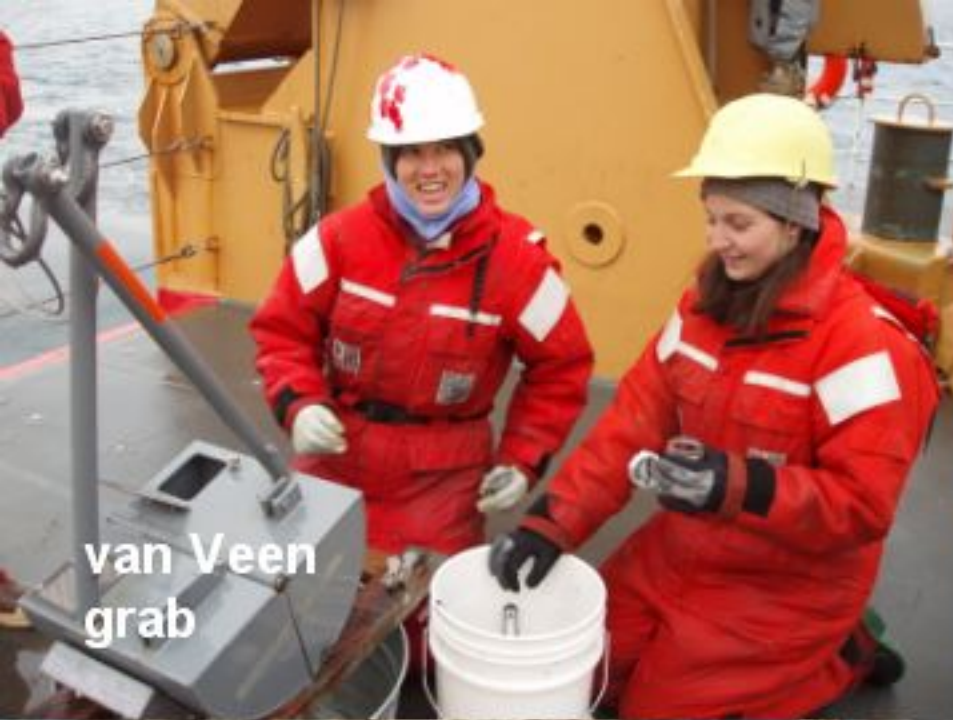
Surface water chlorophyll a (chl a) via MODIS satellite, with settling to middle depths at collection (lower left) and to sediments after few weeks (right)



zooplankton









**Shorthorn sculpin:  
352mm, 599g**

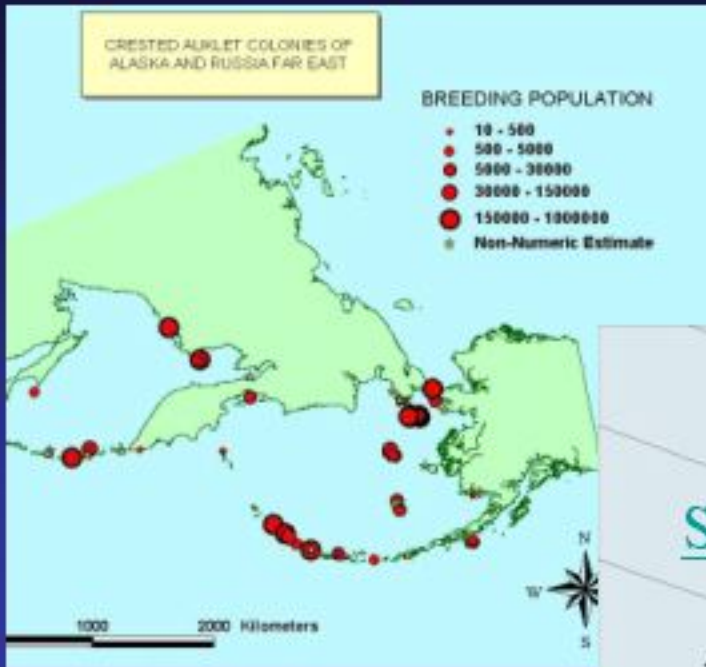
**>40 worms**

Fish/prey photos:  
Sherry Cui



**Ampharetid  
worm**

Photo: Art Howard



# Crested Auklet Observations



## USFWS Crested Auklet Observations Aboard HLY0702



### Diet:

Euphausiids (66 %)

Copepods (22 %)

Amphipods

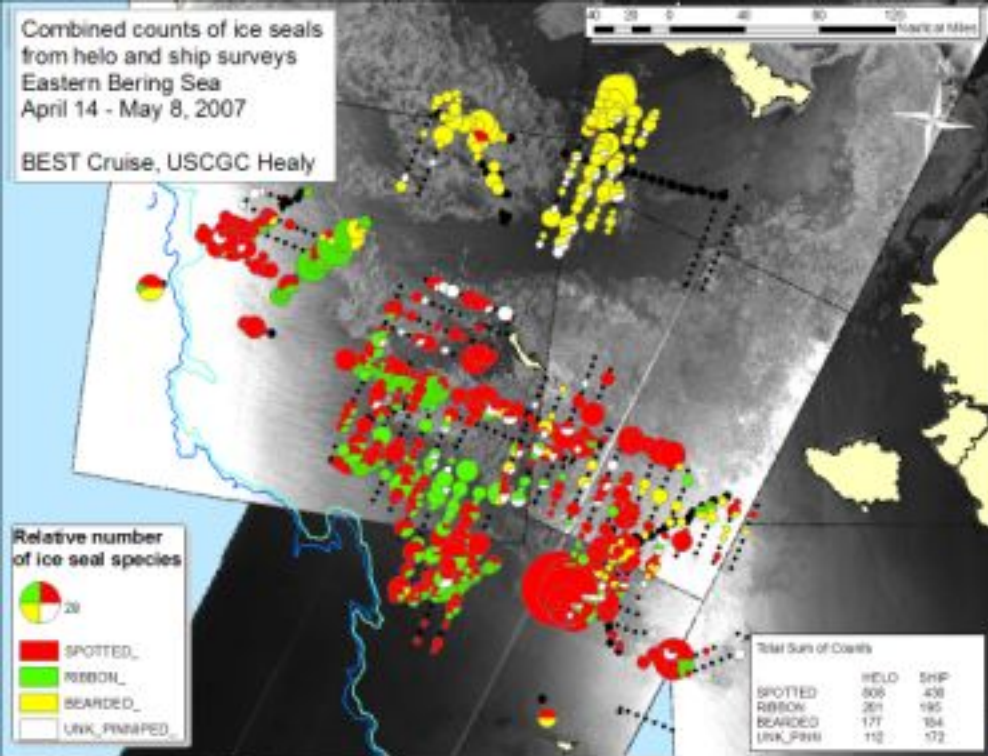
Other zooplankton



# Ribbon seal and pup

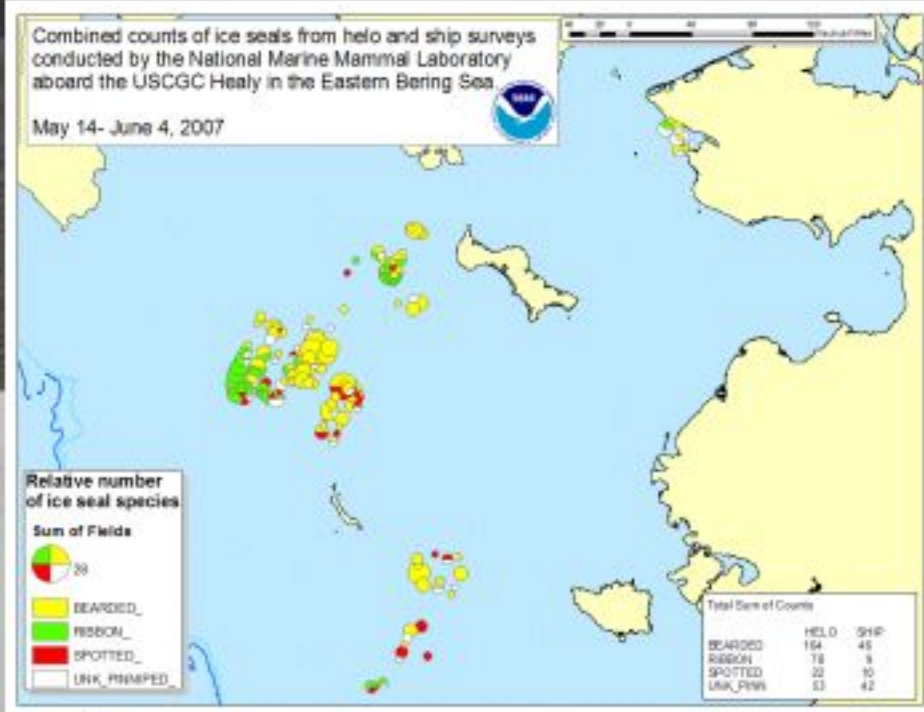


Photo credit: Gavin Brady



# Adult bearded seal

Photo credit: Gavin Brady



**Capt. Tedric  
Lindstrom**



**Operations  
Officer Jim  
Dalitsch**







USCGC Healy bridge operations

**Final Cruise Report and Meeting  
during transit home; will  
arrive Dutch Harbor, Alaska on 18 June 2007**

**Any Questions?**



**Thank you to Janet Warburton (left),  
Katie Breen, Kristen Fisher, and other  
members of the PolarTREC staff for  
assistance in presenting these IPY  
webinars**



*Check out and register for upcoming events!*



***Live from IPY!***

***[www.polartrec.com](http://www.polartrec.com)***

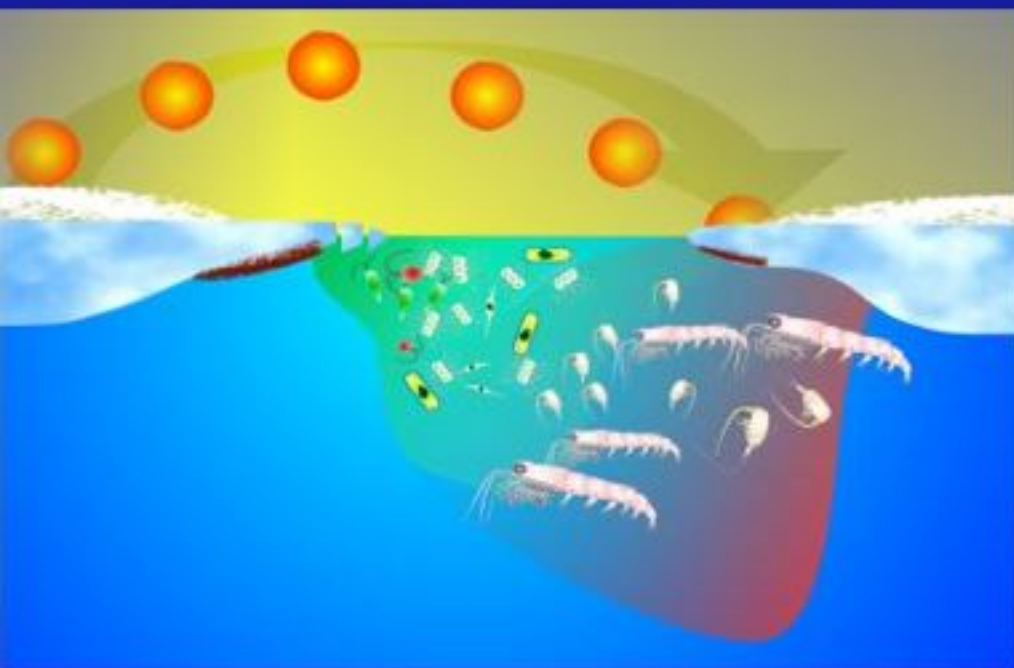
Thank  
You!



*If you have further questions,  
please contact us at  
[info@polartrec.com](mailto:info@polartrec.com) or call  
1-907-474-1600*

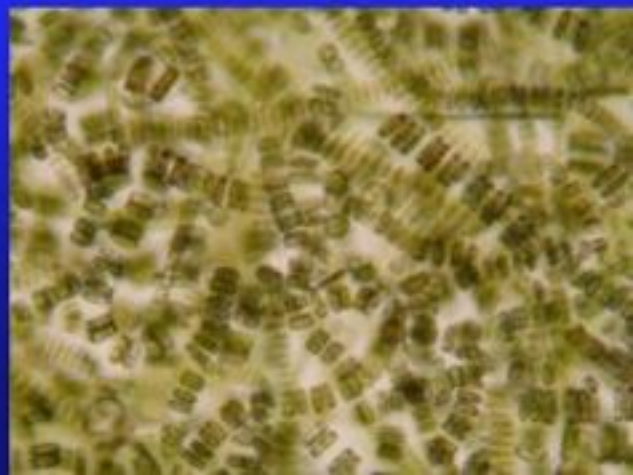


# Ice algae important in spring vs water column production in summer



[Wassman et al. 2004]

Ice algae slower rates of decay compared to temperate diatoms – allows more “labile” material to fuel benthic production in shelf regions; timing/location critical

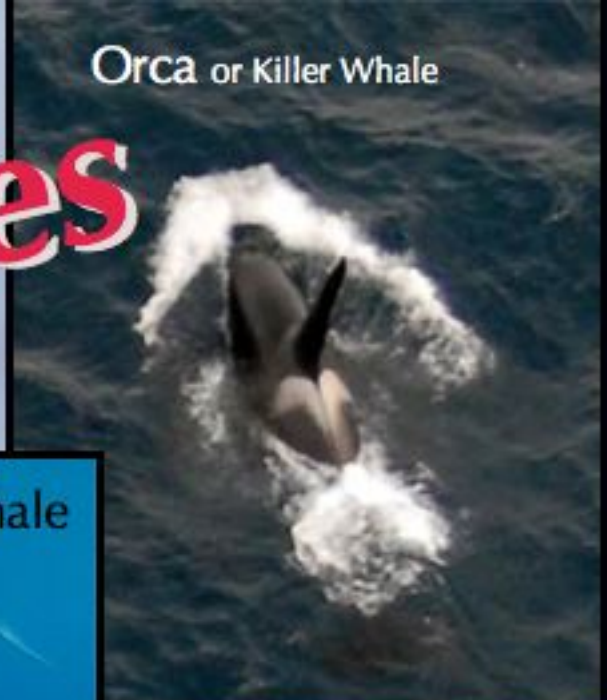


Beluga Whale



Brian J. Sherry

Orca or Killer Whale



# Whales

Minke Whale



Reed Teutsch

Humpback Whale



NOAA



SeaWorld

# Seals

Bearded Seal



NOVA

Ringed Seal



Univ. of Alaska

Spotted Seal



Univ. of Alaska

Ribbon Seal



NOVA

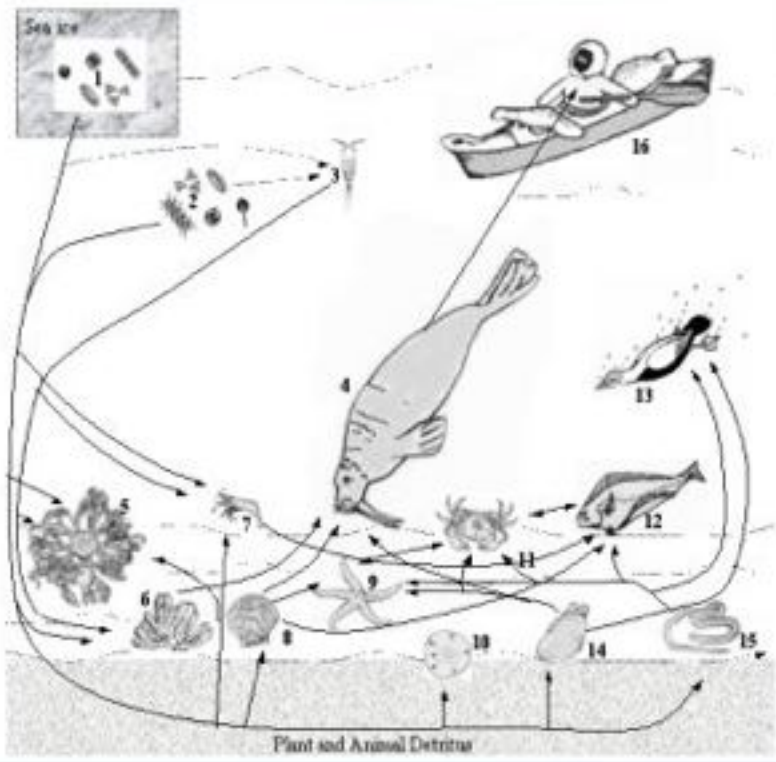
# Walrus



# Walrus herd in the Chukchi Sea— June 2002



[M. Webber-USFWS]



Clam food in walrus stomachs →



[photo courtesy G. Sheffield]

← Schematic of food web in the northern Bering and Chukchi Seas

[Grebmeier and Dunton 2000]



**Polar Bear!**



*Photos by Liz Labunski & Shawn Dahle*



# *The US Coast Guard Cutter Healy*

- 420 Feet long, longer than a football field!
- Home port: Seattle, WA
- Can break through ice up to 7 feet thick!
- Captain Ted Lindström



# *Breaking Ice*



