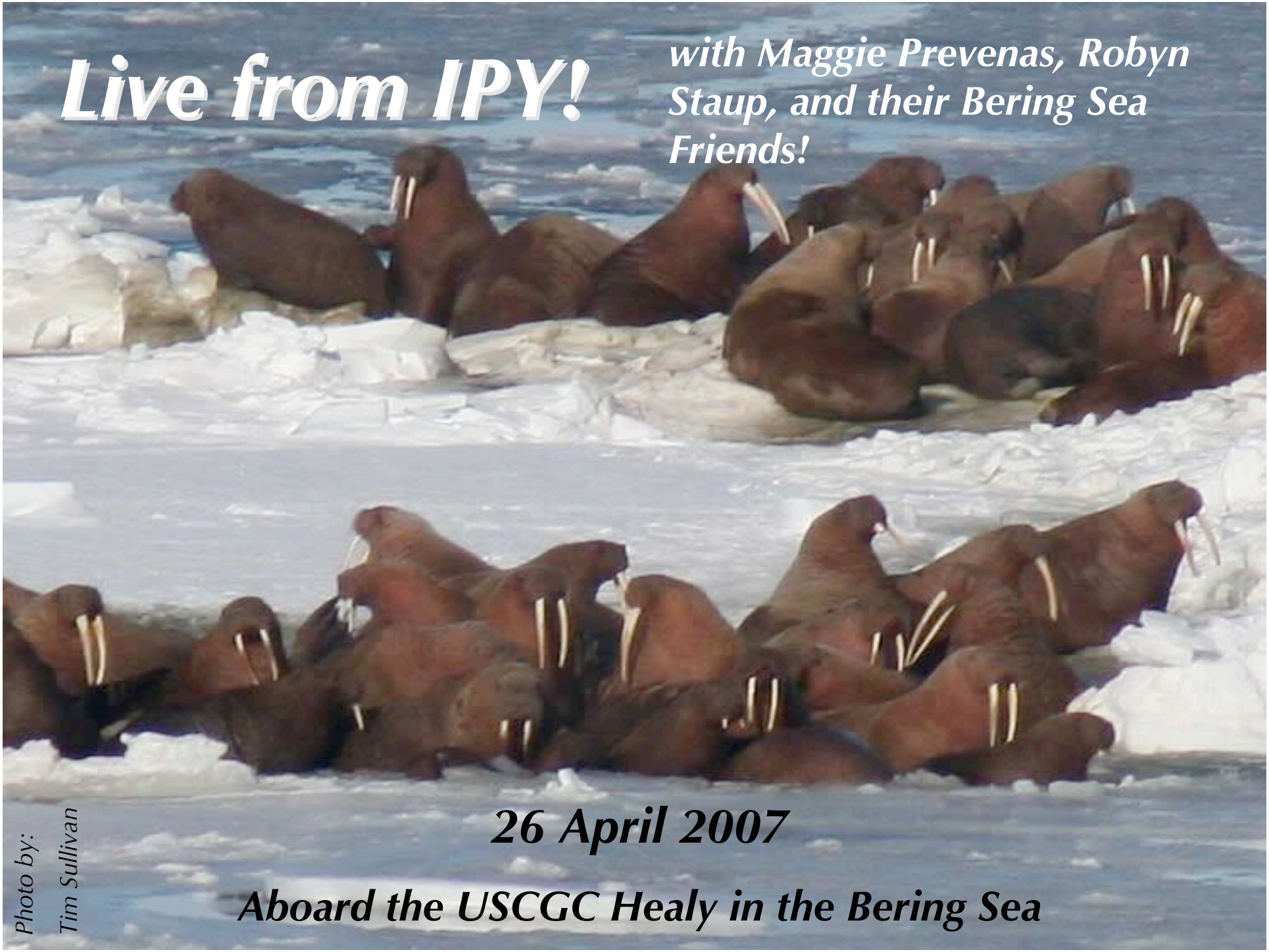
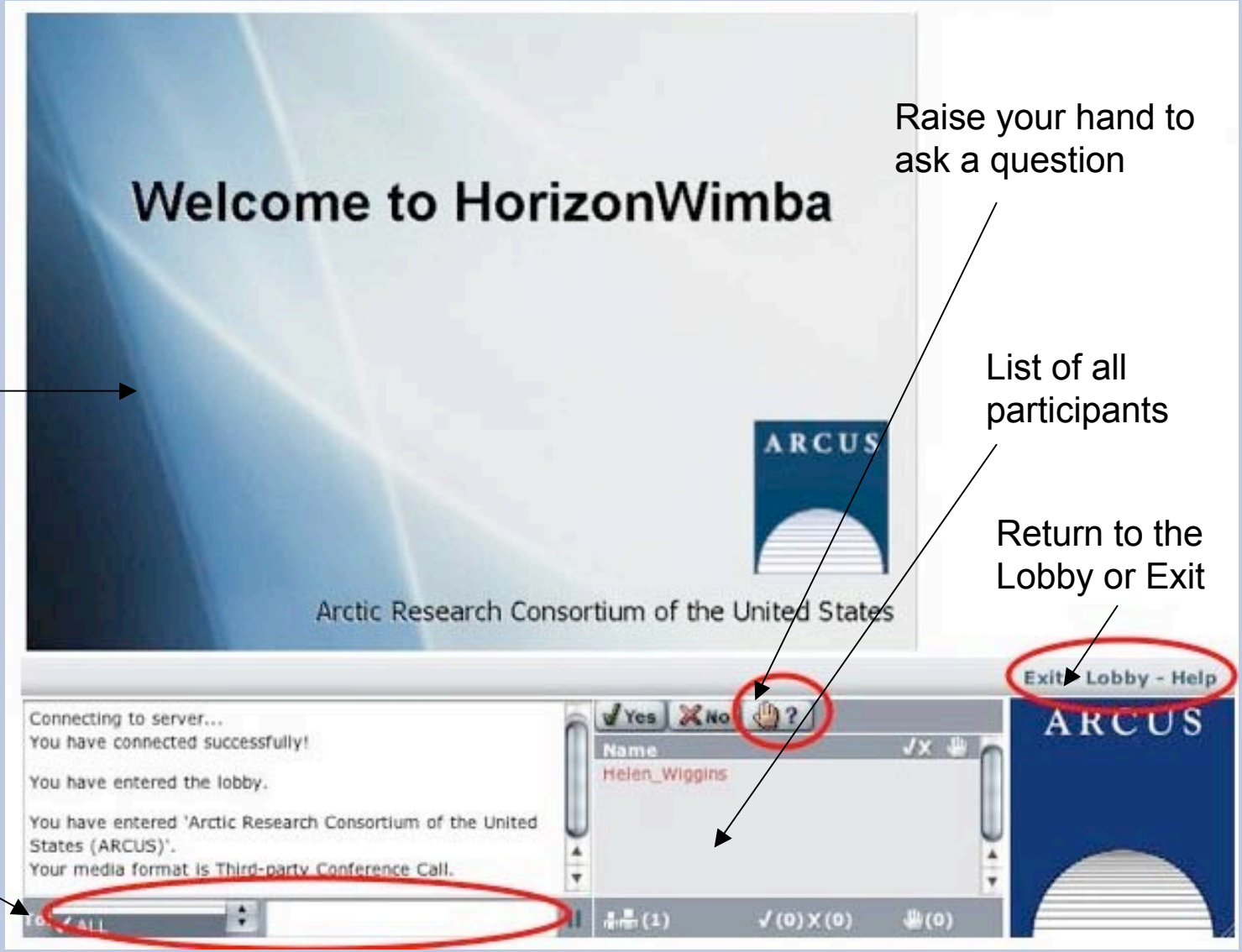

Live from IPY!
with Maggie Prevenas, Robyn Staup, and their Bering Sea Friends!
26 April 2007
Aboard the USCGC Healy in the Bering Sea
Photo by: Tim Sullivan

Slides will be shown here



'Chat' with one person or the entire group

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

The PolarTREC Team

Wendy Warnick
PolarTREC PI
Executive Director

Helen Wiggins
Program Coordinator

Janet Warburton
PolarTREC
Project Manager

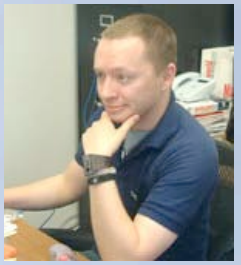
Katie Breen
PolarTREC
Project Manager

Kristin Fischer
PolarTREC
Project Assistant

Ronnie Owens
Web Developer

Ben Wade
Web Developer

Tina Buxbaum
Electronic Media
Project Manager



Zeb Polly
Systems Administrator

Joed Polly
Video Production

…with help from the entire staff at ARCUS

Who are we talking with today?

PolarTREC & NOAA Teacher at Sea Teacher

Maggie Prevenas
Kalama Intermediate School
Hawaii

PolarTREC Science Educator

Robyn Staup
Boonshoft Museum of Discovery
Ohio

Researcher

Jeff Napp
NOAA Alaska Fisheries
Science Center
Washington

Researcher

Alex DeRobertis
NOAA Alaska Fisheries
Science Center
Washington

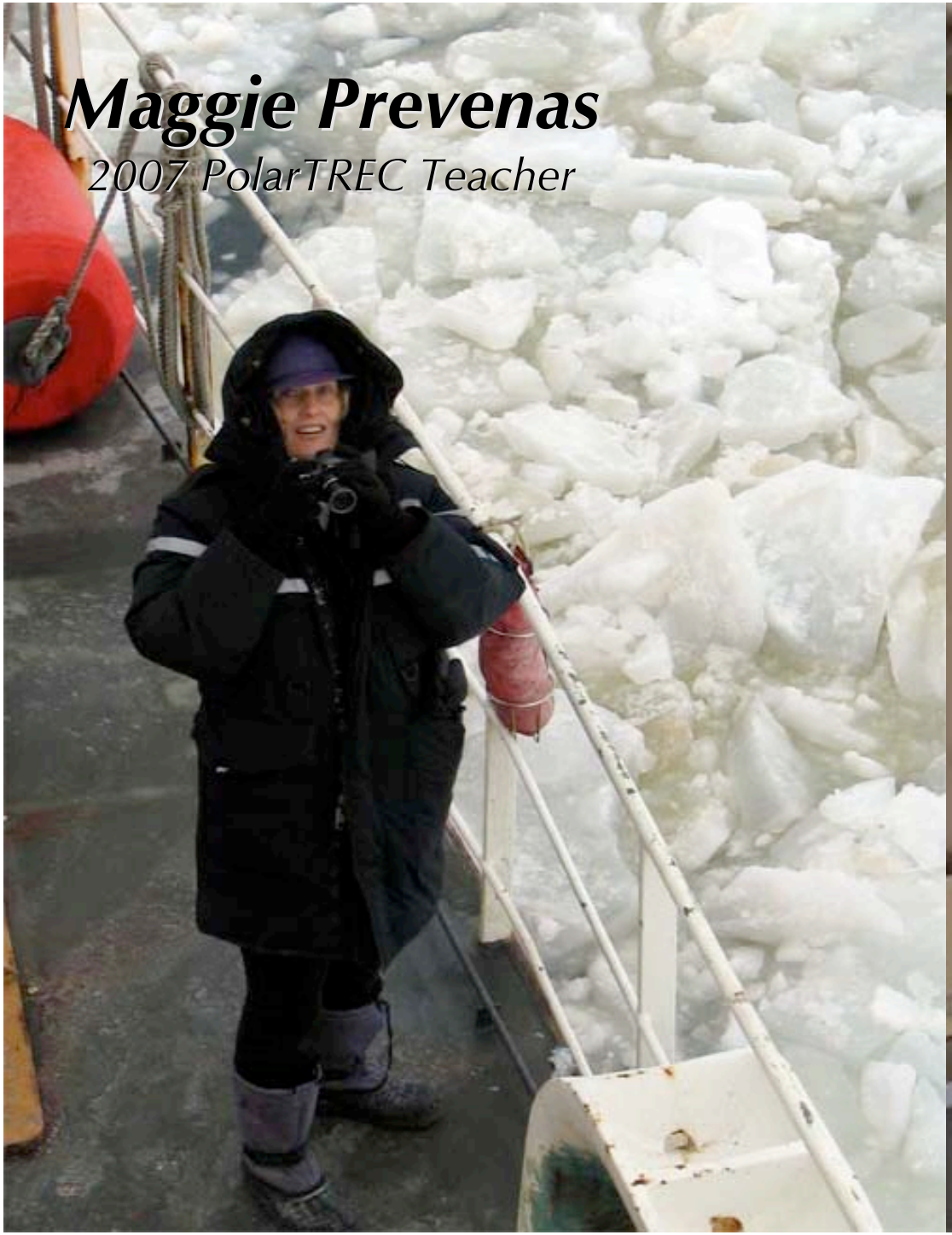
Graduate Student

Emily Davenport


Robyn Staup
2007 PolarTREC Teacher
EXIT

Maggie Prevenas

2007 PolarTREC Teacher



Emily Davenport

Graduate Student


Maggie Prevenas,
Emily Davenport, & Robyn Staup
joining us for Live from IPY!


Maggie Prevenas & Robyn Staup
on the deck of the USCGC Healy

The US Coast Guard Cutter Healy

and Captain Ted Lindstrom

BEST- Bering Ecosystem Study

View of the Healy in sea ice from helicopter.

Goal of the project:

Conduct transects over the eastern Bering Sea to measure the productivity and health of the marine ecosystem.

Dates:

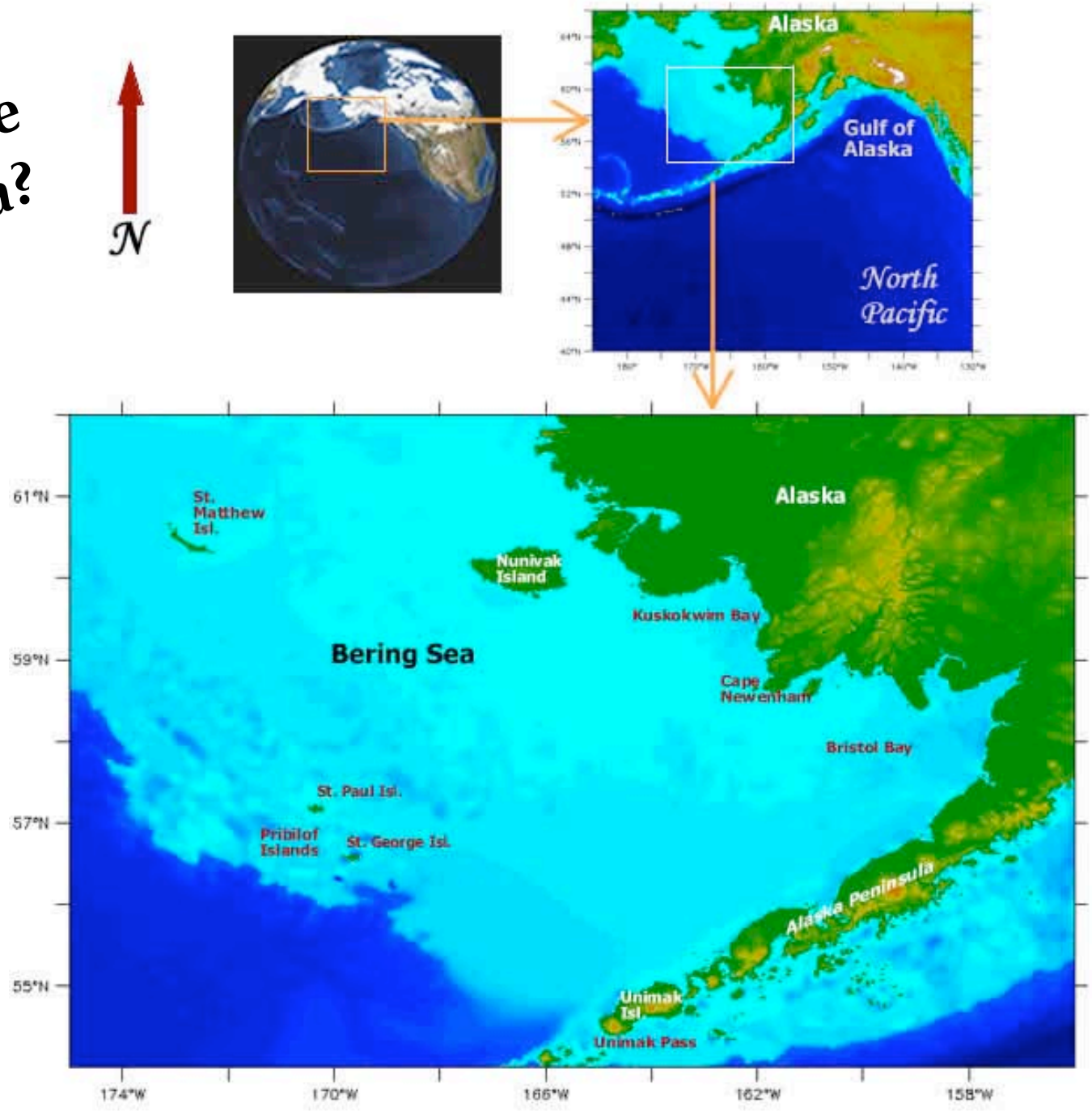
7 April - 14 May 2007

Location:

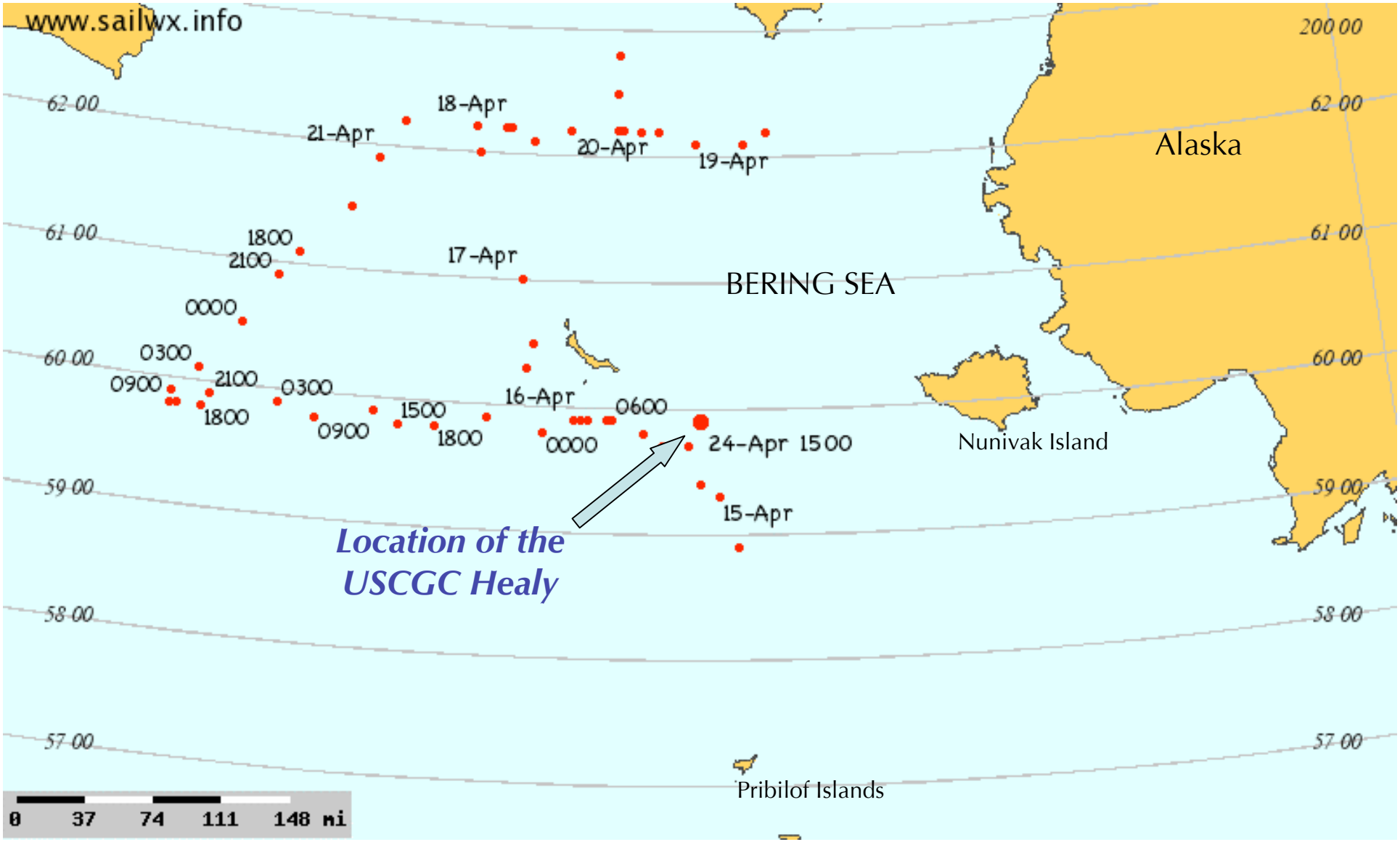
Aboard the US Coast Guard Cutter Healy,

in the Bering Sea

Where is the Bering Sea?

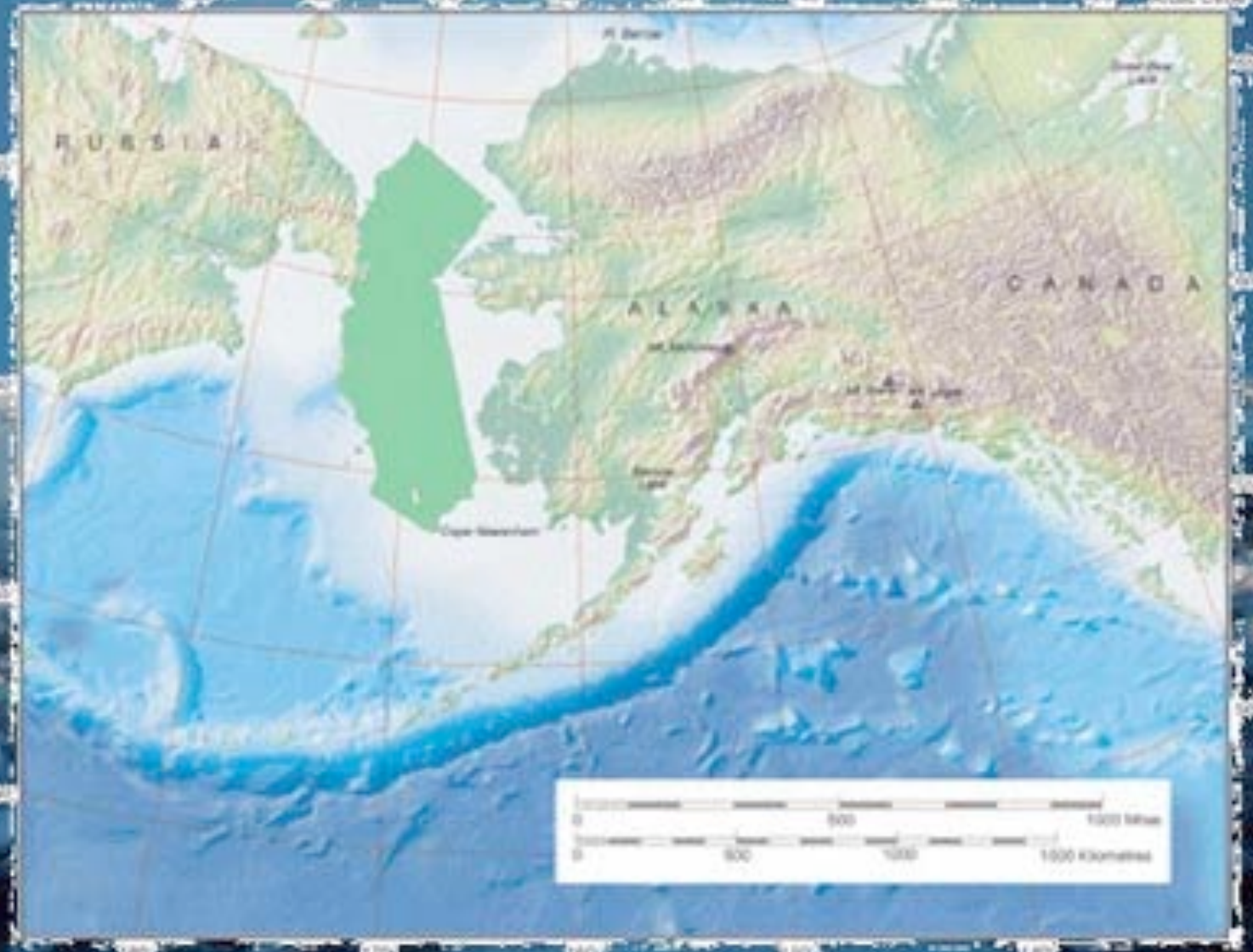


Where is the USCGC Healy?



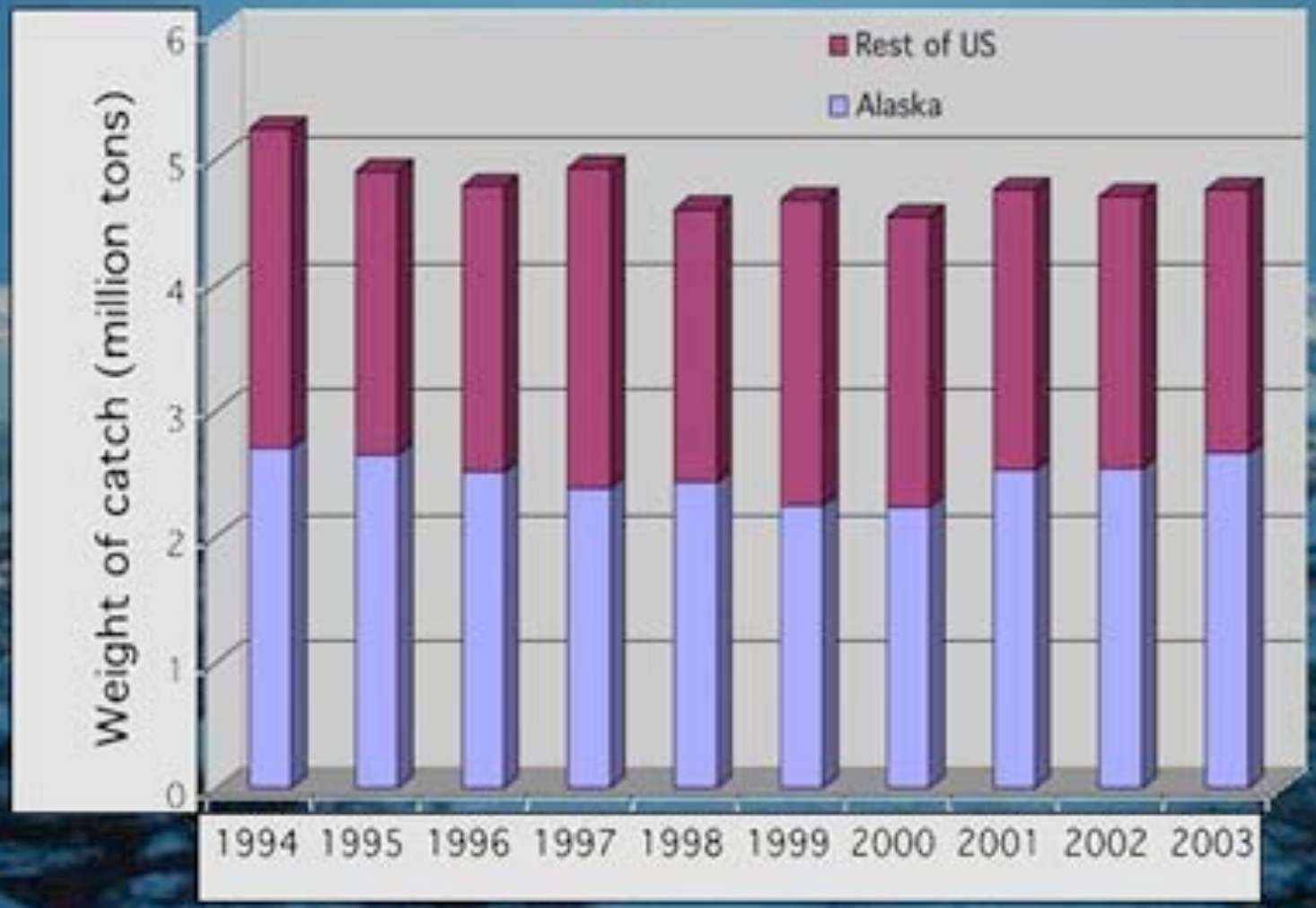

The Bering Sea Ecosystem:
A sea of change
NOAA
Alaska Fisheries Science Center
Pacific Marine Environmental Laboratory

California fits into the Bering Sea!



North Pacific Climate Regimes and Ecosystem Productivity Program

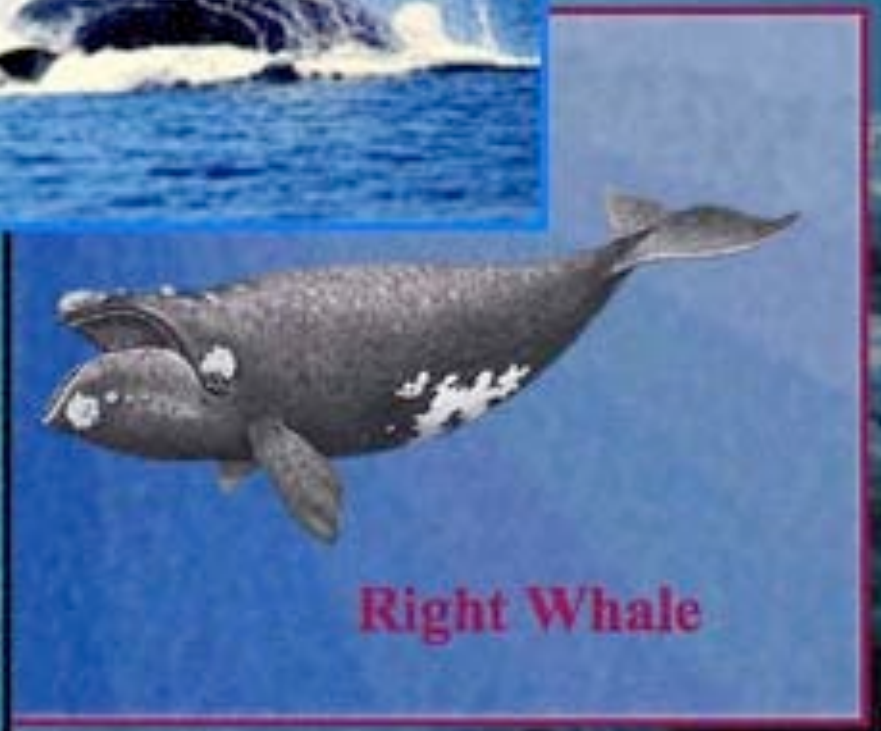
Alaska supplies about half the seafood caught in the U.S.



North Pacific Climate Regimes and Ecosystem Productivity Program


Alaska Seafood Products
HALIBUT
SALMON BURGERS
VICI
Crab claws
Cod Fillets
English Pub Style
VICI
FISH OIL
FISH OIL
Alaska Sole
Caravelles
BIOGRO
Battered Halibut

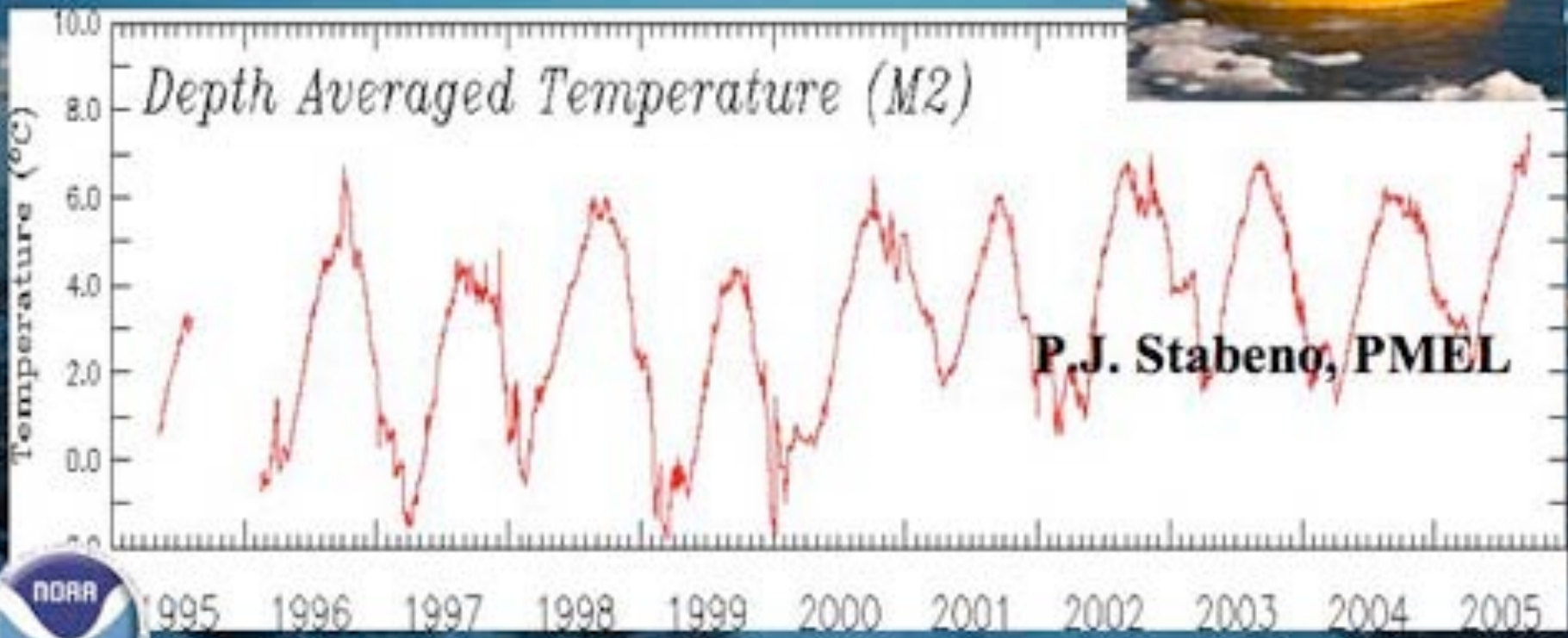
Endangered & Threatened Species



NOAA

North Pacific Climate Regimes and Ecosystem Productivity Program

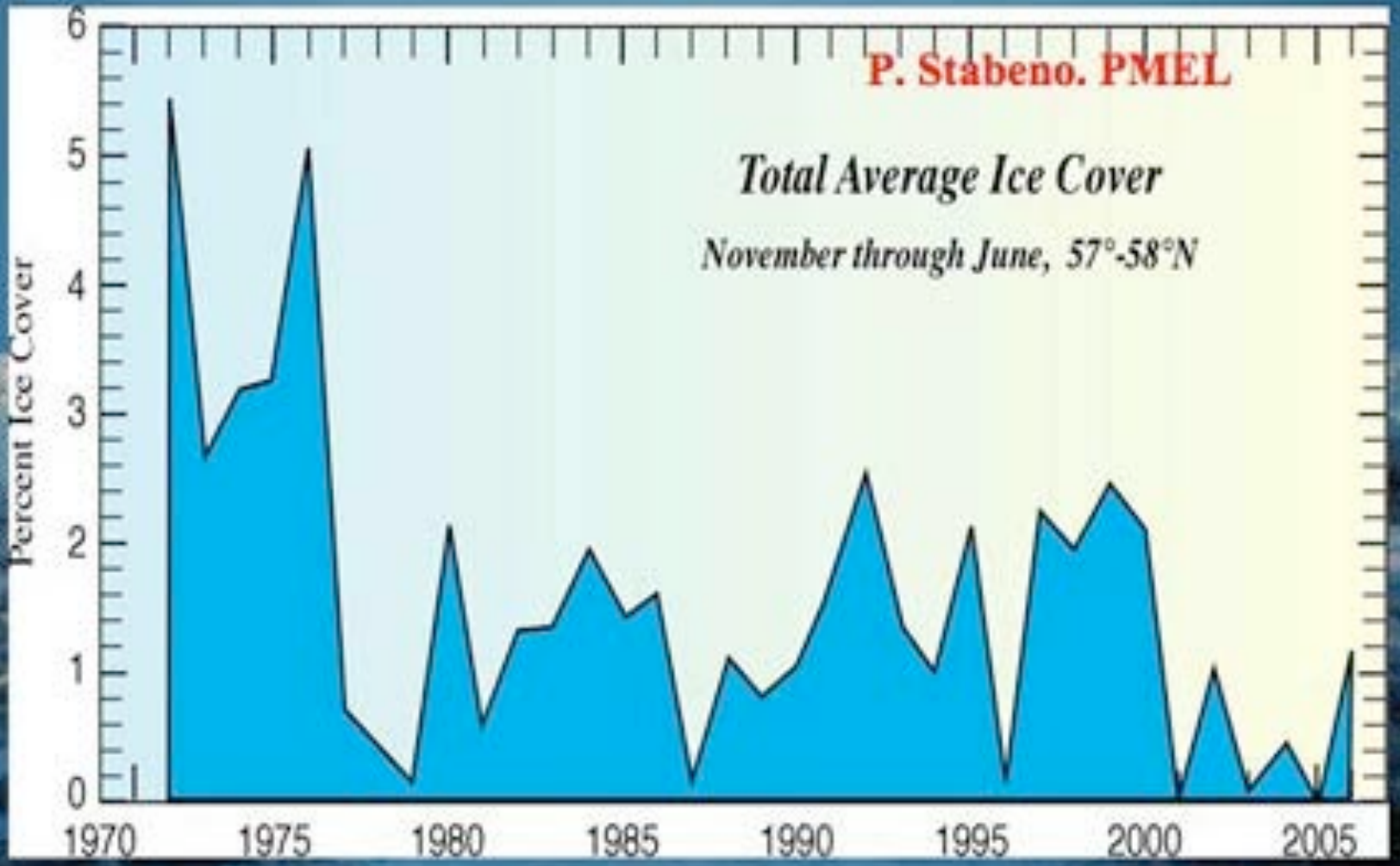
Vertically averaged winter temperature increased 2°C after 2000



P.J. Stabeno, PMEL

North Pacific Climate Regimes and Ecosystem Productivity Program

Loss of Sea Ice



North Pacific Climate Regimes and Ecosystem Productivity Program

Food for Fish & Whales

Copepod

R. Hopcroft, Univ. Alaska

Euphausiid (Krill)

D. Forcucci, U.S. Coast Guard

North Pacific Climate Regimes and Ecosystem Productivity Program

Abundance (no. m^{-3}), Copepod

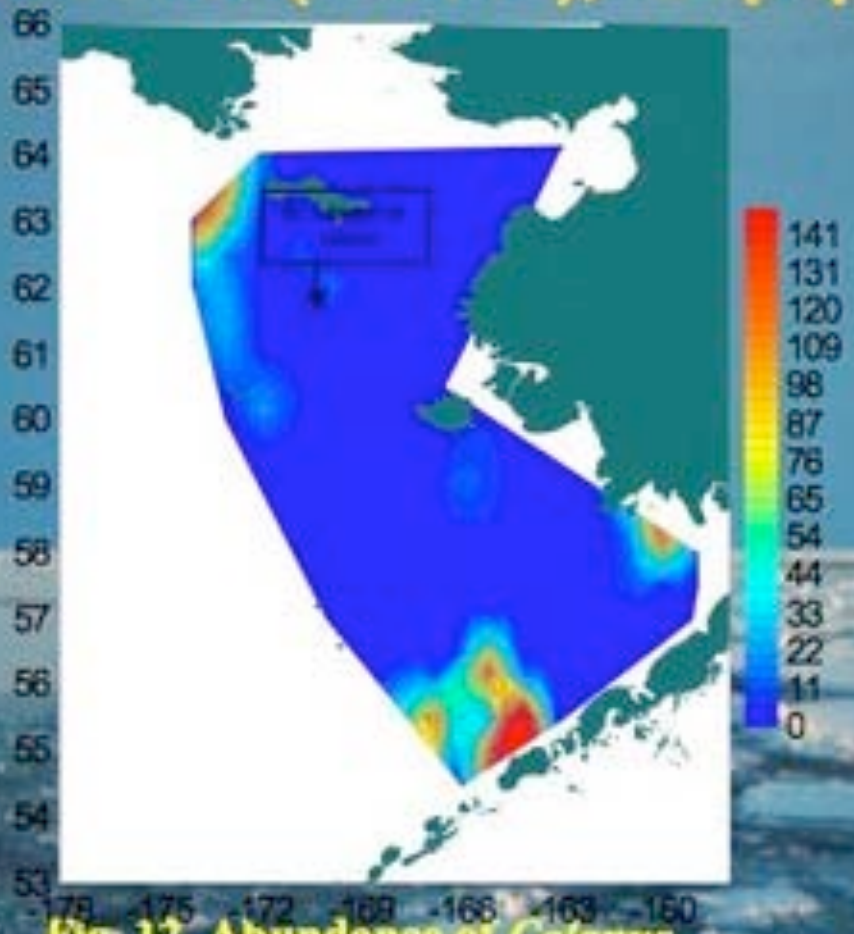


Fig. 12. Abundance of *Calanus marshallae* on the eastern Bering Sea shelf in September, 2004. Black dots indicate station locations (BASIS data). From Coyle et al., *submitted.*

North Pacific Right Whale

2001

2000

Photos: M. Flint & T. Whitledge

North Pacific Climate Regimes and Ecosystem Productivity Program

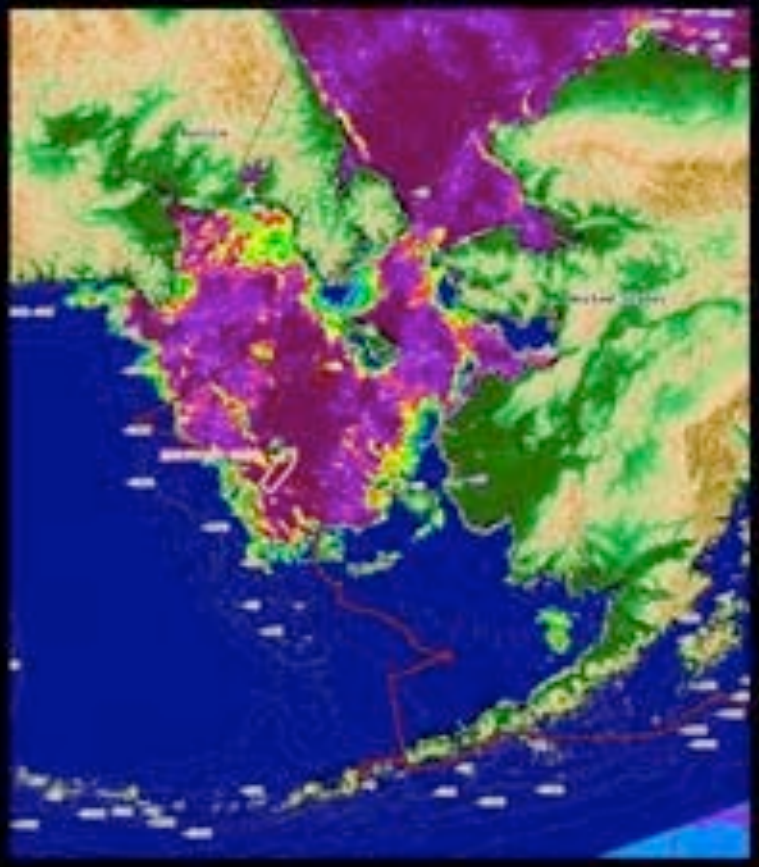
Ocean Acidification

Shelled Pteropod


NOAA
The End
POCI

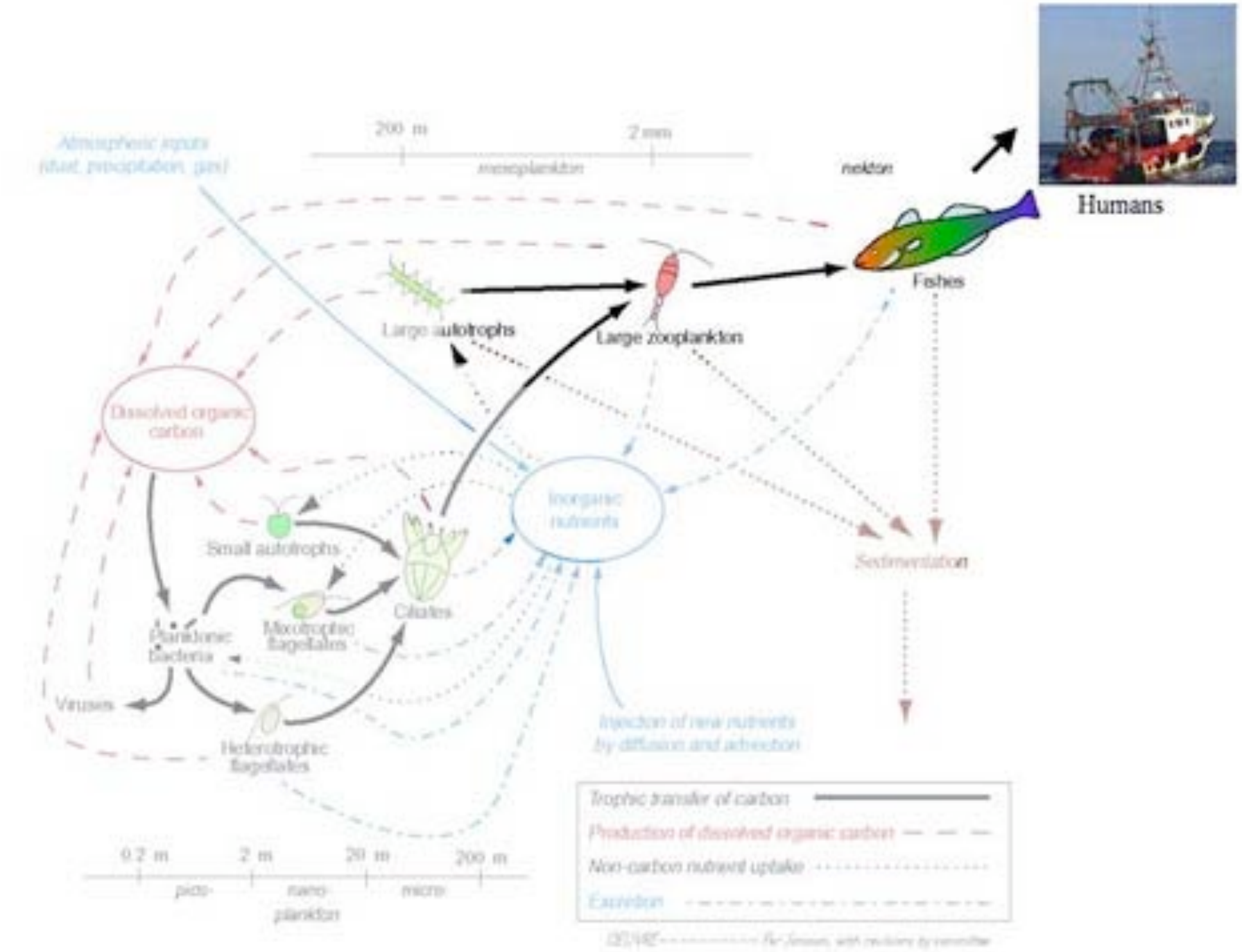
Fish and plankton acoustics

Map of sea ice cover



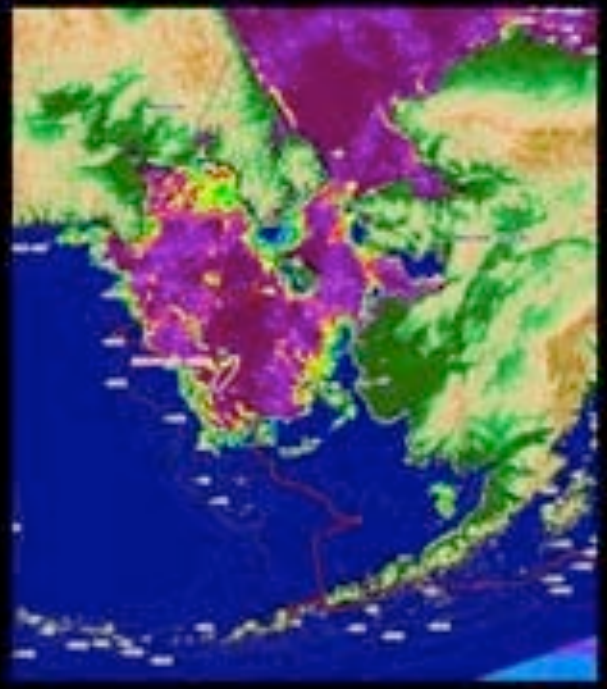
Blue is no ice, purple is high ice

Alex De Robertis – Alaska Fisheries Science Center


Humans
200 m
2 mm
mesoplankton
nekton
Atmospheric inputs
(dust, precipitation, gas)
Fishes
Large autotrophs
Large zooplankton
Dissolved organic carbon
Inorganic nutrients
Small autotrophs
Sedimentation
Ciliates
Planktonic bacteria
Mixotrophic flagellates
Viruses
Heterotrophic flagellates
Injection of new nutrients by diffusion and advection
Trophic transfer of carbon
Production of dissolved organic carbon
Non-carbon nutrient uptake
Excretion
0.2 m
2 m
20 m
200 m
pico-
nano-
micro
plankton

One of the goals of this cruise

To understand how ice and cold water affects the abundance of fish and euphausiids.

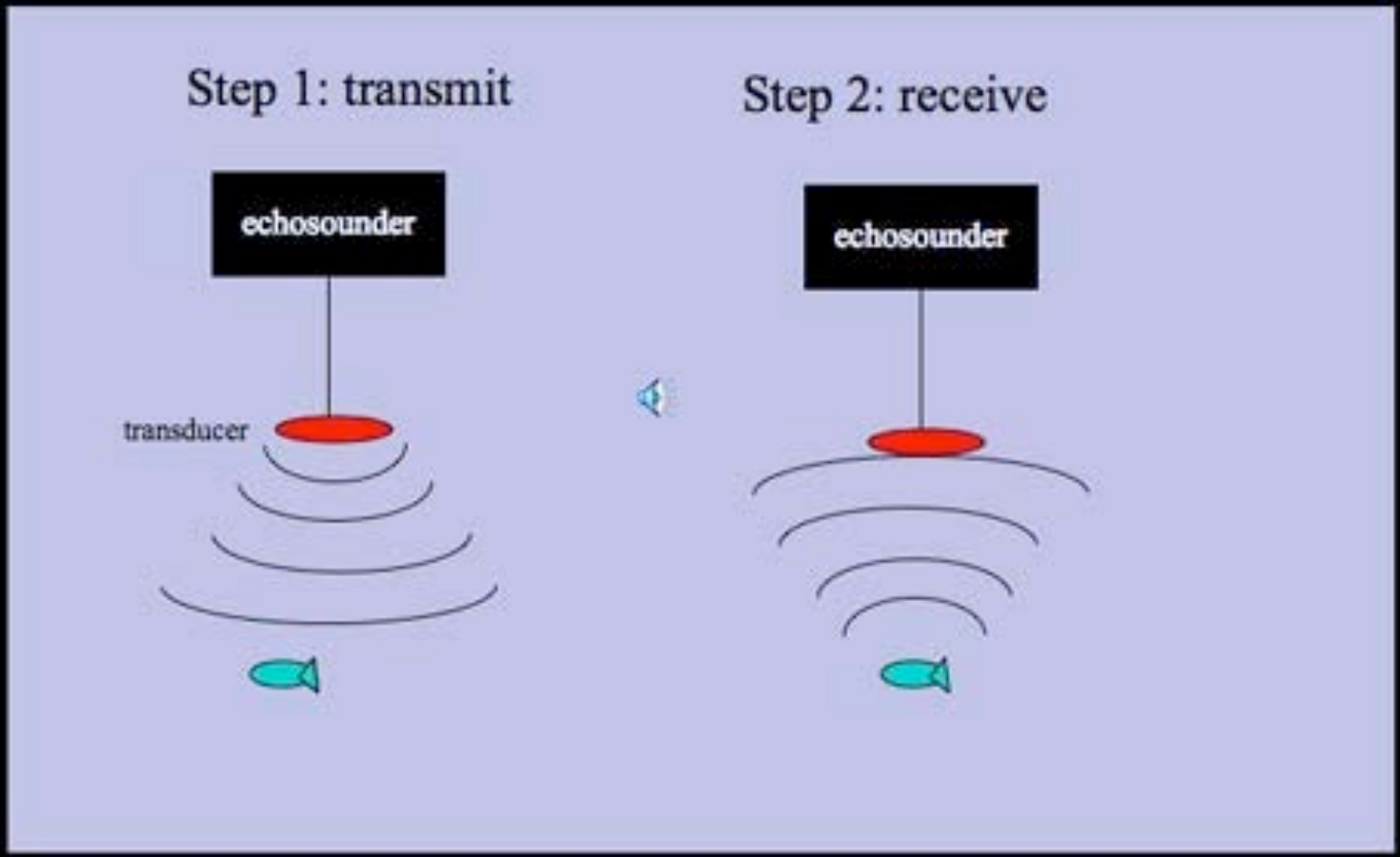


Plankton e.g. euphausiids

Fish e.g. pollock

The problem:

Fish finders in a nutshell:



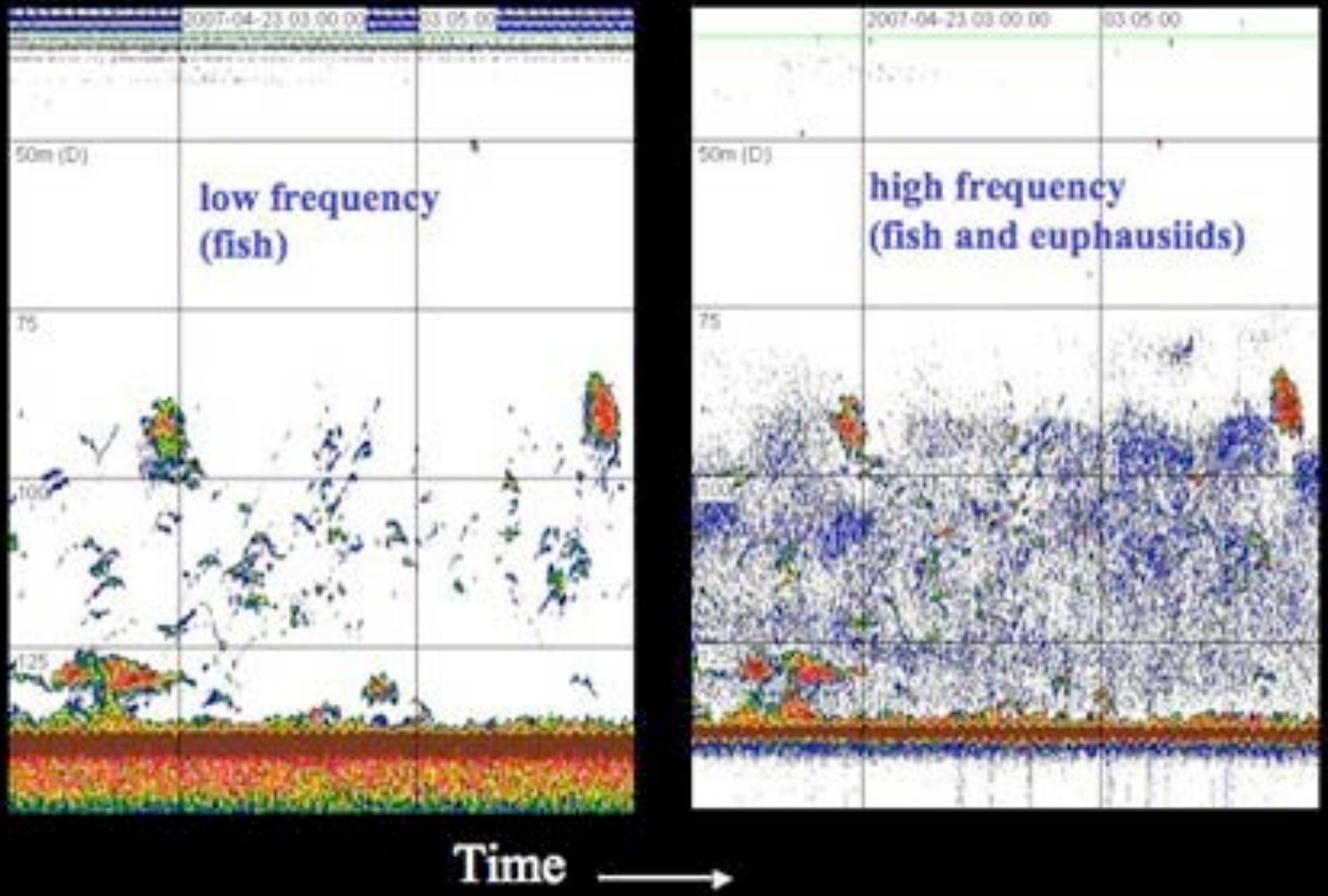
The equipment we set up on Healy

Electronics

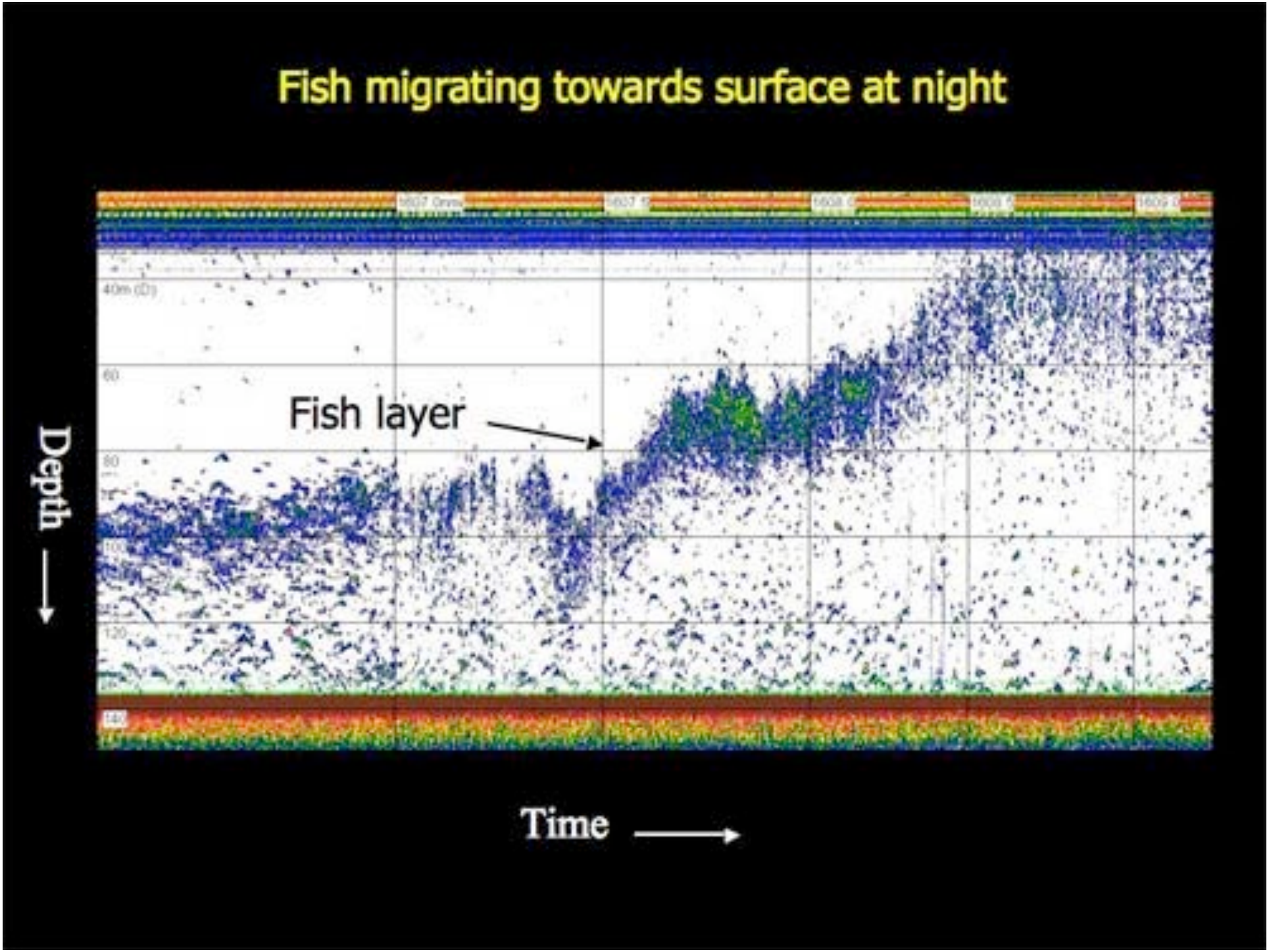
Transducer

Transducer well

Two frequencies are used to classify the animals:



Fish migrating towards surface at night



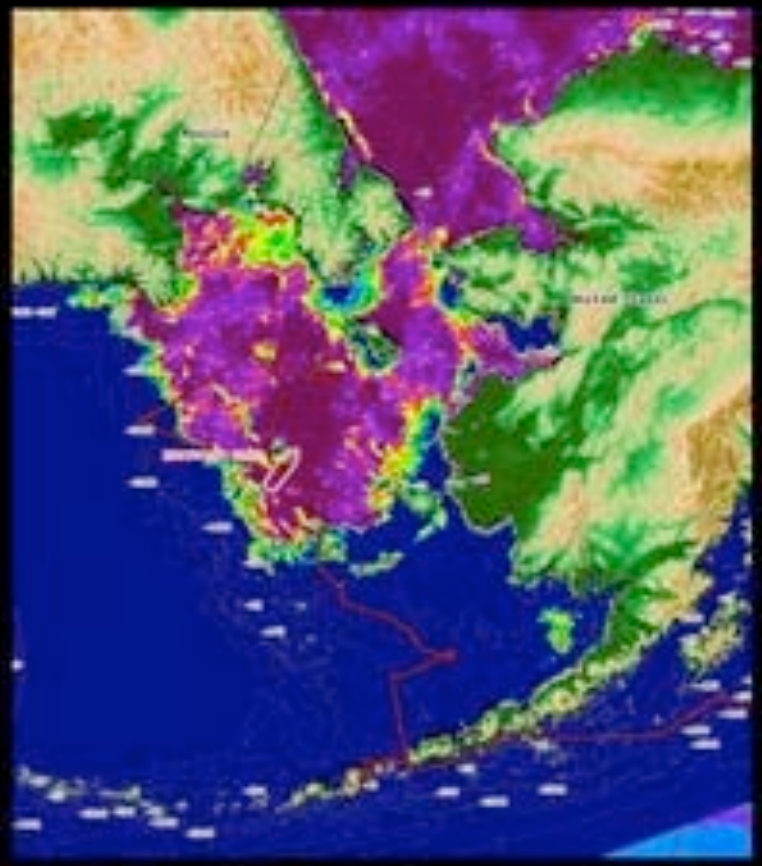
What have we learned so far ?

Fish and plankton are more abundant just outside of the ice.

We will compare abundance
of fish and plankton with

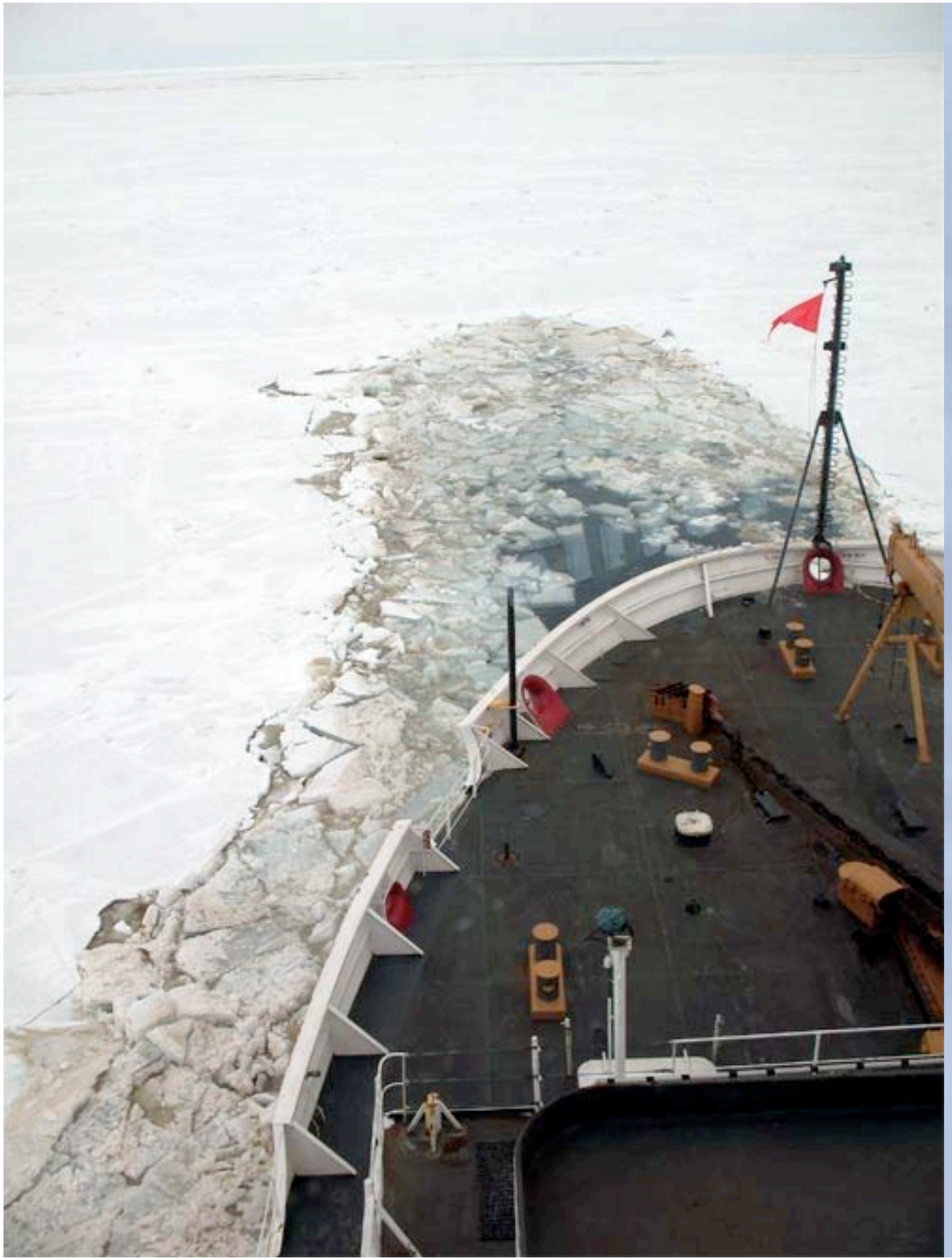
Predators
Distribution in other seasons
Environmental features

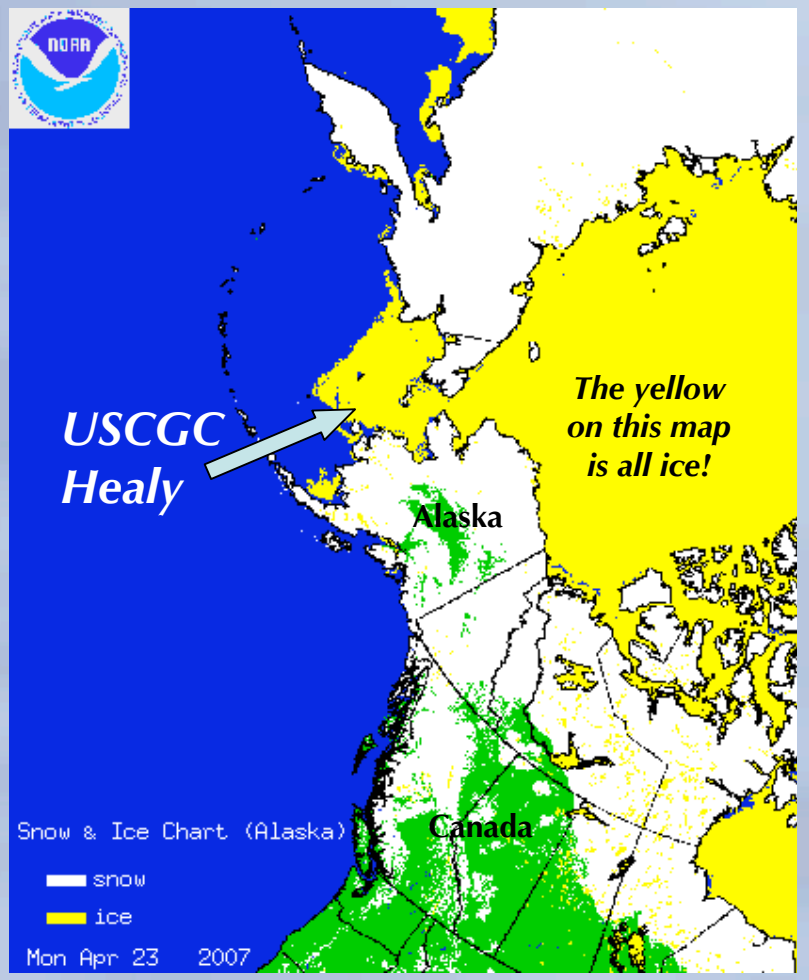
Map of sea ice cover



Blue is no ice, purple is high ice

Breaking Ice





The Science: *Ice Observation*

Sea Ice Observation Report Form

Date:	**Time:**	**Time zone:**
Latitude:	**Longitude:**	
Description of position:		
Altitude of observer:		
Looking toward (compass bearing):		
Charted landmarks in view:		

Concentration: (see pages 7-10)	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Stage of Development: (see pages 11-15)	**New**				**Ni**	**YN-G**	**YN-GW**	**FL**	**FM**	**FT**	**Old**
Form: (see pages 16-22)	**New**		**Brash**		**Belts**		**Strips**		**Pancakes**		
Cakes	**Small floes**		**Medium floes**		**Big floes**		**Vast floes**		**Giant floes**		
Other description:											

These are tools Mrs. Prevenas and Ms. Staup use to record ice conditions!

Useful Size-Reference Objects

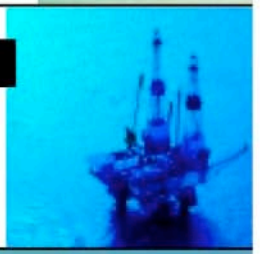
Brash: less than 2 m (6 ft) across

Growler: less than 5 m (16 ft)
Pancake: 30 cm - 3 m (1 - 10 ft)

Bergy Bit: 5 - 15 m (17 - 50 ft)
Ice Cake: 3 - 20 m (6 - 65 ft) across

Small Berg: 15 - 60 m (50 - 200 ft)
Small Floe: 20 - 100 m (65 - 328 ft)

Medium Berg: 61 - 122 m (201 - 400 ft)
Large Berg: 123 - 213 m (401 - 670 ft)



Medium Floe:
100 - 500 m (328 - 1640 ft)
Very Large Berg:
greater than 213 m (670 ft)
Big Floe:
500 m - 2 km (1/3 - 1 mi)

The Science: *Core Samples*

Bad Core Samples

Measuring Radon in the Mud Cores

Take a ride down to the ice...

The Science: *Seals*

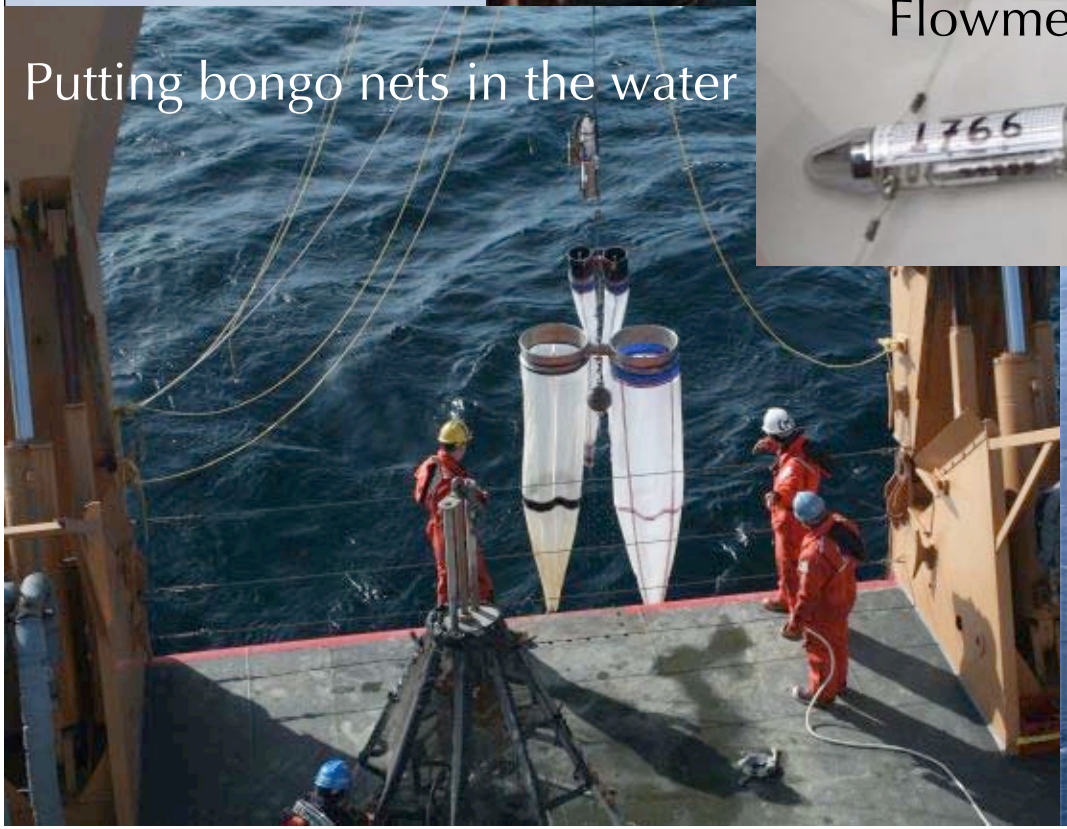
Make a plan...

Seals are hard to sneak up on...

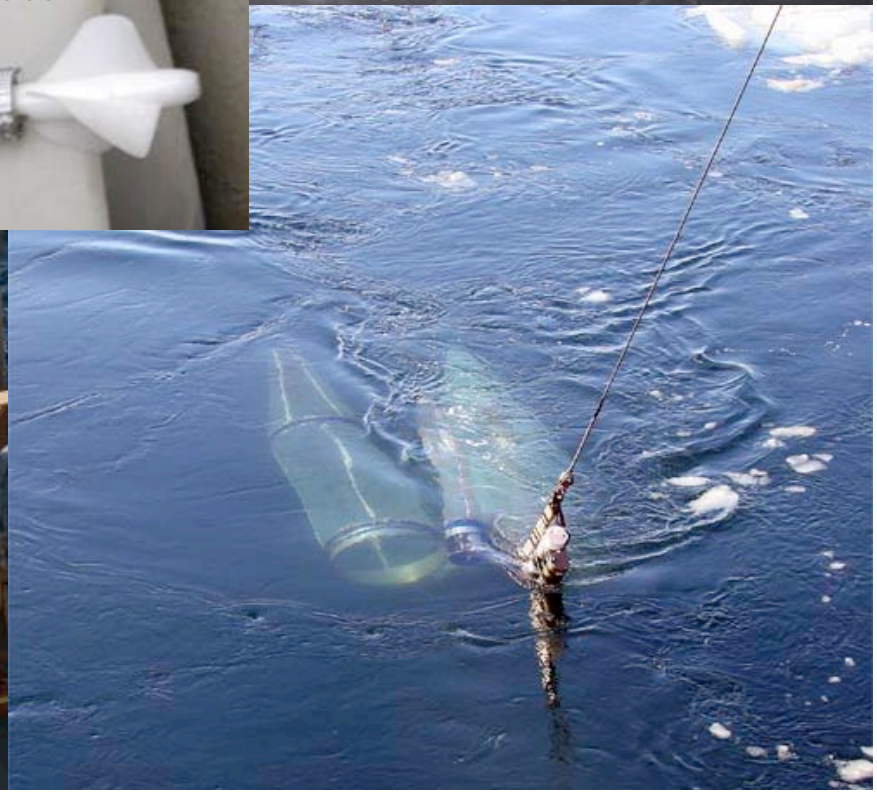
Spotted Seal pup

The Science:
Zooplankton in the Bering Sea

Putting bongo nets in the water

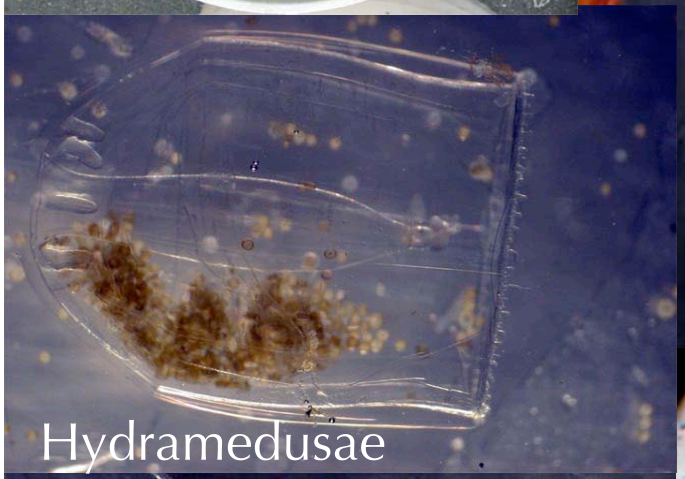


Flowmeter




Bucket of
Zooplankton


Megalops


Hydramedusae


Calanus

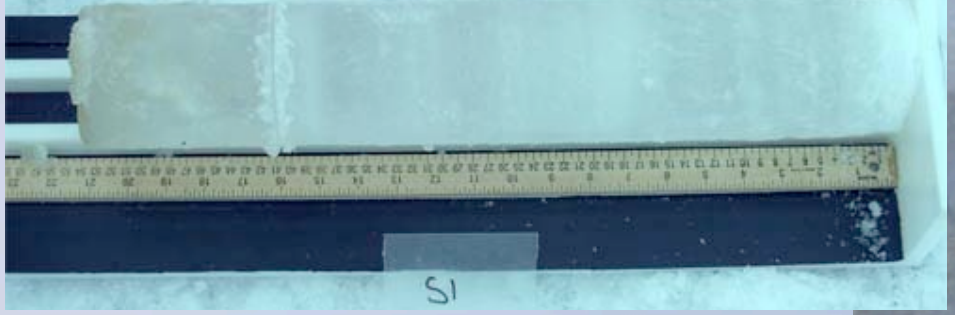

Arrow Worm


Pteropod


Krill

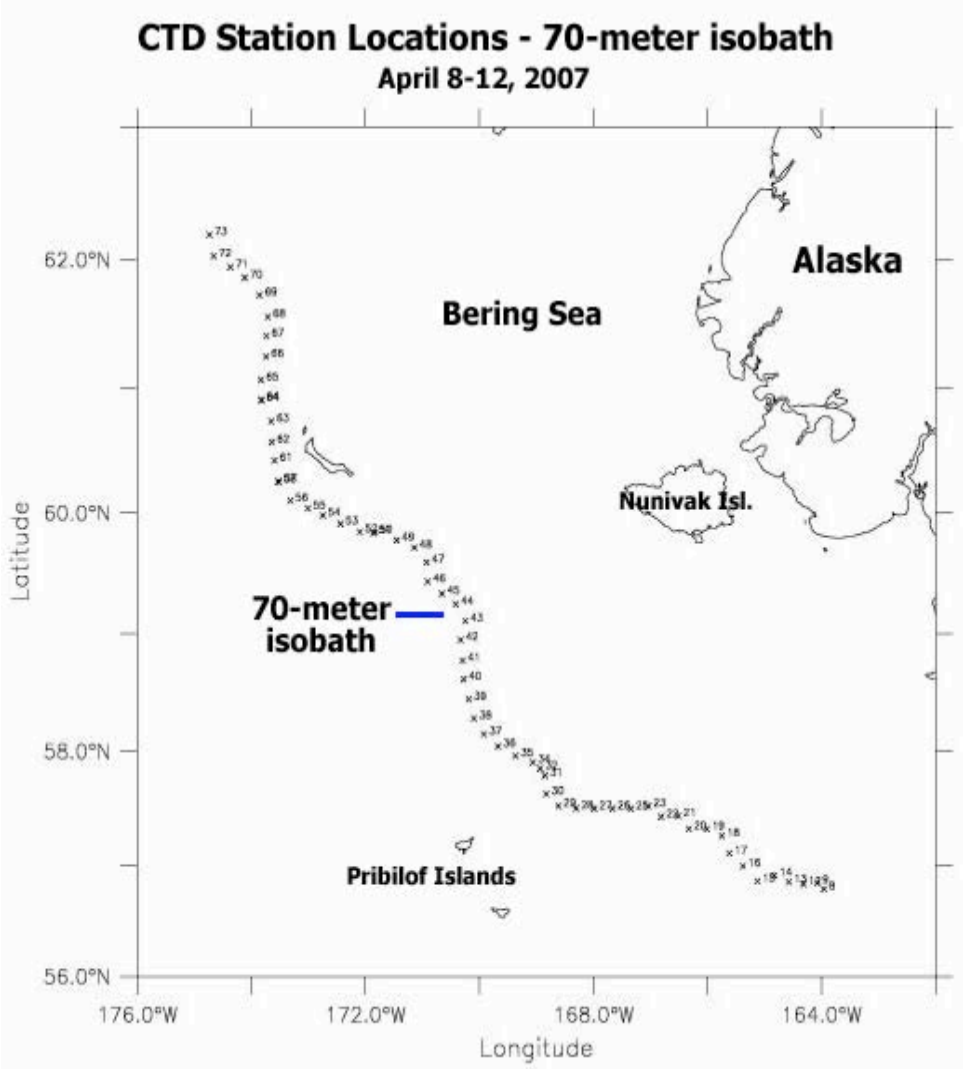
The Science: *Ice Cores*

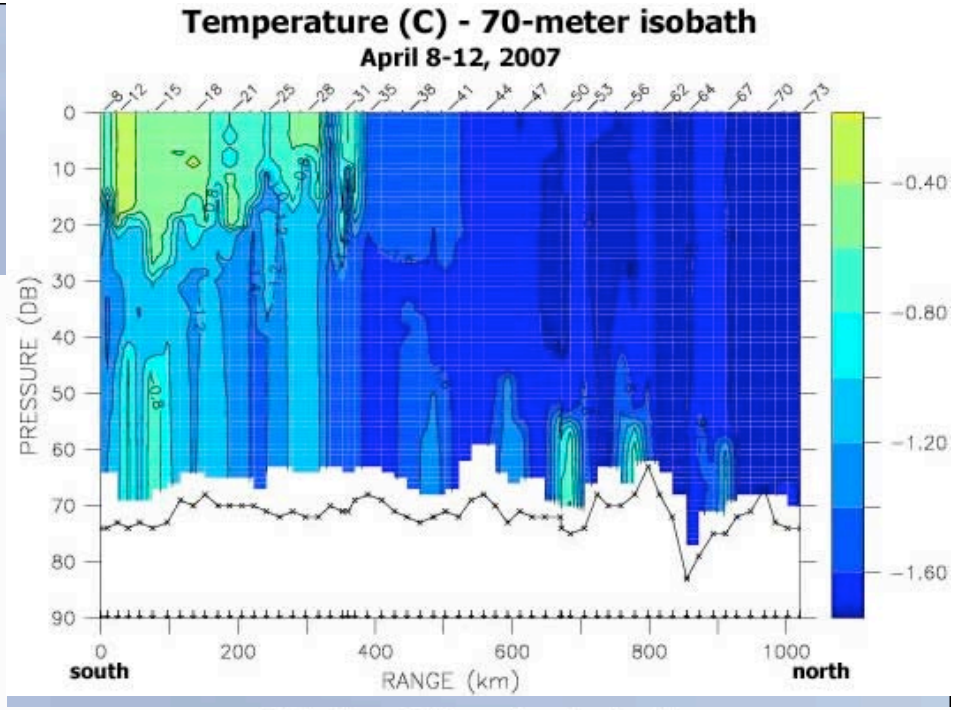
Do you see the layers in this ice core?

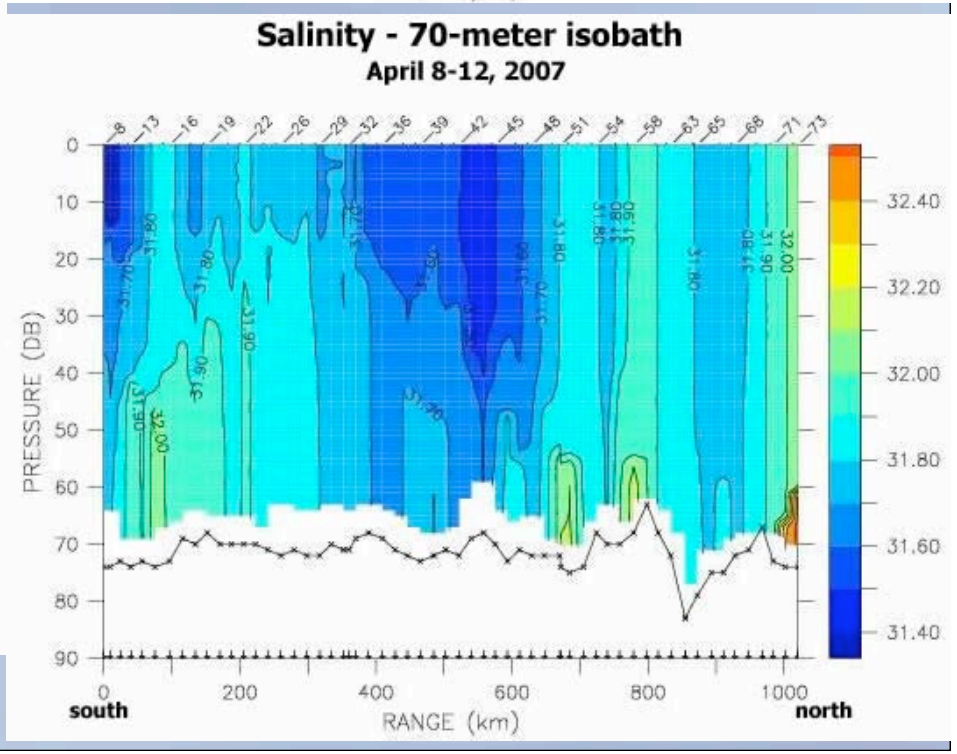


The Science: *CTD*

(Conductivity-Temperature-Depth Recorder)







Stations and data from CTD samples.

Styrofoam Cup Experiment

Before

After being 2700 meters deep in the Bering Sea!

The Wildlife: *Whales*

View of beluga whales from the helicopter.

The Wildlife: *Other Sea Mammals*

Walrus

Ribbon Seal pup

Bearded Seal

NOAA

Univ. of Alaska

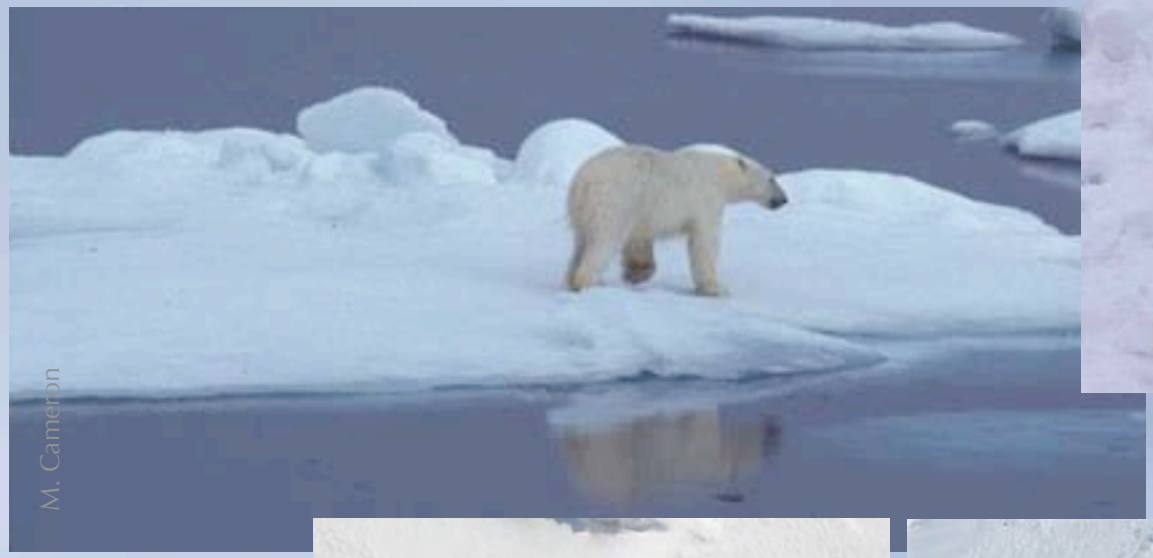
Spotted Seal

Wildlife Count from the Healy as of 24 April

125 bearded seals	113 spotted seals
7 ribbon seals	226 walrus
37 ringed seals	78 unknown species

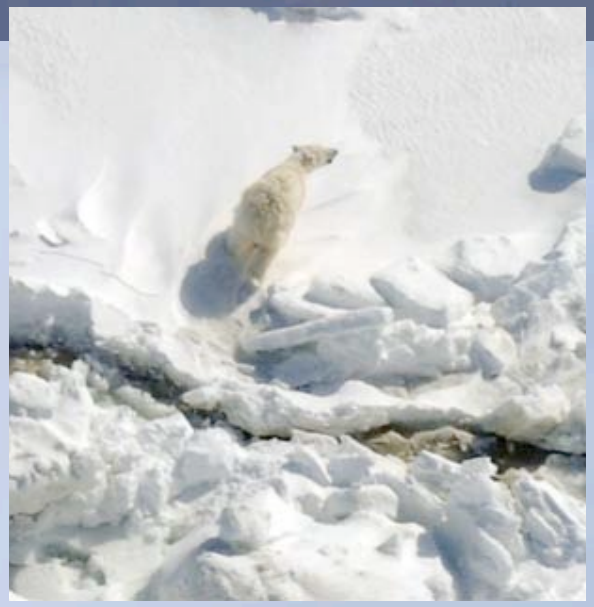
The Wildlife: *Polar Bears*

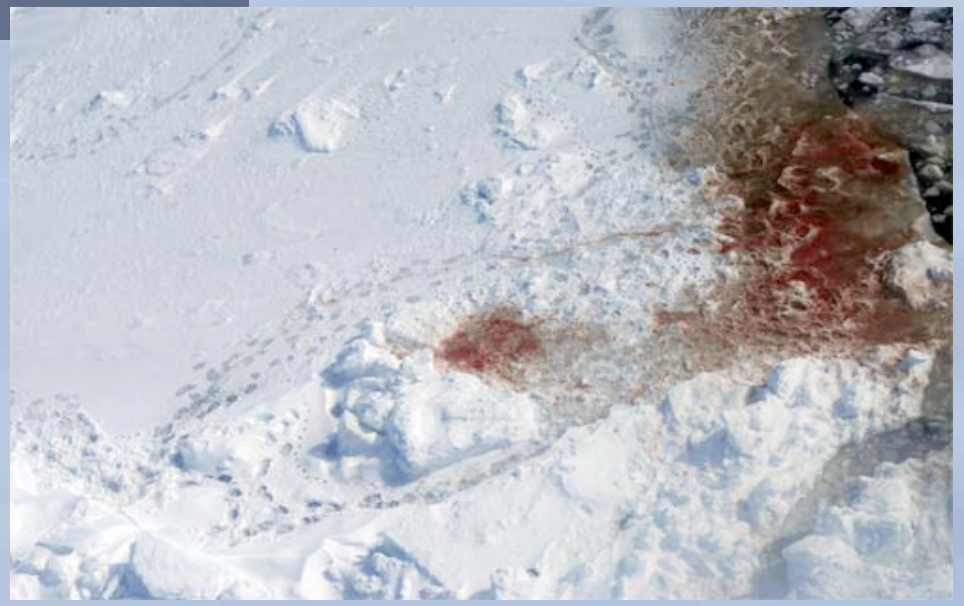
Polar Bear from the Healy in 2006



On Polar Bear Watch

2007 Polar Bear and "kill spot" viewed from Helicopter






Common
Murre
The Wildlife:
Sea Birds
Ivory Gull
Spectacled Eider
Northern Fulmar
Herring Gull

The Wildlife: *Fish*

Pacific Salmon

Pollock

Cod

The ship's helicopter

Safety on the USCGC Healy

Join us again next week!

Thursday, May 3 at
9:00 a.m. Alaska Daylight Time

[7:00 a.m. HDT, 10:00 a.m. PDT, 11:00 a.m. MDT,
12:00 p.m. CDT, 1:00 p.m. EDT]

Thank You!

Check out www.polartrec.com to see more pictures and keep posted on upcoming events!

If you have further questions, please contact us at info@polartrec.com or call 1-907-474-1600