

# AICC, Winter 09

## Polar Icebreaker Update

[Pix: Ice at time of Chinese Mooring Recovery effort]



# POLAR SEA 09-01 Cruise

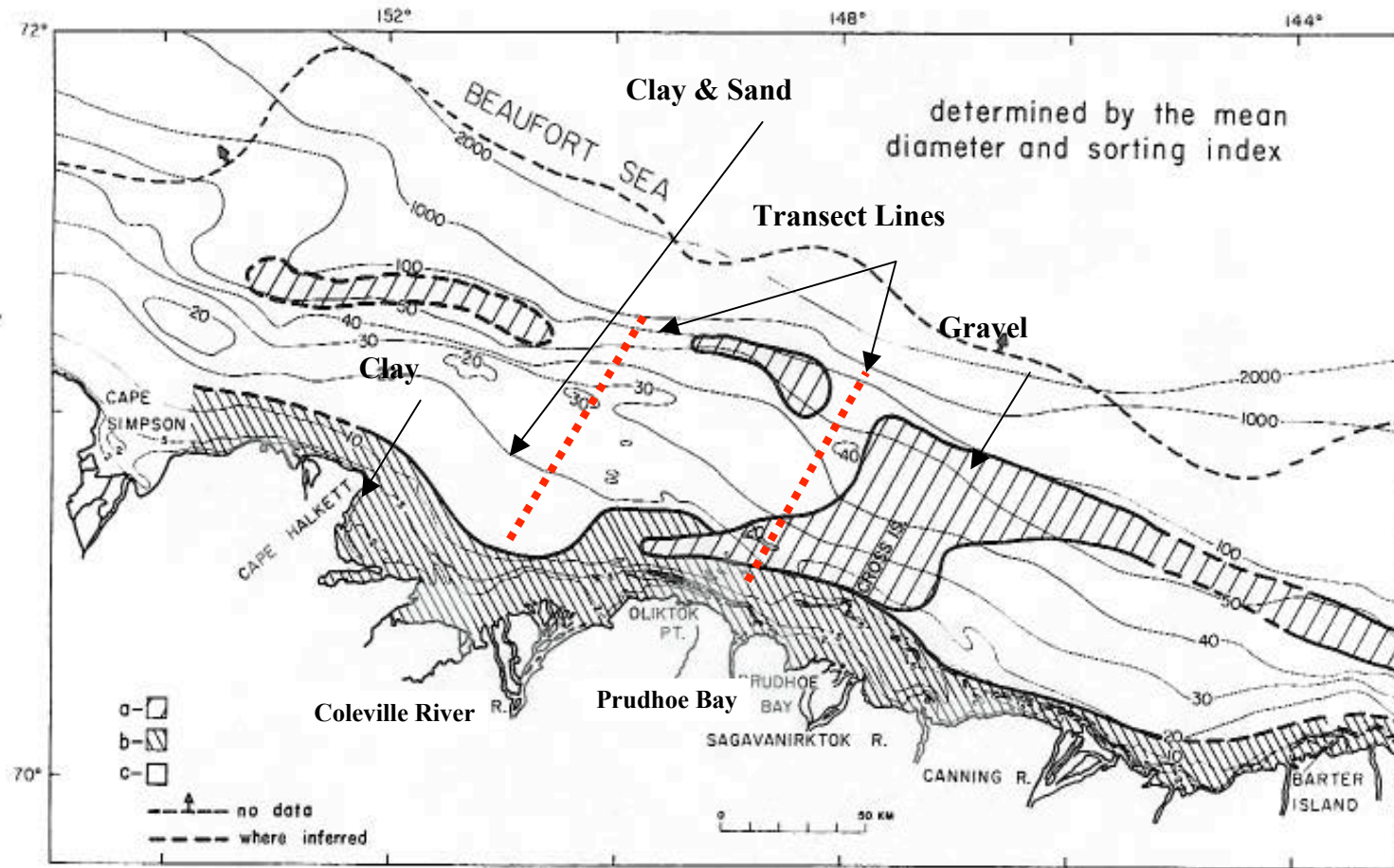
## Sept 5 – Dec 3, Seattle-Seattle

- Three science legs:
- R. Coffin: Methane hydrate study:  
Sept.15/16(embarkation delay)-26
- Ben-David/Harlow; Iken; Kuletz : Polar bear studies; ice studies (UAF); seabird/marine mammal observation (FWS): Sept.27-Nov.1
- Chen: Chinese mooring recovery effort:  
Nov.1-5

# POLAR SEA Fall 09 Cruise, Science Preparation/Coordination

- Coffin cruise: radiation van, Scripps MST (Scott Hiller) contracted for CTD, etc. assist, small boat bottom mapping modification, Whaling deconfliction, including during embarkation
- Ben-David/Harlow, Iken cruise: Canadian govt permissions including coordination w Canadian natives (native observer) and for helos, Nat. Ice Center sat pix, diving, and Nat. Geographic TV special coordination
- Chen cruise: Chinese personnel DoD, DoS & customs clearances, translator provision, WHOI mooring group assistance

# Coffin cruise track



# USCGC POLAR SEA ⚔ 16Sep -22Sep Review

## • Cruise PSEA 09 -01

Currently finishing up 1<sup>st</sup> science cruise with a total of 32 scientists conducting acoustic scans of the Beaufort Sea bottom, coring/water/air sampling.

## • Weekly Statistics :

- Conducted 11 CTD Casts, 4 Multi-Coring, 1 Vibra-Coring, and 6 Piston Coring evolutions with some depths as deep as 2000 meters and began bottom profiling.
- Operated in 3/10 ice coverage and reports that the Ice Edge continues to move south.

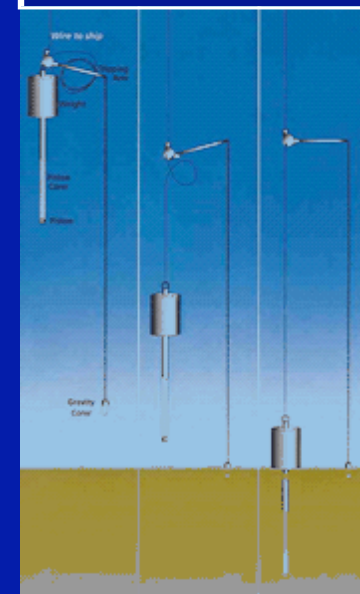
Sample Vibra -Core Rig



Sample Multi -Coring Rig on CGC HEALY



Piston Core Rig





# USCGC POLAR SEA ♂ 23Sep - 28Sep Review

## • Cruise PSEA 09 -01

Currently finishing up 1<sup>st</sup> science cruise with a total of 34 Naval Research Laboratory scientists conducting acoustic scans of the Beaufort Sea bottom, coring/water/air sampling.

## • Weekly Statistics :

- Conducted 3 gravity coring, 20 Multi -Coring, 3 Vibra -Coring, and 15 Piston Coring evolutions with some depths as deep as 2000 meters and began bottom profiling.
- Completed 34 Conductivity, Temperature, and Density casts
- 34 underway scientists have completed research and have disembarked off the PSEA. 25 additional scientists have been identified for the Polar Bear study.

Piston Core Evolution



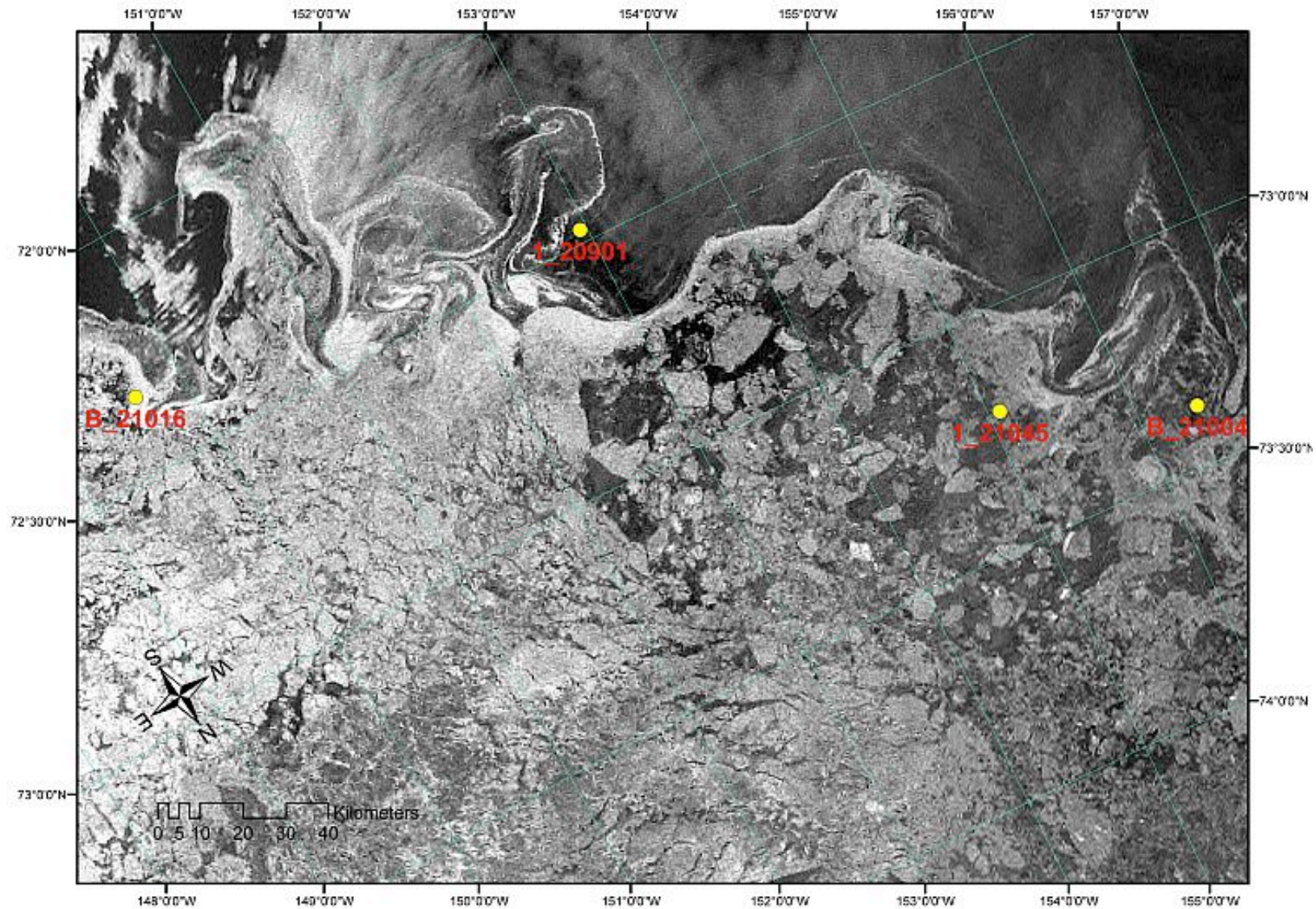
LCVP Barrow



POLAR Sea Science Party 1



# Polar bear sat pix w bear location overlay (example, Oct. 14)





# ***USCGC POLAR SEA ⚔ 28Sep -03Oct Review***

- **Cruise PSEA 09 -01**

25 scientists onboard for the Polar Bear and Ice studies.

- **Weekly Statistics** :

- Conducted 5 days of flight operations
- Onboard scientists conducted tests on 3 polar bears. Each tranquilized bear takes approx 3 hours to collect data .
- Research divers from the University of Alaska Fairbanks conducted 2 Arctic Dive Operations this week



Arctic Ocean Dive Ops



PSEA Helicopter Ops



# USCGC POLAR SEA ♂ 04-10 Oct Review

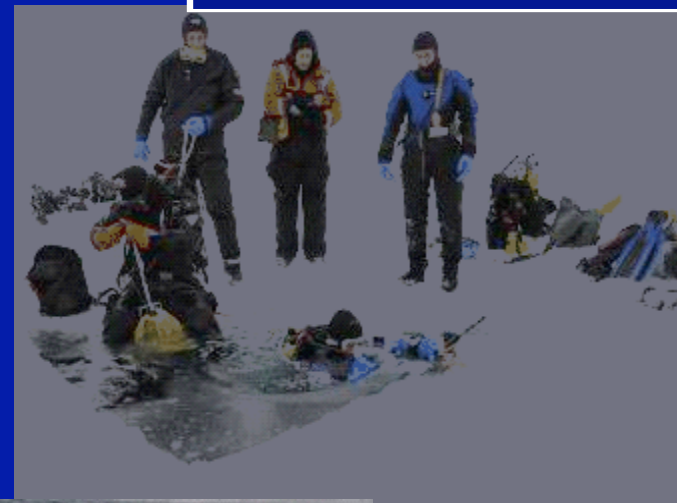
- Cruise PSEA 09 -01

25 scientists onboard for the Polar Bear and Ice studies.

- Weekly Statistics :

- Conducted flight operations to locate and capture targeted polar bears.
- Onboard scientists conducted tests on 4 polar bears this week (7 total). Each tranquilized bear takes approx 3 hours to collect data.
- Research divers from the University of Alaska Fairbanks conducted 12 (19 total) Arctic Dive Operations this week.
- 2 additional CTD Casts were conducted.

Arctic Diving



Scientist checking for Tattoos



PSEA Polar Bear Sighting

# ***USCGC POLAR SEA ⚔ 11-17 Oct Review***

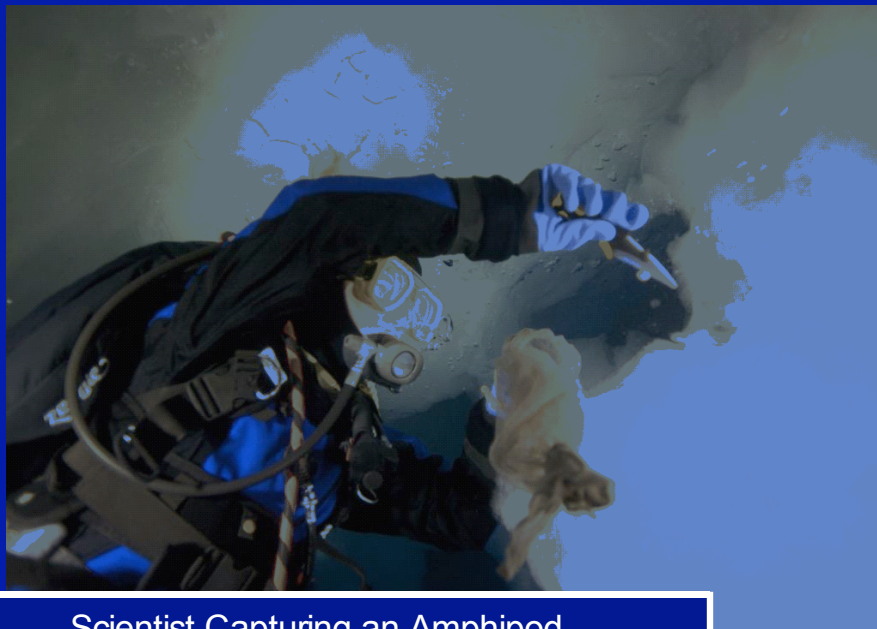
- **Cruise PSEA 09 -01**

25 scientists onboard for the Polar Bear study.

- **Weekly Statistics :**

- Conducted flight operations to locate and capture targeted Polar Bears.
- Onboard scientists conducted tests on 2 Polar Bears and 3 cubs this week (12 total). Each tranquilized bear takes approx 3 hours to collect data.
- Research divers from the University of Alaska Fairbanks conducted 04 (23 total) Arctic Dive Operations this week.

PSEA in the Fog



Scientist Capturing an Amphipod



Weighing a Polar Bear

# ***USCGC POLAR SEA ⚔ 18-24 Oct Review***

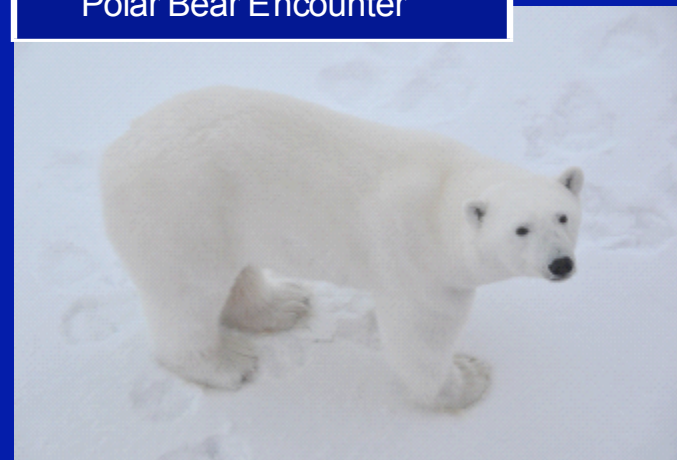
- **Cruise PSEA 09 -01**

25 scientists onboard for the Polar Bear and Ice studies.

- **Weekly Statistics** :

- Conducted limited flight operations to locate and capture targeted polar bears.
- Onboard scientists conducted tests on 2 polar bears this week (14 total). Each tranquilized bear takes approx 3 hours to collect data.
- Research divers from the University of Alaska Fairbanks conducted 7 (30 total) Arctic Dive Operations this week.

Polar Bear Encounter



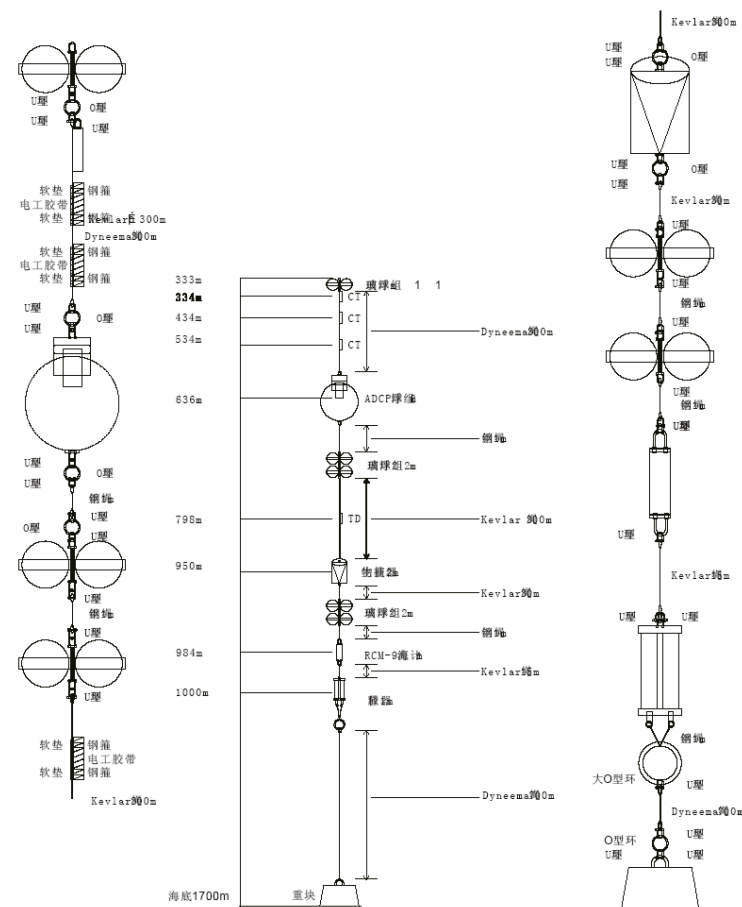
Ice Hole Drilling



Polar Bear Field Surgery



Chinese mooring, in @1800m, 180mi  
NW of Barrow (note sediment trap  
& 10X< flotation than used by WHOI)



# ***USCGC POLAR SEA ⚔ 01 – 08 Nov Final Review***

## **Cruise PSEA 09 -01**

Polar Sea's planned recovery of Chinese mooring not possible due to ice thickness and possible damage to the Mooring buoy, Chinese scientists hope to return next summer.

## **Weekly Statistics :**

- 190 mile transit to Chinese mooring location
- 01 Nov; embarked 4 PRC scientists and 1 interpreter
- PSEA currently patrolling ENR homeport

Scientists checking gear



Off the Stern of PSEA



Scientists from the People's Republic of China



# PSEA AWS 09-01

## Science requested, transferred

- Recovery of Nat. Ice Center mooring: work transferred to HEALY, shown in slide on left
- Recovery of MMS met mooring off Barrow: work transferred to MMS contracted small boat





# POLAR SEA AWS 09-01 Concerns

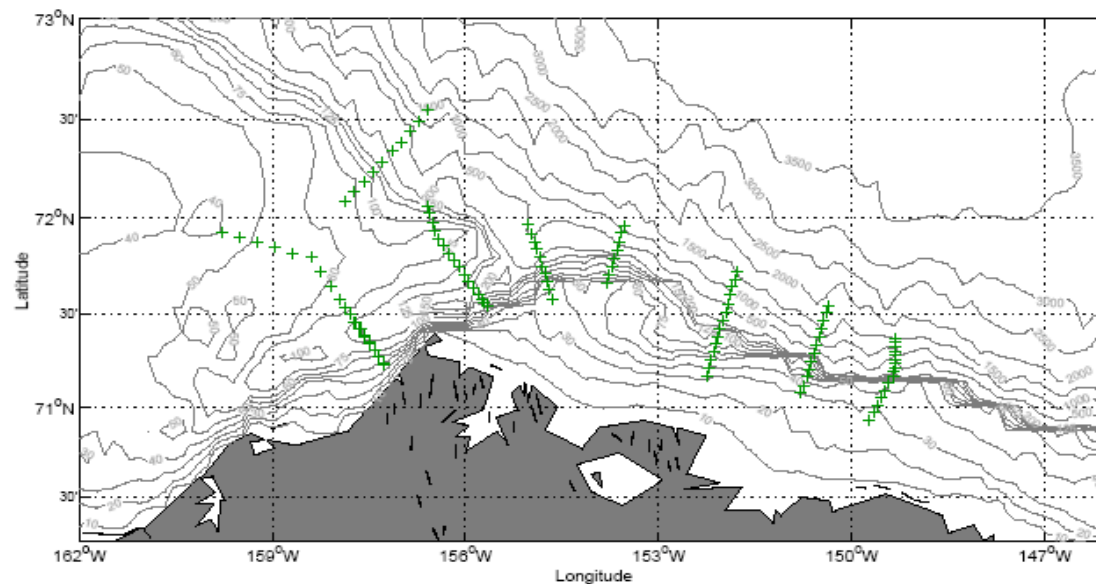
- Contract helo embarkations in Barrow problematic in summer fog; small boat embarkations in Barrow likewise problematic
- Coffin small boat mounted bottom mapping system did not function due to positioning gear wiring malfunction (their gear issue)
- Rad van scintillation counter afunctional; being addressed by Oregon rad van coordinator
- Sea ice thinness affected polar bear recapture
- Nat. Ice Center sat pix for polar bears significantly time lagged, affecting mission

# POLAR SEA Draft FY 2010

## Schedule

- 12/20/09-1/15/10 - DeepFreeze standby
- 2/27/10 - Depart Seattle
- 3/6,7/10 – Mobilize BEST, Kodiak
- 3/8-4/7/10 - BEST
- 4/8,9/10 - Demobilize BEST, Kodiak
- 4/17/10 - Return Seattle, begin repairs, etc.
- 8/16-19/10 - Shakedown
- 8/27/10 - Depart Seattle for Pickart cruise
- 9/7/10 – Mobilize Pickart, Barrow
- 9/8-22/10 – Pickart Cruise
- 8/23/10 – Demobilize Pickart, Barrow
- 9/24-10/12/10 – CG FOL, Science of Opportunity
- 10/13-31/10 – Transit, port calls, return Seattle

Pickart previous mooring cruise track (in 2010 will include stations further east)





# FY2010 PSEA Options

- NOAA pCO<sub>2</sub> install on SeaKeeper system (NOAA AOML, Rik Wanninkhof)
- Picarro Atmospheric pCO<sub>2</sub> demo install
- Option for seatruth for Navy SCICEX sub ops
- Option for Conoco-Phillips / Shell joint UAS ops: TBD

# Arctic AAV/UAS Update

- UAF coordination w USCG RDC/HQ for UAS operational permissions; test flites being planned to provide clearance on all CG vessels in summer 2010
- UAF coordinates permission from FAA for State of Alaska to clear all UAS flights in Alaska
- DOE requested (and will likely get) FAA clearance for flight corridor Pt Oliktok to N.Pole (10 mi wide)
- UAS “Town Hall” meeting and display at Ocean Sciences Feb 22-26, 2010, Portland, Oregon (coordinated by Dan Schwartz, SCOAR Chair and P.McG.)

Questions?  
(Pix: Ice 180mi NW Barrow Nov. 6  
when ship headed south)

