

2010 Joint US Canadian ECS Arctic Mission

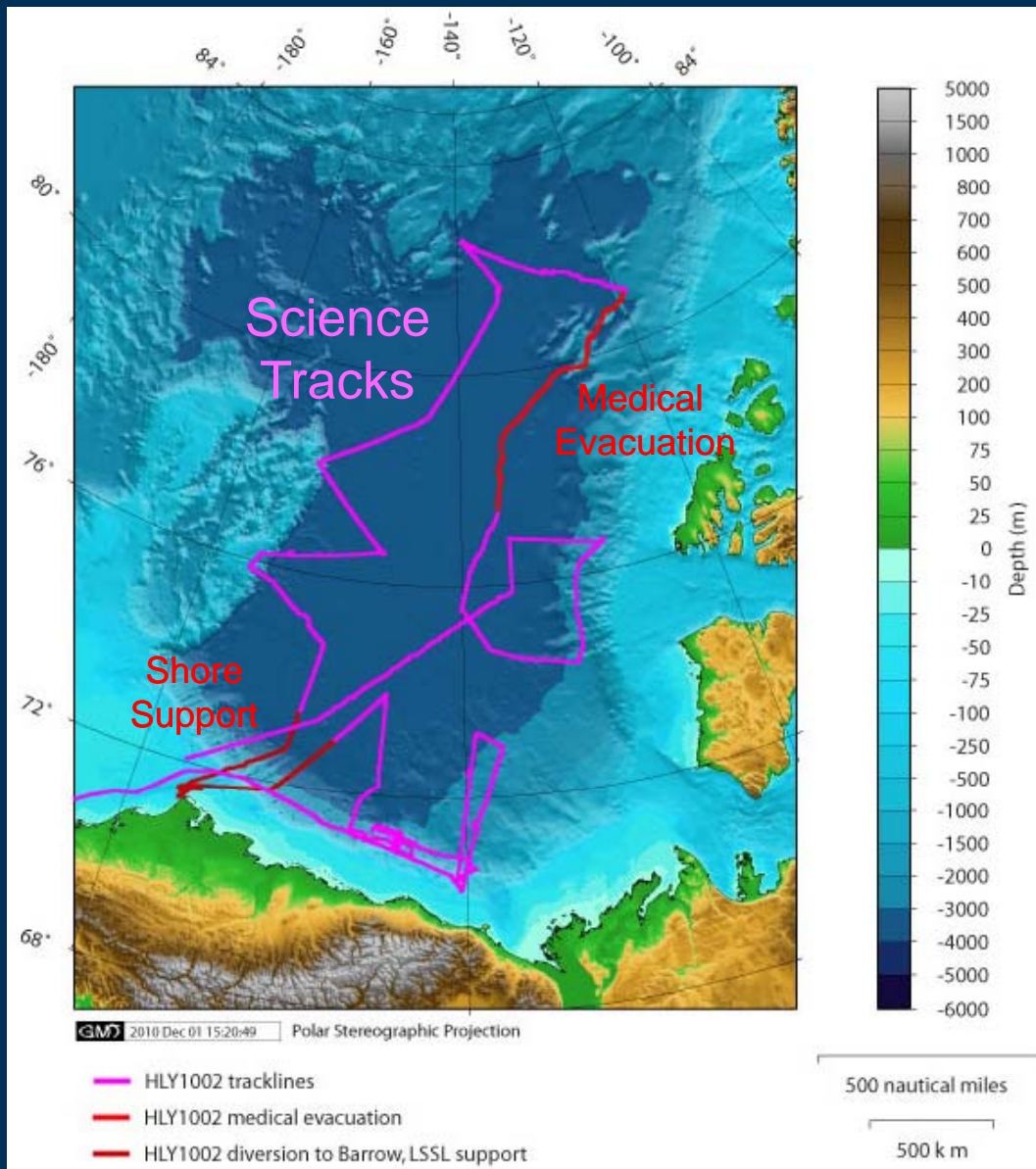




USCGC Healy

CCGS Louis S. St-Laurent





2010 Hly 1002

2 Aug – 6 Sep

B.D. Edwards, Chief Sci

ECS Objectives

Multibeam bathymetry

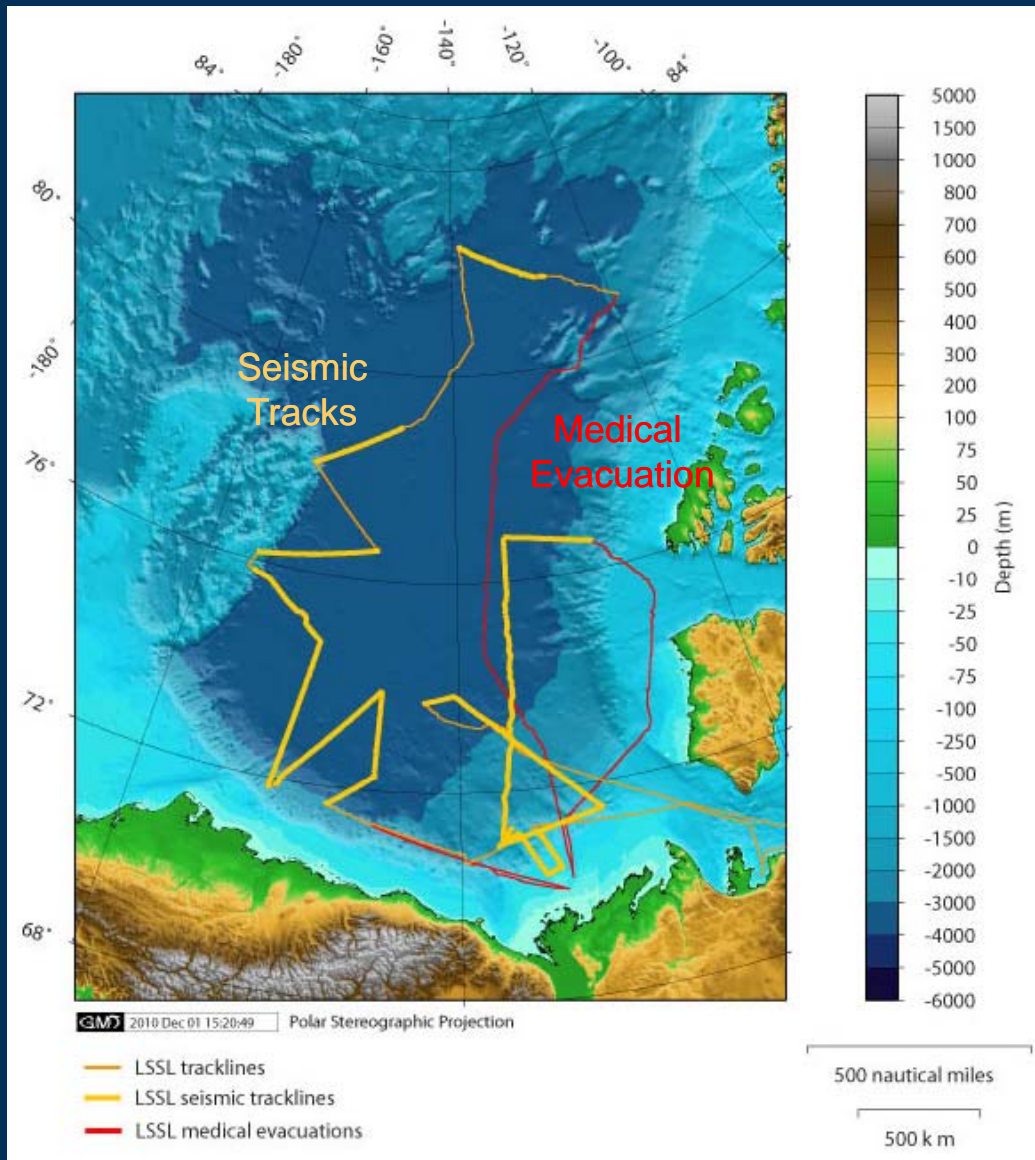
Chirp Subbottom

Ice breaking

Gravity

Coring





Louis S. St-Laurent

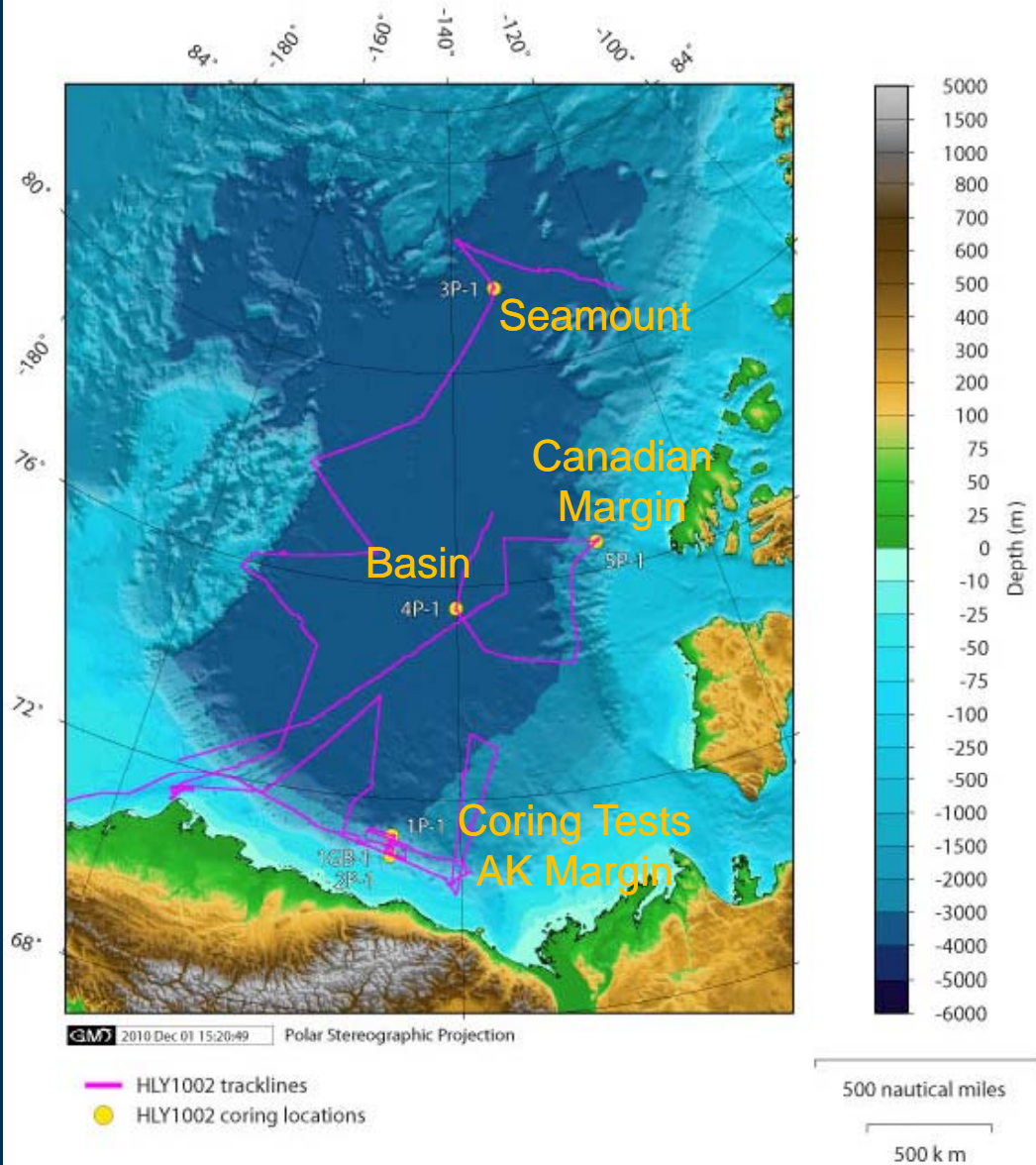
6 Aug – 15 Sep

ECS Objectives

- Multichannel Seismics
- Sonobuoy Refraction
- Single-beam bathy
- Spot bathy (helo)
- Ice breaking
- Gravity

In US EEZ 12-17 Aug
854 km





HLY 1002 Coring

As Opportunities Arose
 1 Gravity Core
 5 Piston Cores

Mid October

Cores to USGS Menlo Park

November

Gas samples taken

MSCL

Paleo analysis, core catchers

11-12 December Cores 1 & 2

Sampling for GH, photos, etc.

TBD Jan-Feb Cores 3-5 (in Canada)

X-ray, photography, velocity



USGS Piston Coring System

- Photo credit –
Bill Schmoker

Capstan
used to pull
corer both
directions

Barrels 10-ft each; maximum
three barrels

2400 lb
weightst
and

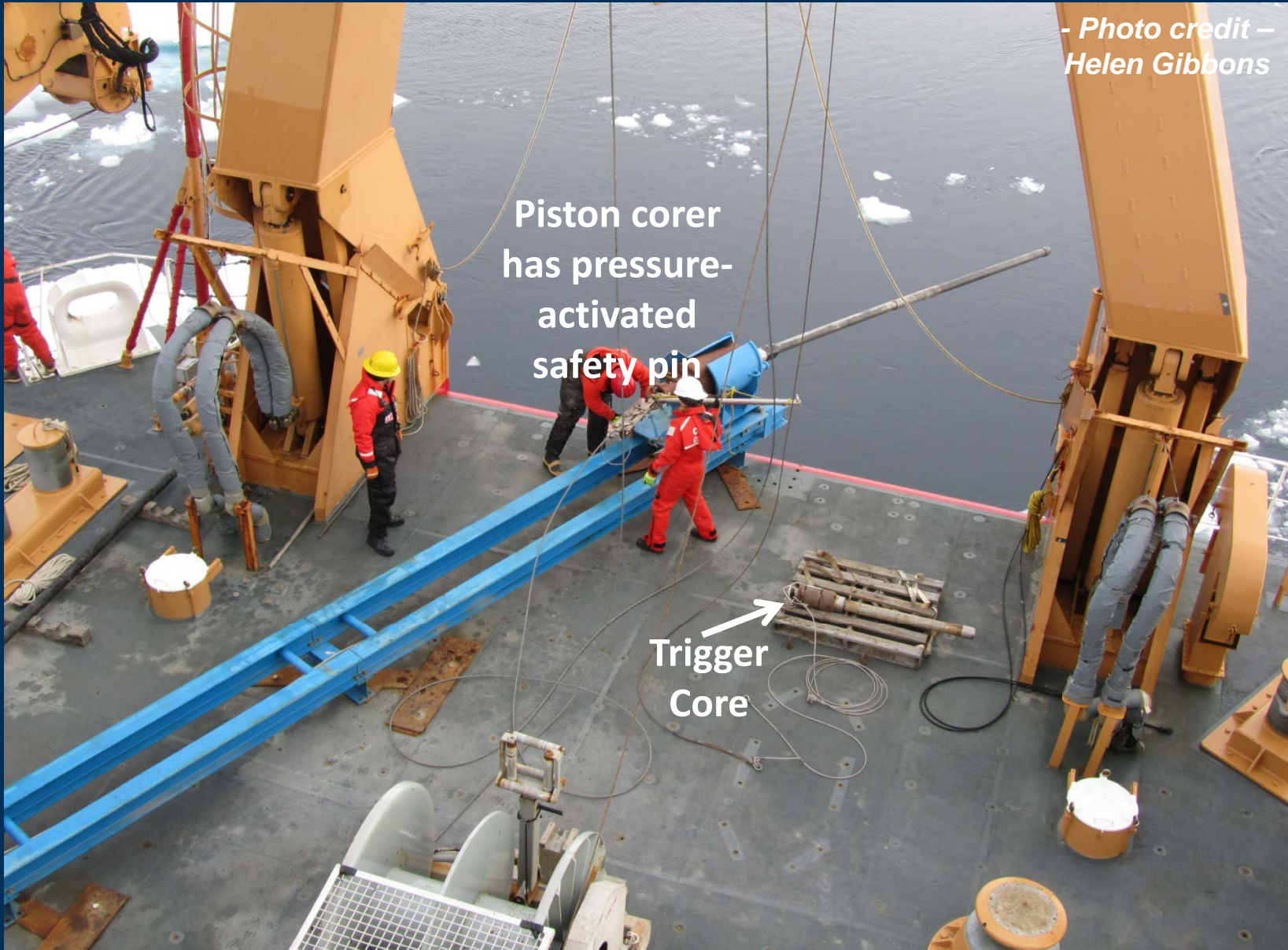
Track welded
to steel
plates that
are bolted to
deck



- Photo credit -
Helen Gibbons

Piston corer
has pressure-
activated
safety pin

Trigger
Core





Fending off ice floes

- Photo credit –
Helen Gibbons



- Photo credit –
Caroline Singler



Typical core
recovery
(Site 4)

- Photo credit – Bill Schmoker

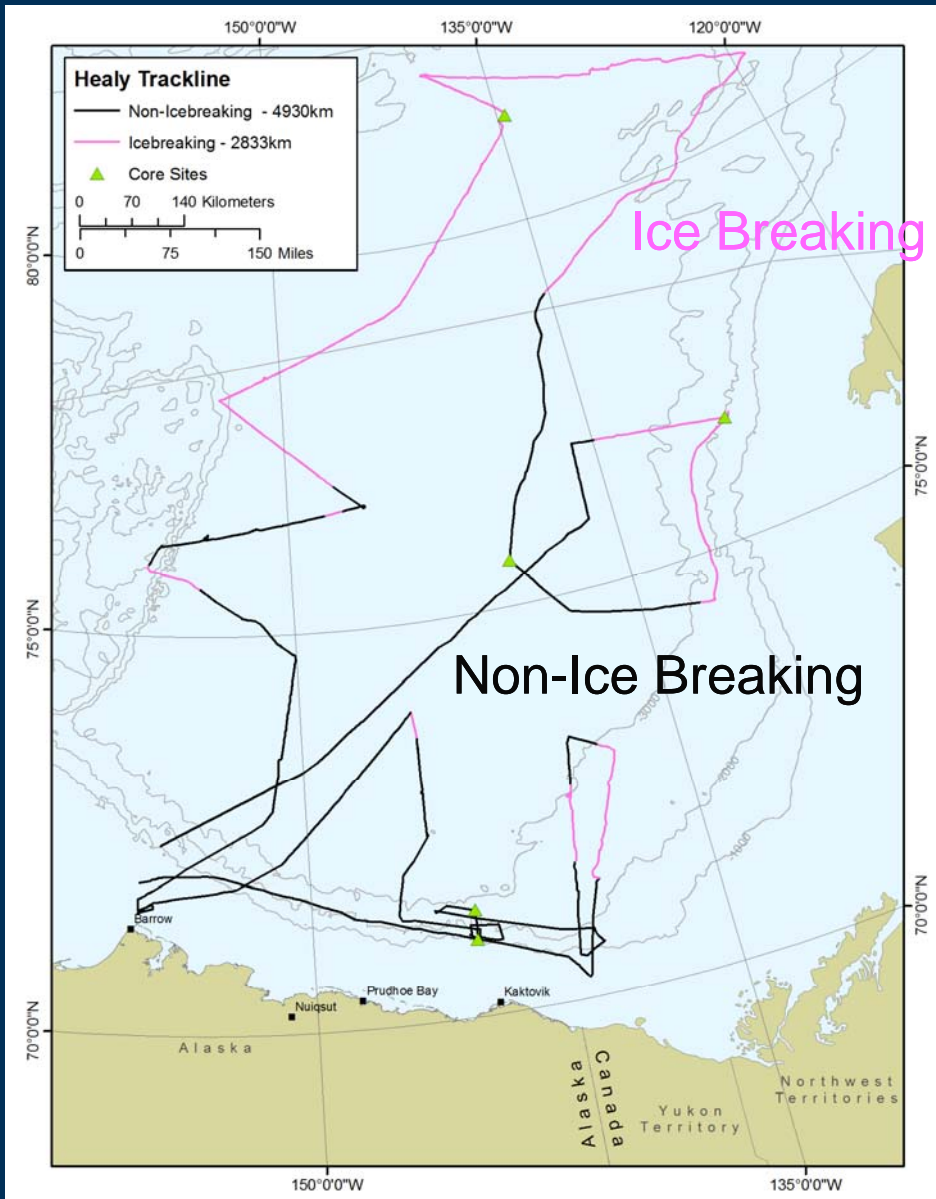


Gas Hydrate (Site 1)



2010 Hly 1002 Ice Breaking

Ice breaking for > 8/10 ice cover
Criteria used for 90-day reporting to NOAA



Protected Species Observations



Healy :

Three Protected Species Observers
One community observer

Louis:

Three community mammal observers

In US EEZ

Two US observers transferred to Louis

December 7 - 90-day Report submitted to NMFS

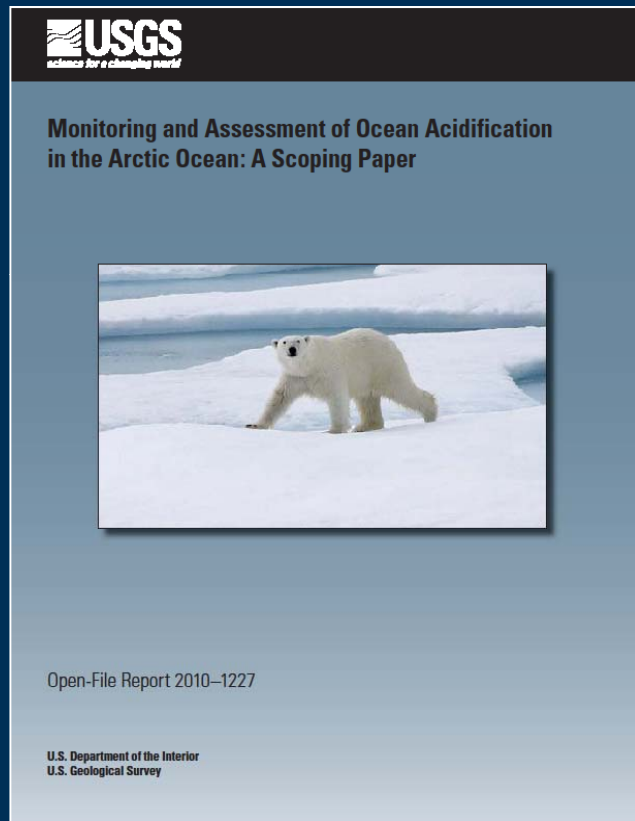
Inside US EEZ – Ringed Seals (n=8), Polar Bear (n = 1), no power downs or shut downs

Outside US EEZ – Ringed Seals (n=29), Polar Bear (n=7), Bearded Seals (n=6)

Unidentified Seals (n=16), Gray whale (n=1)



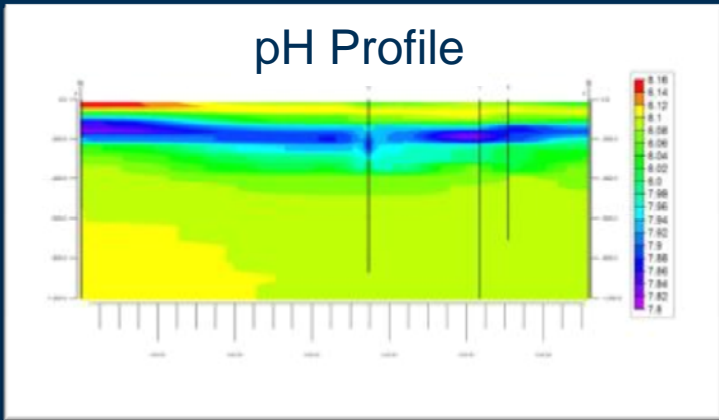
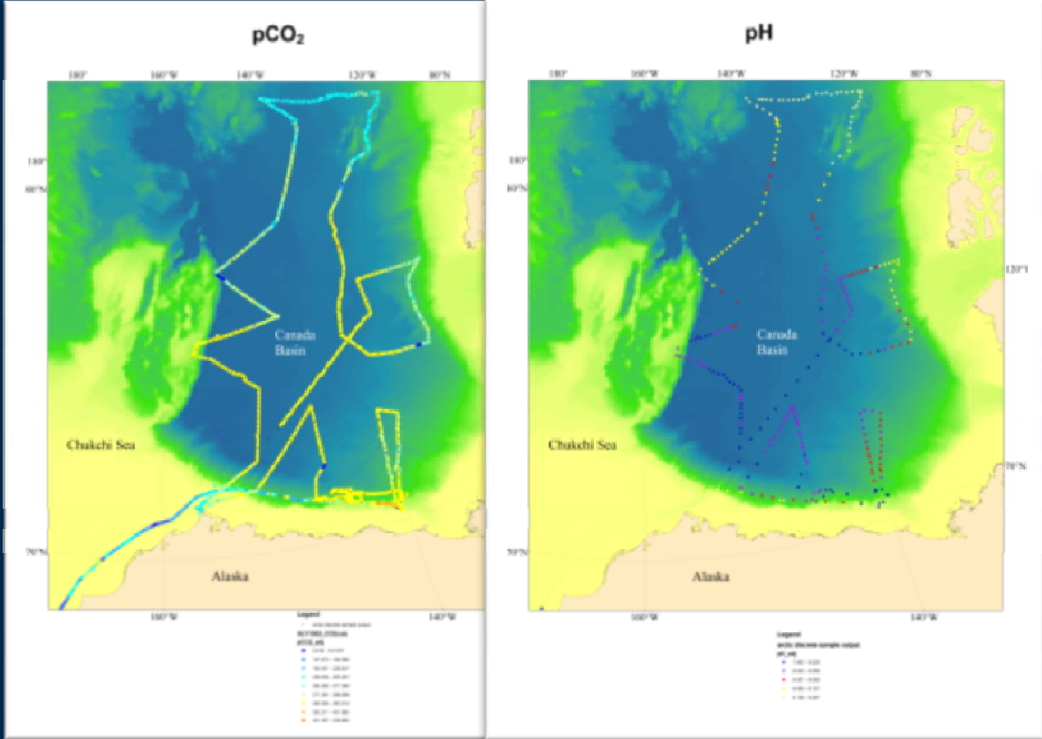
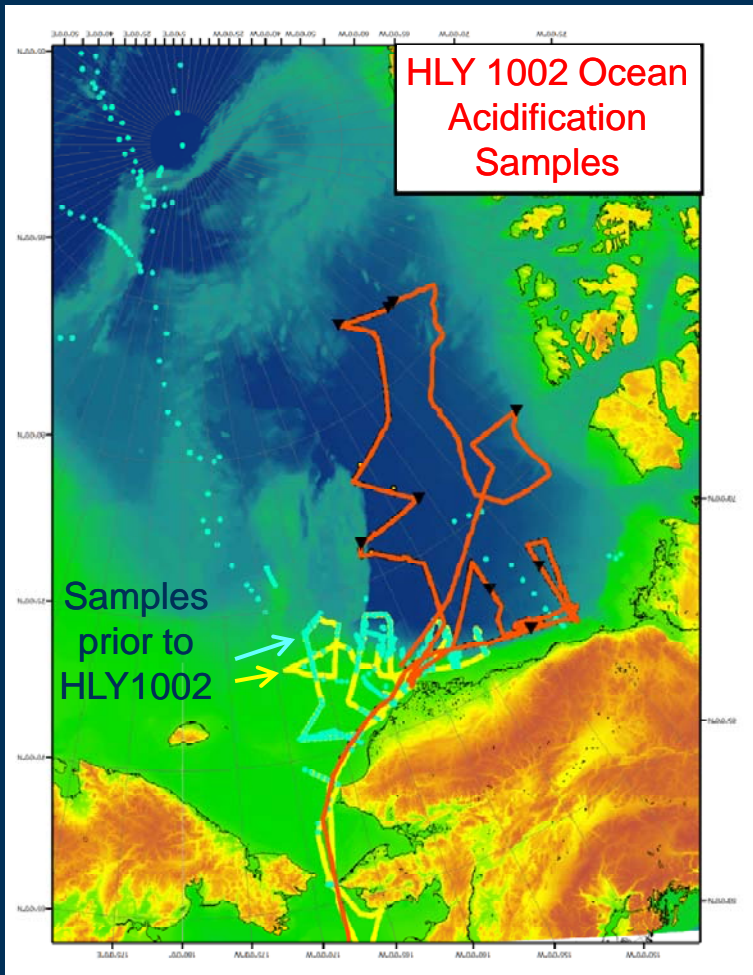
Arctic Ocean Acidification



- A Dept of Interior priority
- Arctic Ocean is a vulnerable threatened ecosystem
- Leveraged existing USCGC Healy cruise (ECS)
- Non-interference with ECS

Scoping Paper, February, 2010

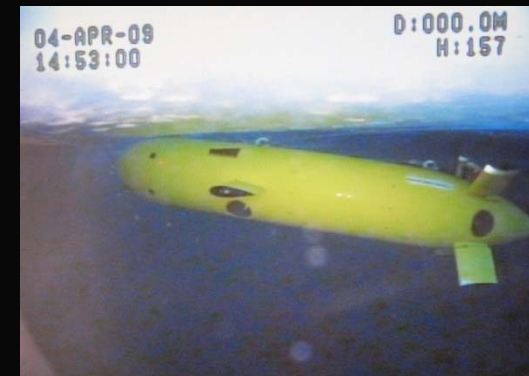
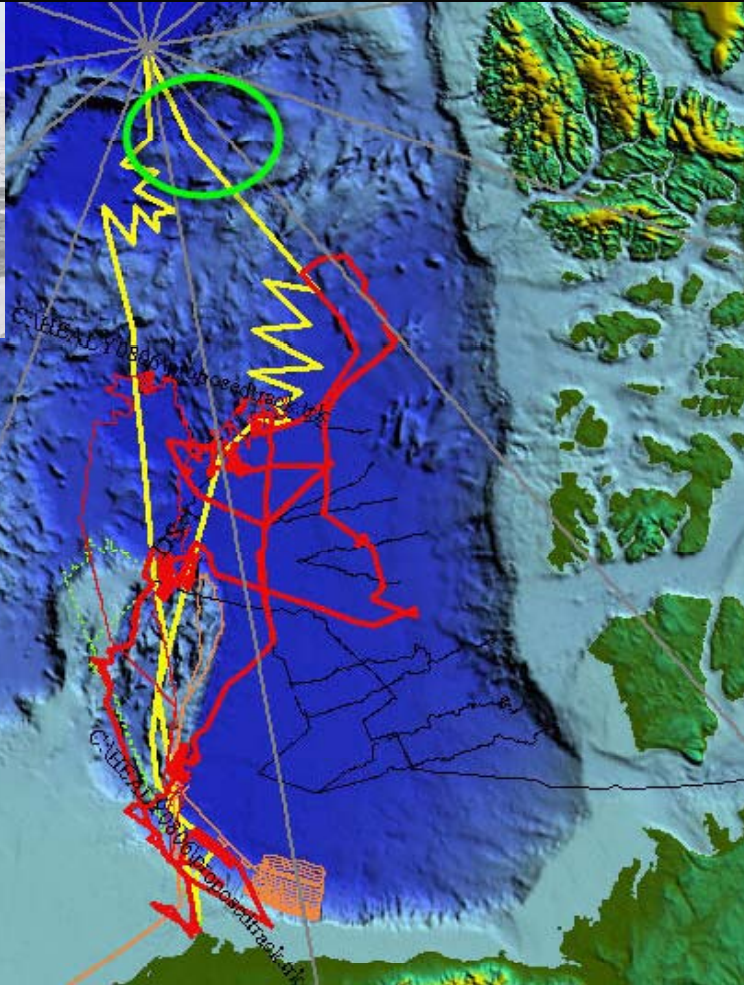




Significantly add to baseline observations in the Arctic Ocean



Healy / Louis S. St. Laurent 2011



ISE EXPLORER