



RUSALCA 2004-2012

RUSALCA Goals:

- Observations where Arctic sea ice is reducing rapidly
- Bering St. fresh water, nutrient fluxes
- Regional physics and ecosystem response to change.
- Improve international Arctic science collaboration
- Explore the unknown Arctic
- Link with PAG vessels and programs



Russian American Long-term Census of the Arctic

Linking Ice Cover to Ecosystem Structure the 'Conceptual Model'

BENTHIC DOMINATED



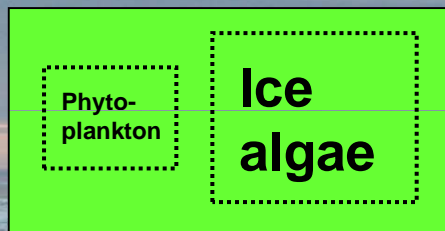
PELAGIC DOMINATED

Northern Bering & Chukchi Seas

Southeastern Bering Sea

Abundant sea ice

Limited sea ice



Zoo-plankton

Zoo-plankton

Benthos

Benthos

Diving ducks

Walrus

Gray whale
Bearded seal

Demersal fish

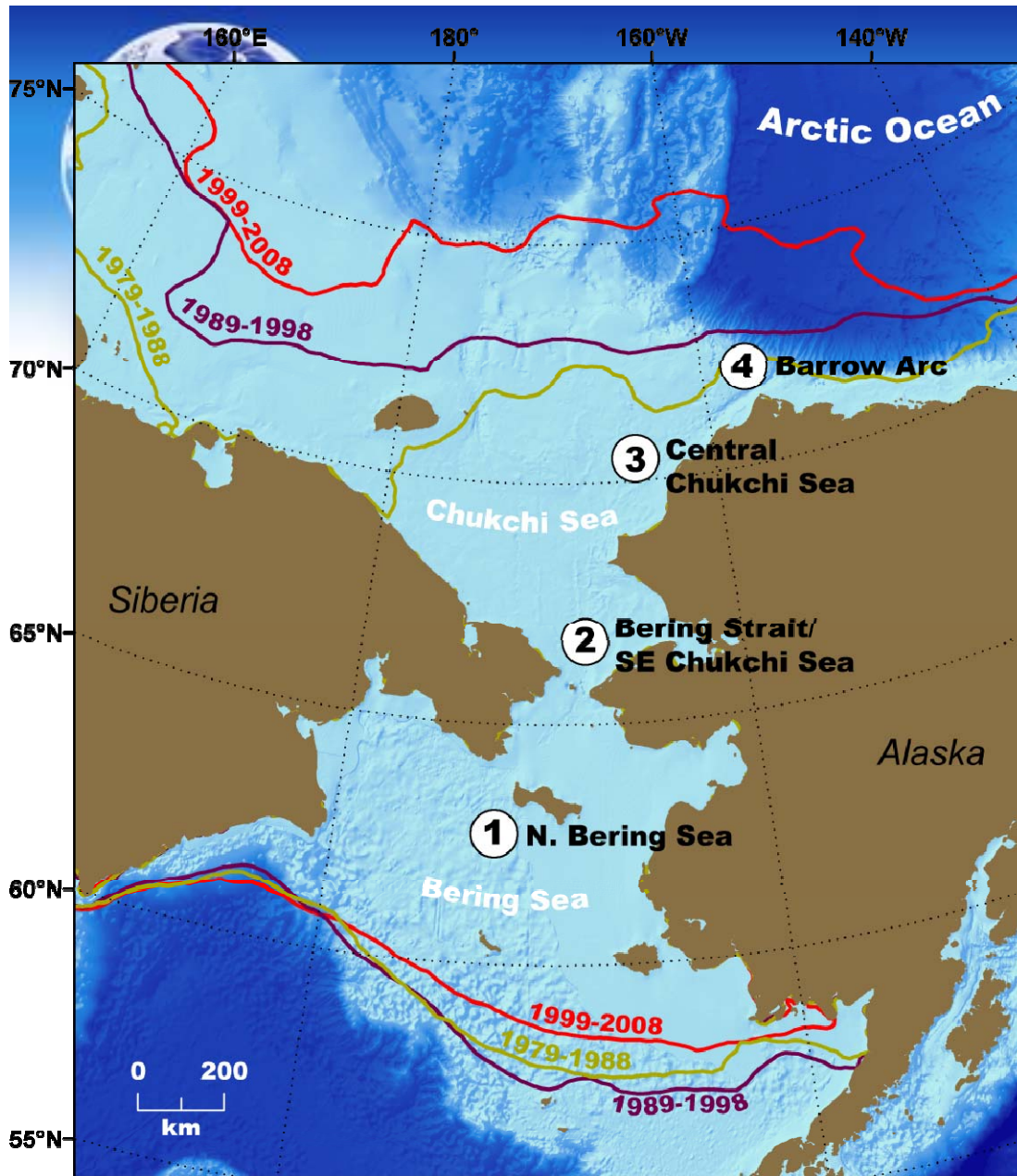
Sea birds

Pelagic fish

Bowhead

Gray whale

[Courtesy Katrin Iken; modified after Grebmeier and Barry 1991, Carroll and Carroll 2003]



Linking Physics & Biology: the Distributed Biological Observatory (DBOs) Concept

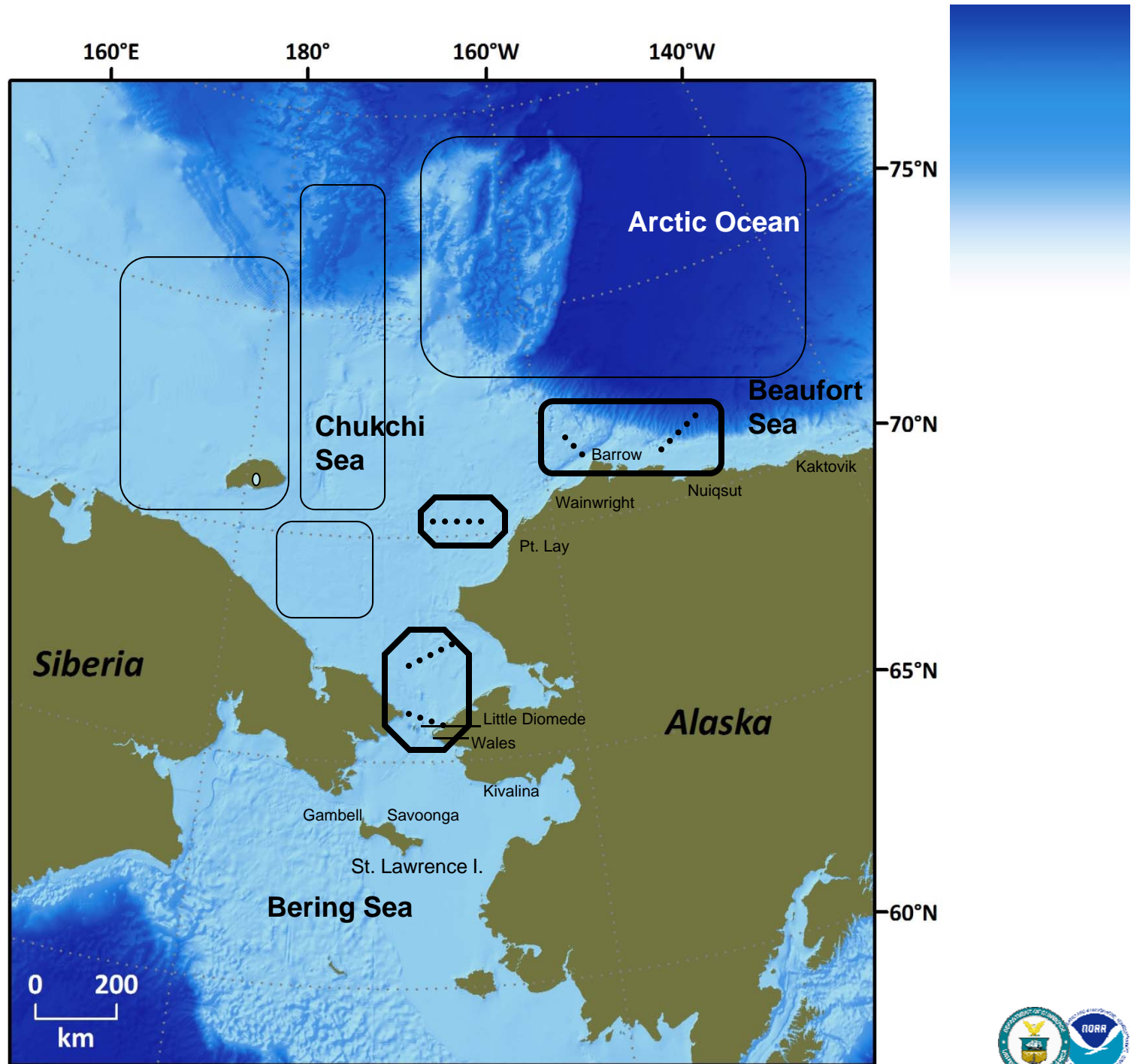
- The DBO will focus on four regional “hotspot” locations along a latitudinal gradient
- DBO regions exhibit high productivity, biodiversity, and overall rates of change
- The DBO will serve as a *change detection array* for the identification and consistent monitoring of biophysical responses

[map courtesy Karen Frey; further details see Grebmeier et al. 2010, EOS 91(18):161-162]





DBO
(Including
RUSALCA and
other PAG
observations)

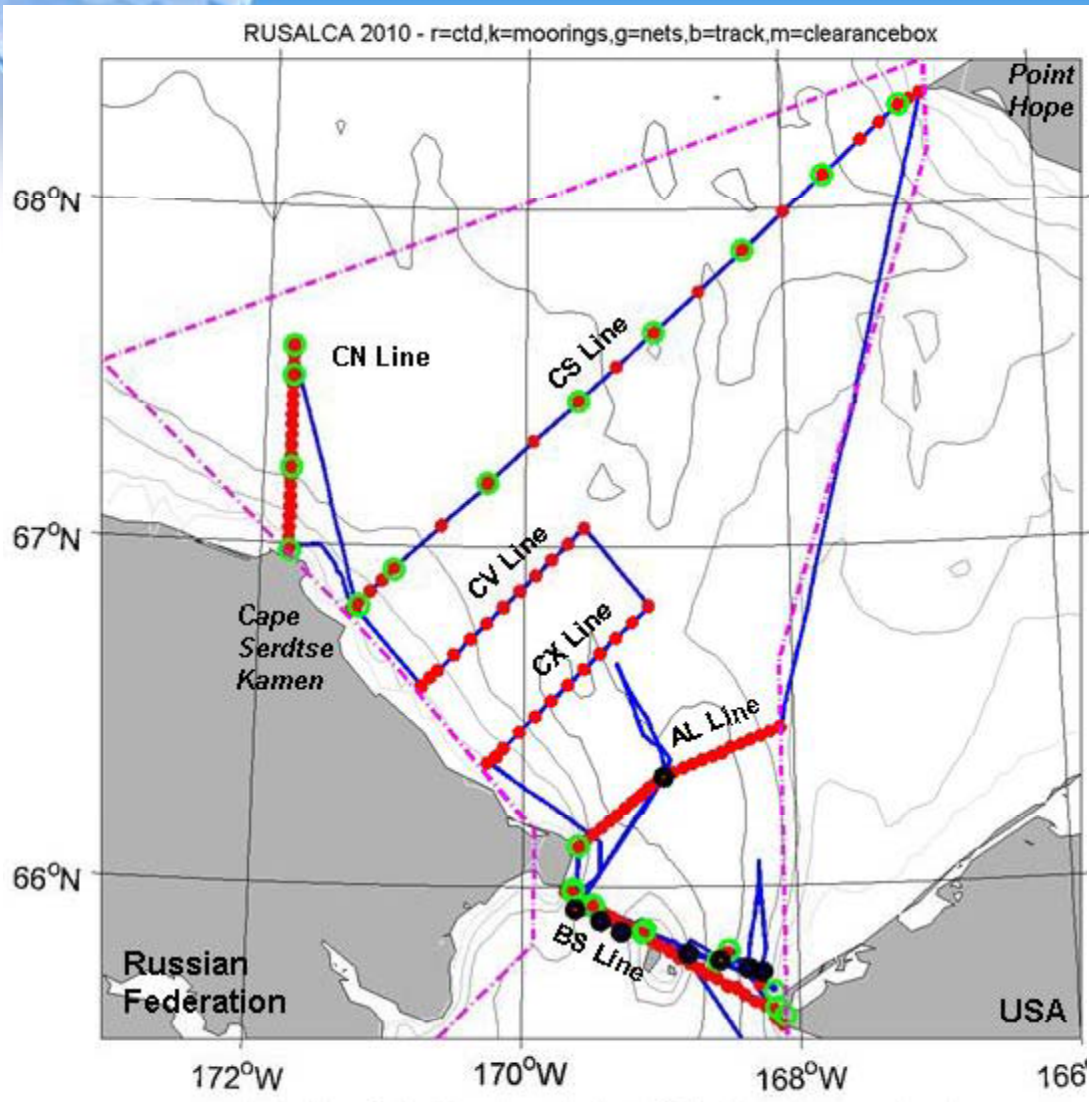




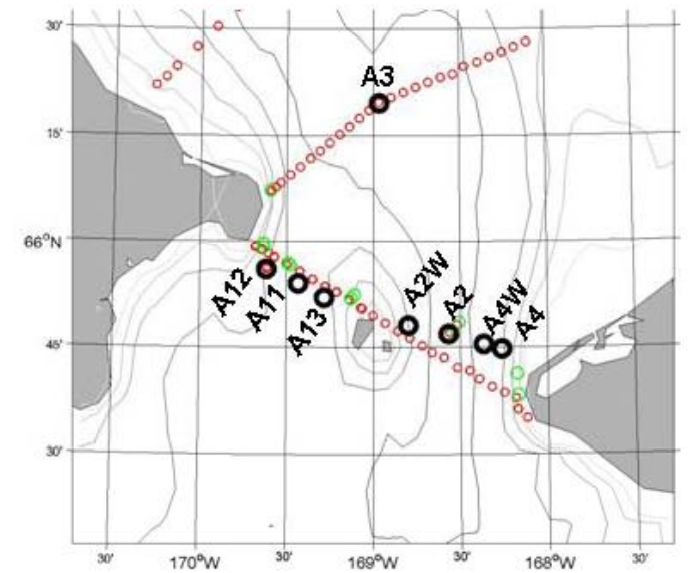
RUSALCA 2010

31st July
– 11th Aug
2010

Nome to Nome



Mauve = clearance box
Blue = ship track
Black dots = moorings
Red dots = CTDS
Green dots = nets
+ 4 Primary productivity stations





RUSALCA 2011



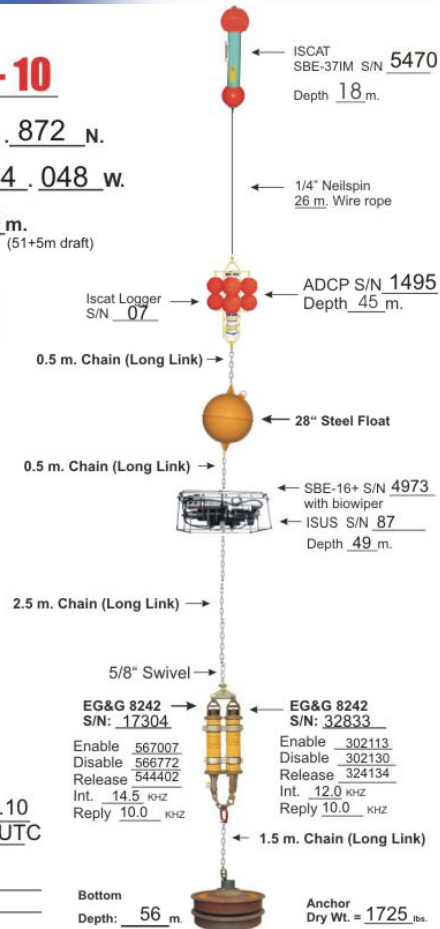
MOORING ID: A2-10

Latitude: 65° 46.872 N.

Longitude: 168° 34.048 W.

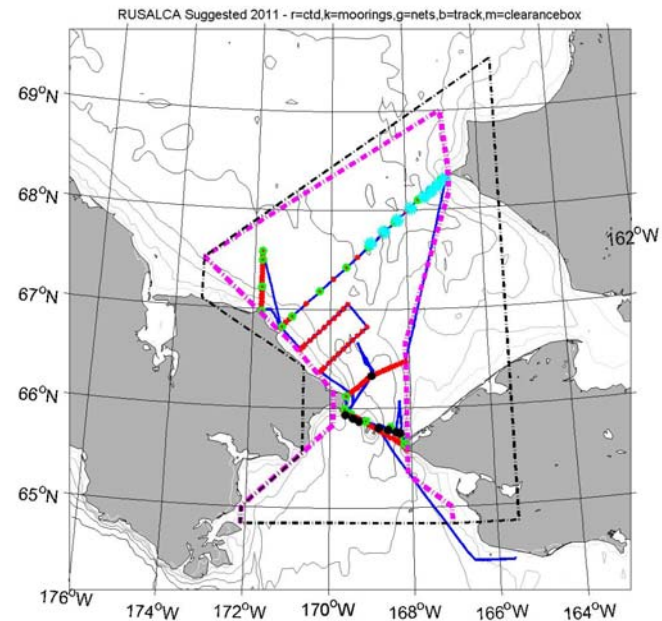
Corrected Depth: 56 m.
(51+5m draft)

BERING STRAIT



Deploy Date: 04 Aug.10
Deploy Time : 18:57 UTC

Recovery Date: _____
Recovery Time: _____



Operations:
Moorings, CTD's, Chlorophyll, Nutrients,
Plankton, Marine Mammal Observations,
Ocean Acidification



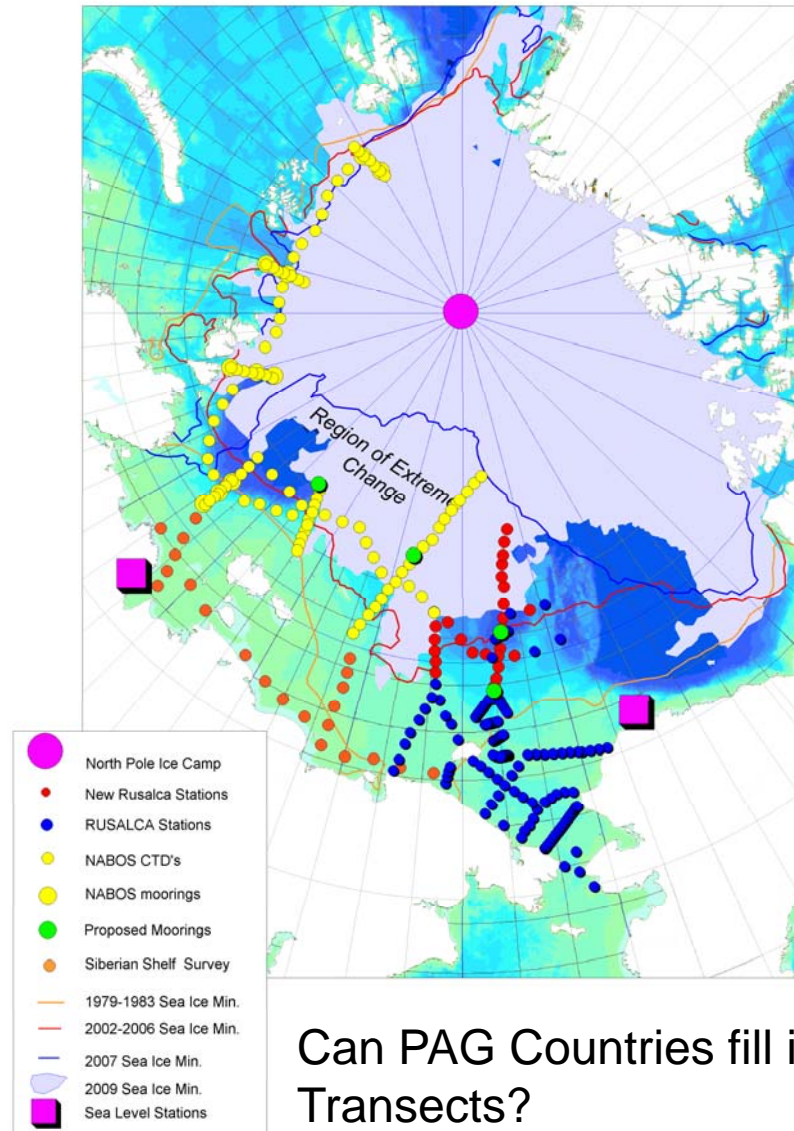


FUTURE PRIORITY : Causes and Consequences of Sea Ice Loss Pacific and Atlantic Water Confluence And effects On Ecocystems



Proposed
2012
Observations

RUSALCA 2012 + PAG



Can PAG Countries fill in parts of these
Transects?

