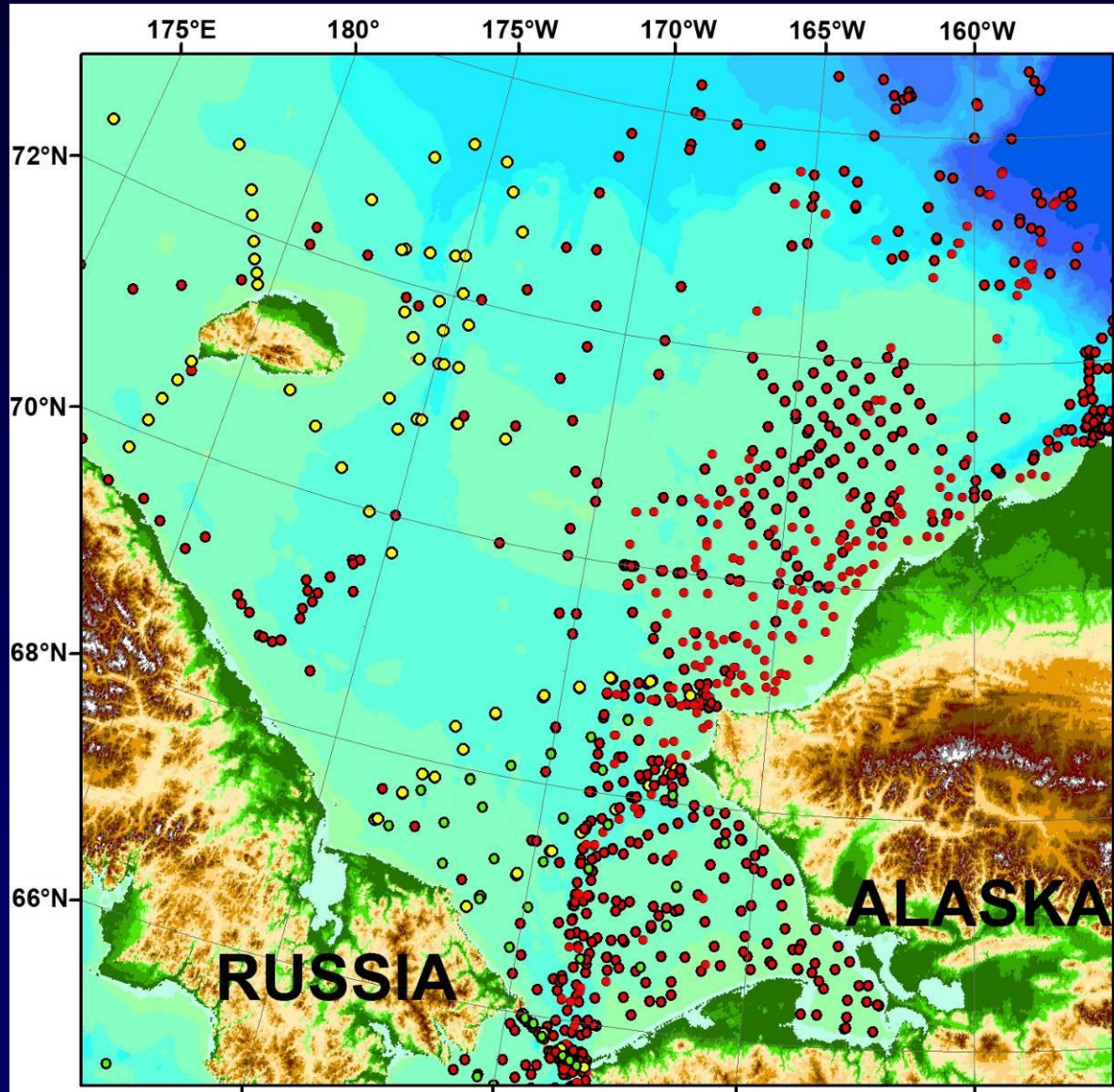


# **RUSALCA: Census of the Arctic Zooplankton**

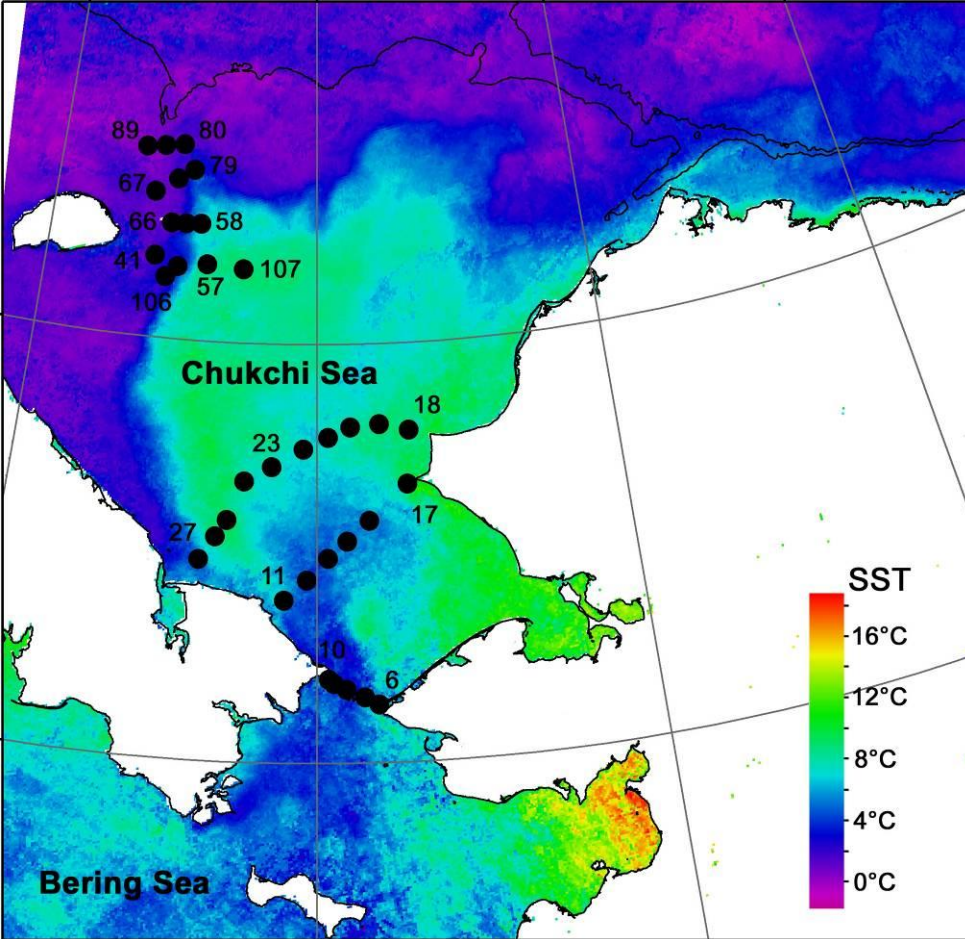
**Russ Hopcroft  
Ksenia Kosobokova  
Elizaveta Ershova**



# Zooplankton observations 1900-2010

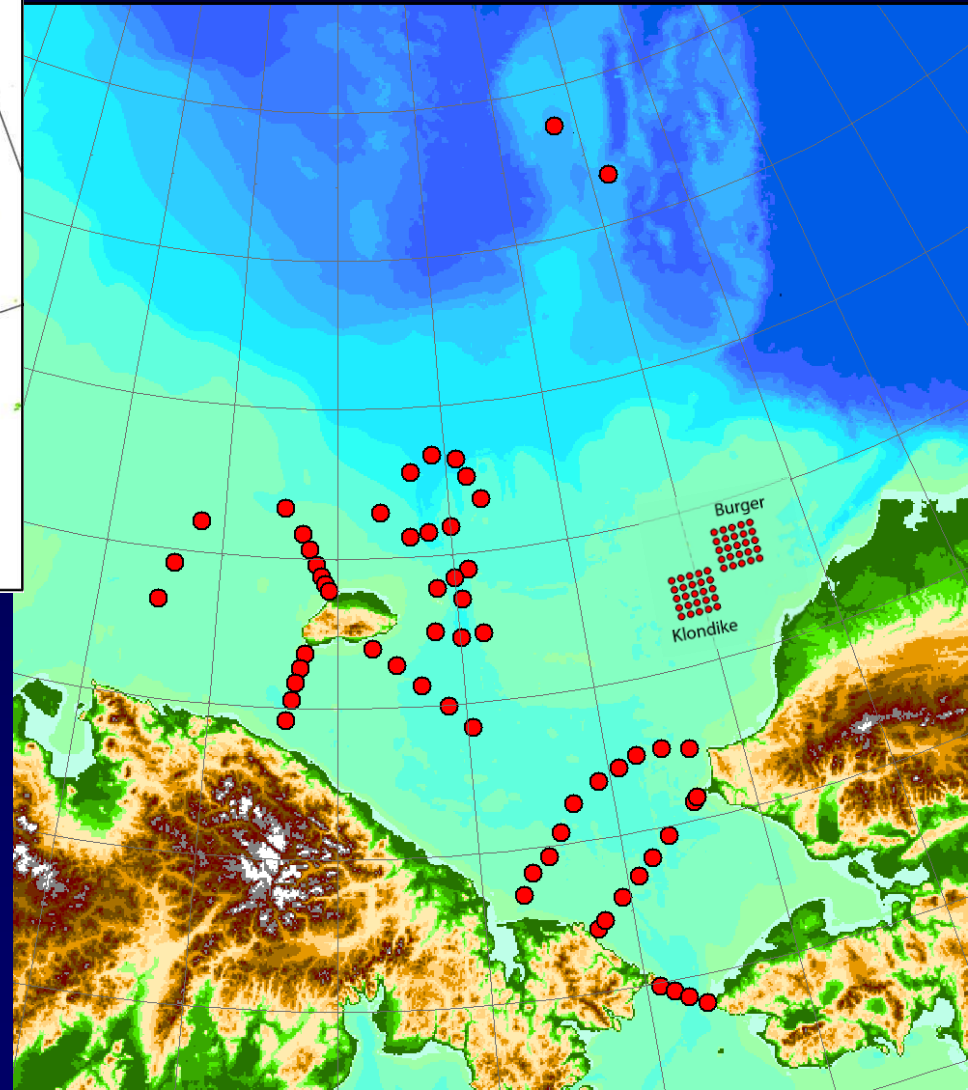


- Sampling intensity has increased in the Alaskan Arctic
- Data in Russian waters is either many decades old or comes from joint efforts such as RUSALCA (yellow) or its predecessor BERPAC (green)
- The Chukchi Sea is oceanographically complex, we cannot understand changes in it without sampling the entire domain

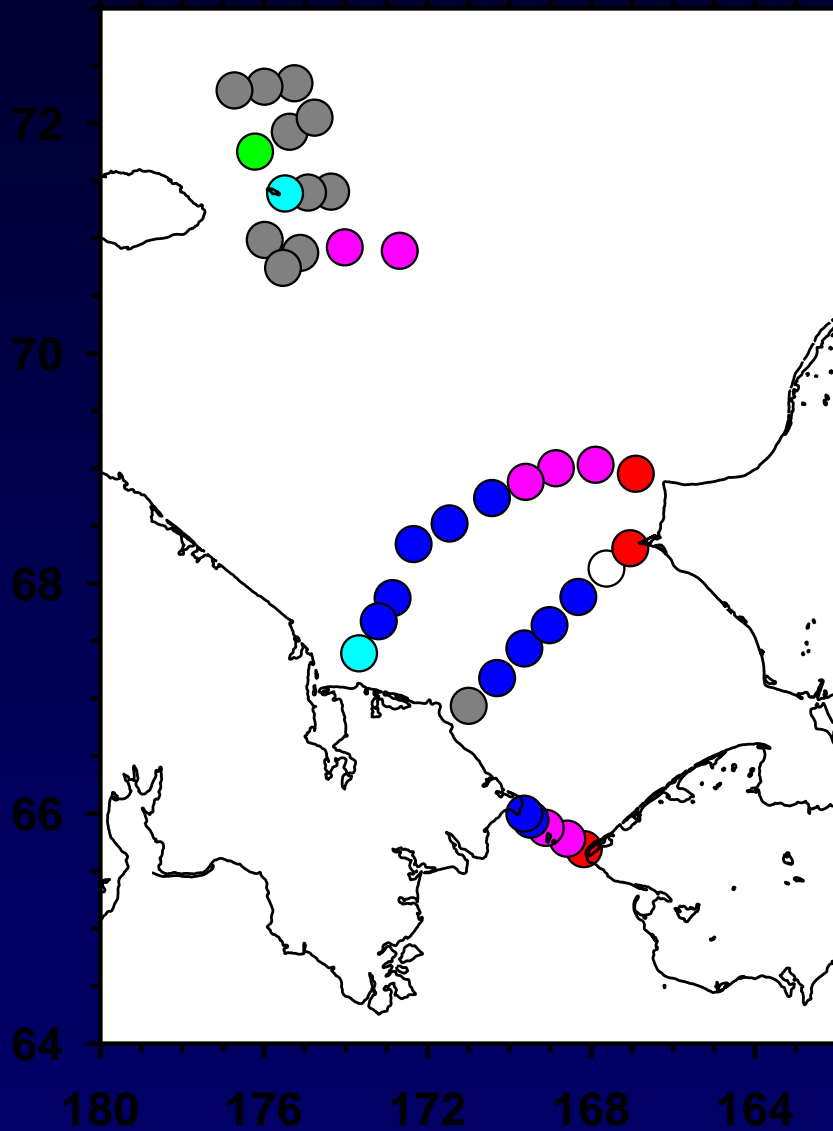


**2004**

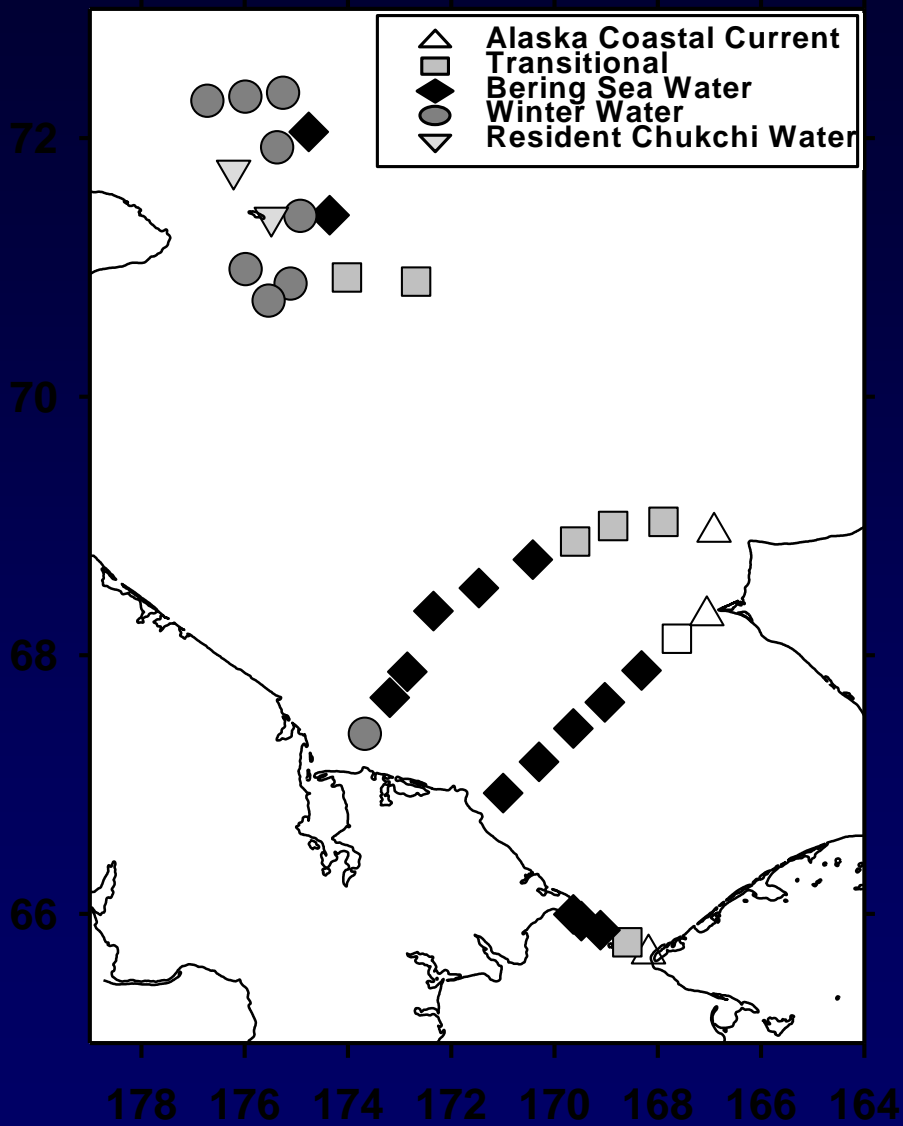
**2009**  
**Samples scanned live for  
jellies & ctenophores**



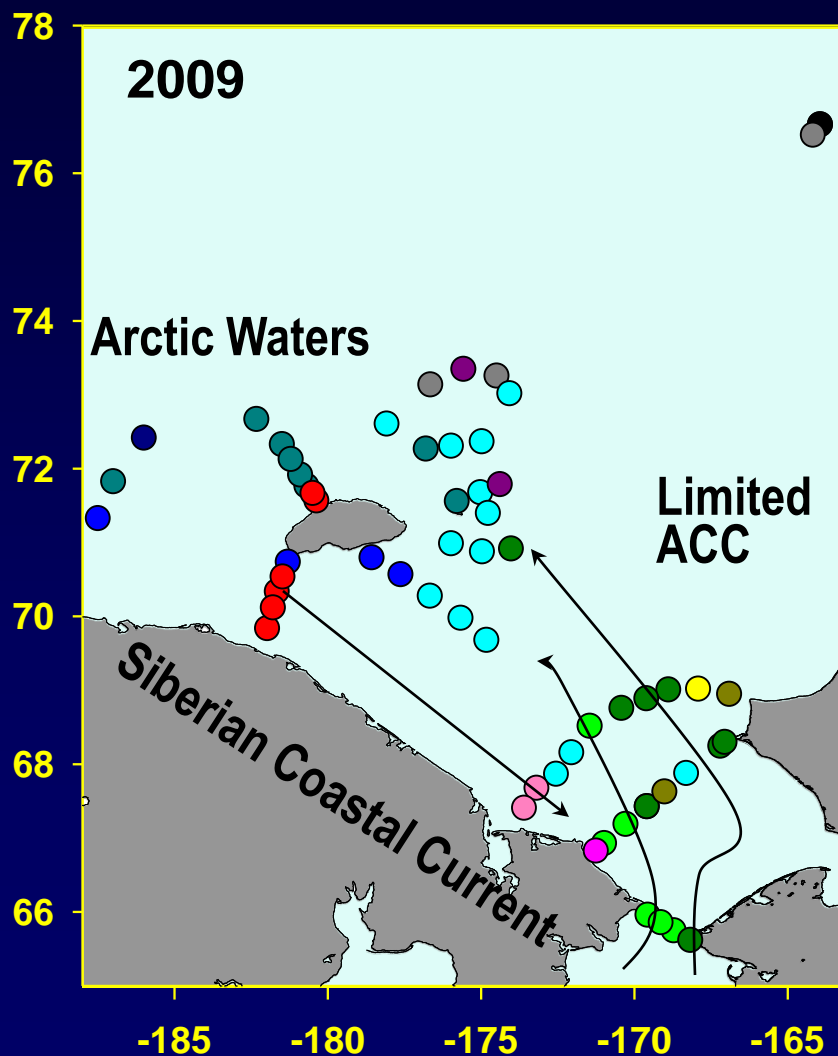
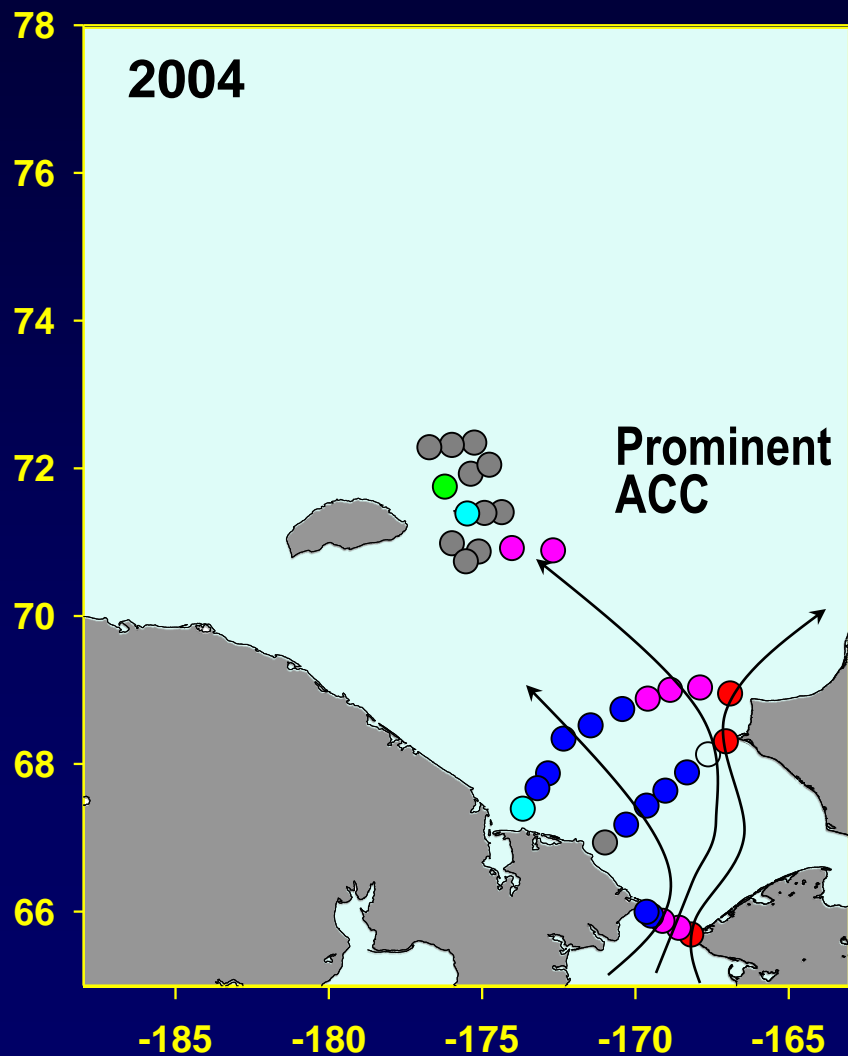
# 2004 Zooplankton



# 2004 Water Types



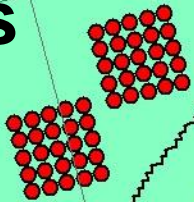
Cluster analysis of zooplankton communities reveals both east-west and north-south gradients, and suggest underlying transport patterns that differ somewhat between years



# Summary comparison 2004 vs 2009

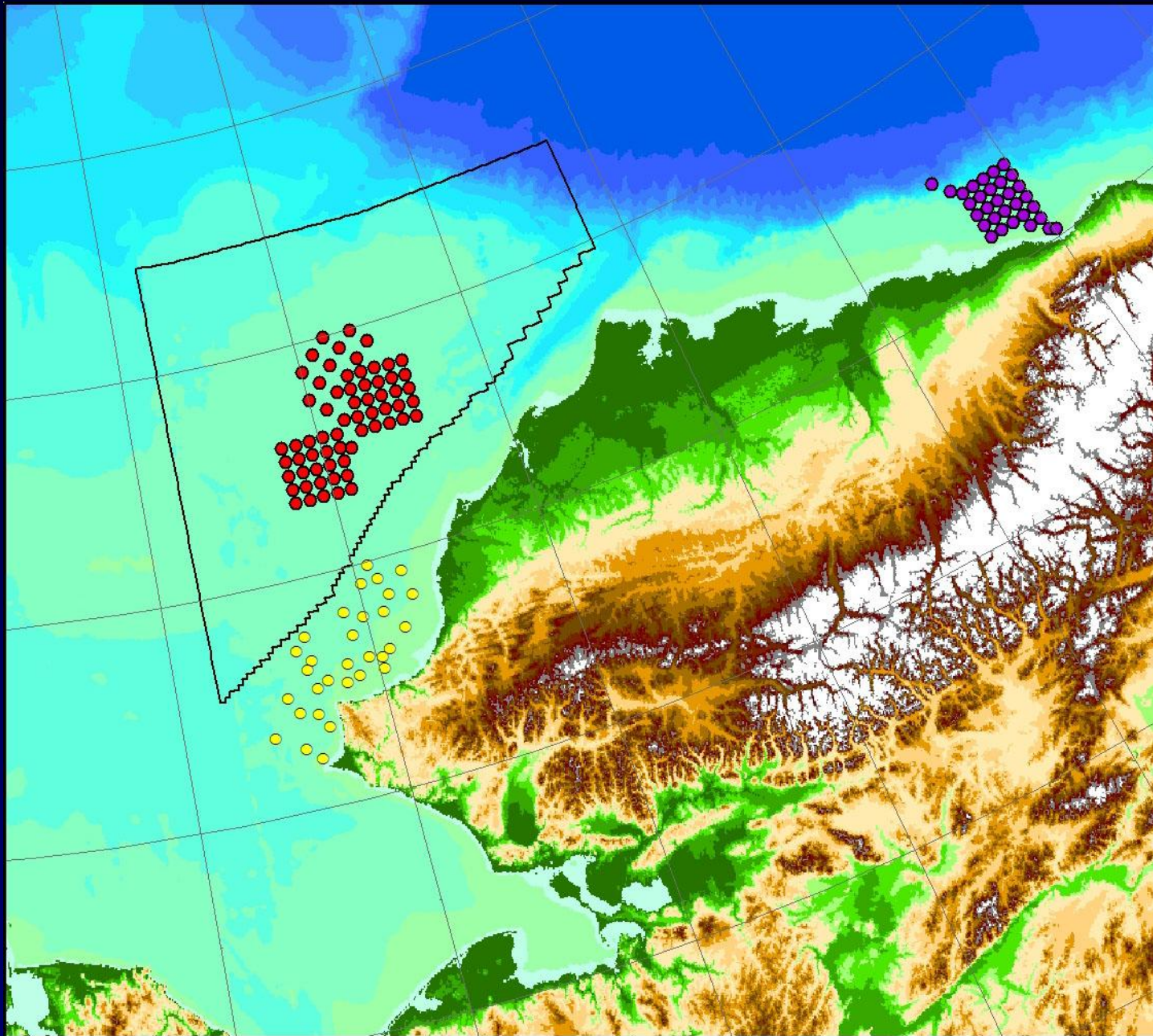
- Copepodite abundance 230% greater in 2009, biomass 50% greater in 2009
  - Nets often clogged with phytoplankton
- Biomass in other groups greater by 8-9 fold, due primarily to increased chaetognaths, secondarily from jellies
- Biomass of “predators exceeds” grazers by ~2 fold – ***ctenophores not yet included!***
- Community patterns have some similarity to 2004, but with less distinct cross-strait patterns
- Lower 2 lines repeated in 2010 & US side of lower 3 lines in 2011, major cruise planned for 2012

**Physics**  
**Nutrients**  
**Plankton**  
**Benthos**  
**Fish**  
**Birds**  
**Mammals**



**2008**  
**2009**

**CSEAP**  
**Shell**  
**Conoco-Phillips**



2010

CSEAP

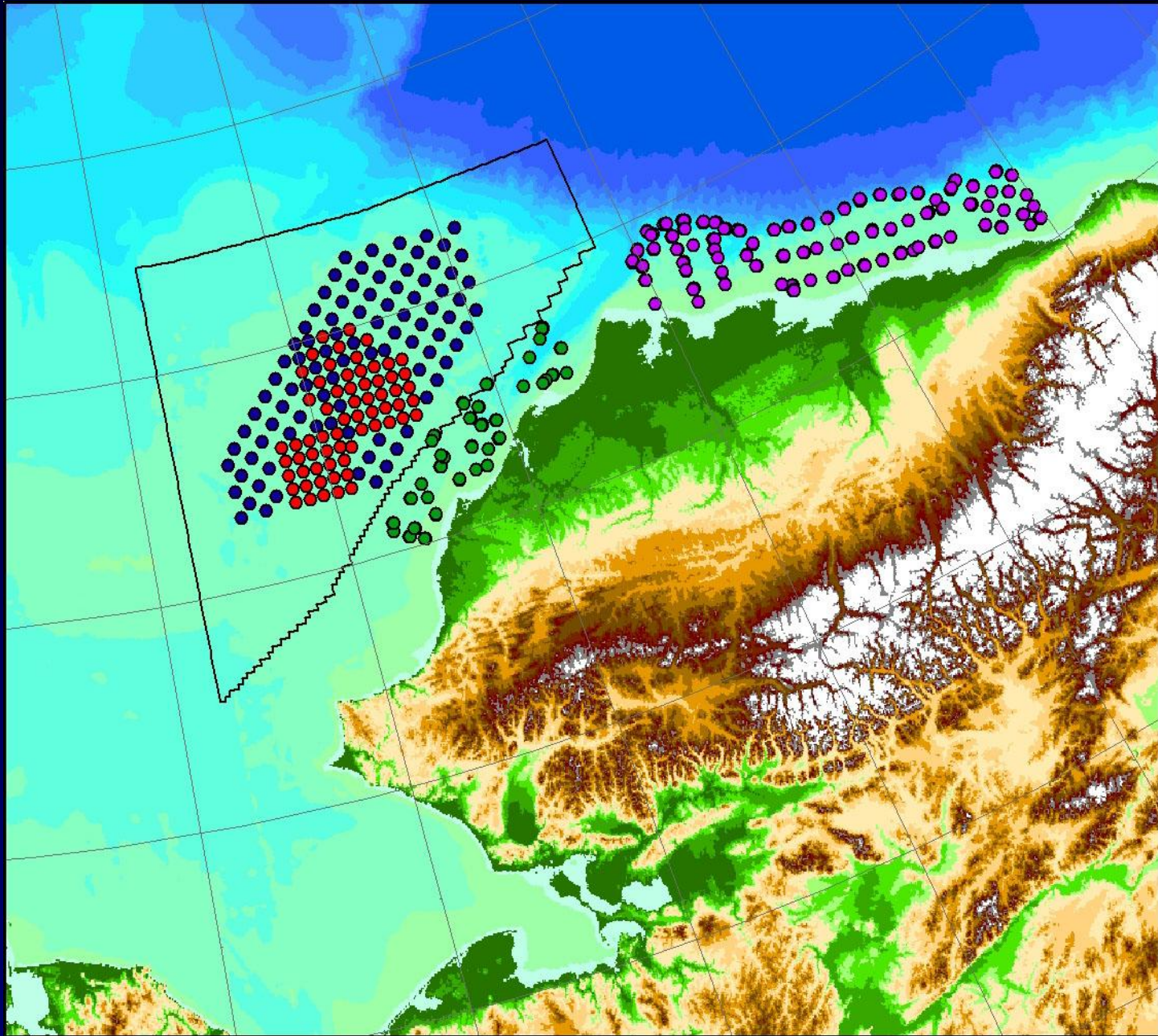
Shell

Conoco-  
Phillips

Statoil

AKMAP





2011

CSEAP

Shell

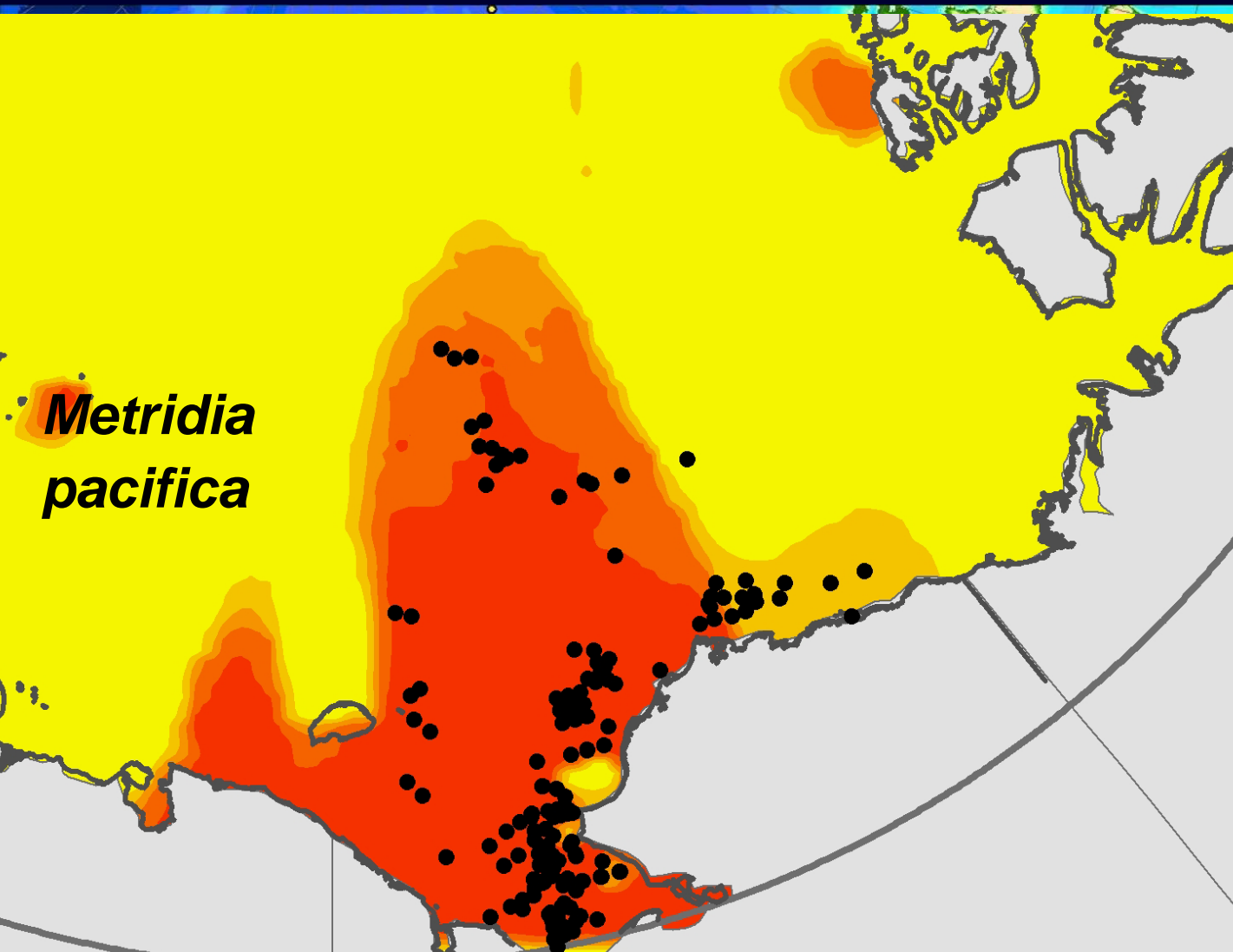
Conoco-  
Phillips

Statoil

AKMAP

BeauFISH

# Penetration of Pacific copepods into the Arctic



Next step:  
Habitat  
modeling  
underway for  
several  
dominant  
species -  
both Pacific  
expatriates  
and Arctic  
residents

