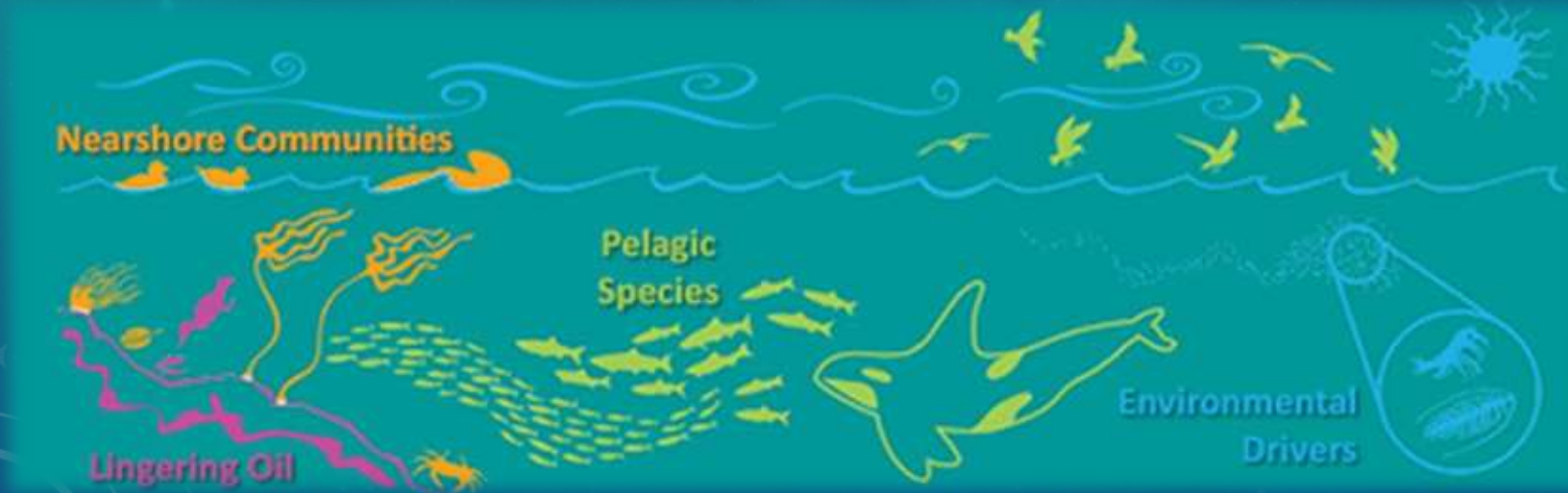




# GULF WATCH ENVIRONMENTAL DRIVERS COMPONENT

# What is Gulf Watch?

- A long-term ecosystem monitoring program across the Gulf of Alaska
- Began in February 2012
  - Anticipated to span a 20 year period
- Organized into 4 components to study different areas of the ecosystem



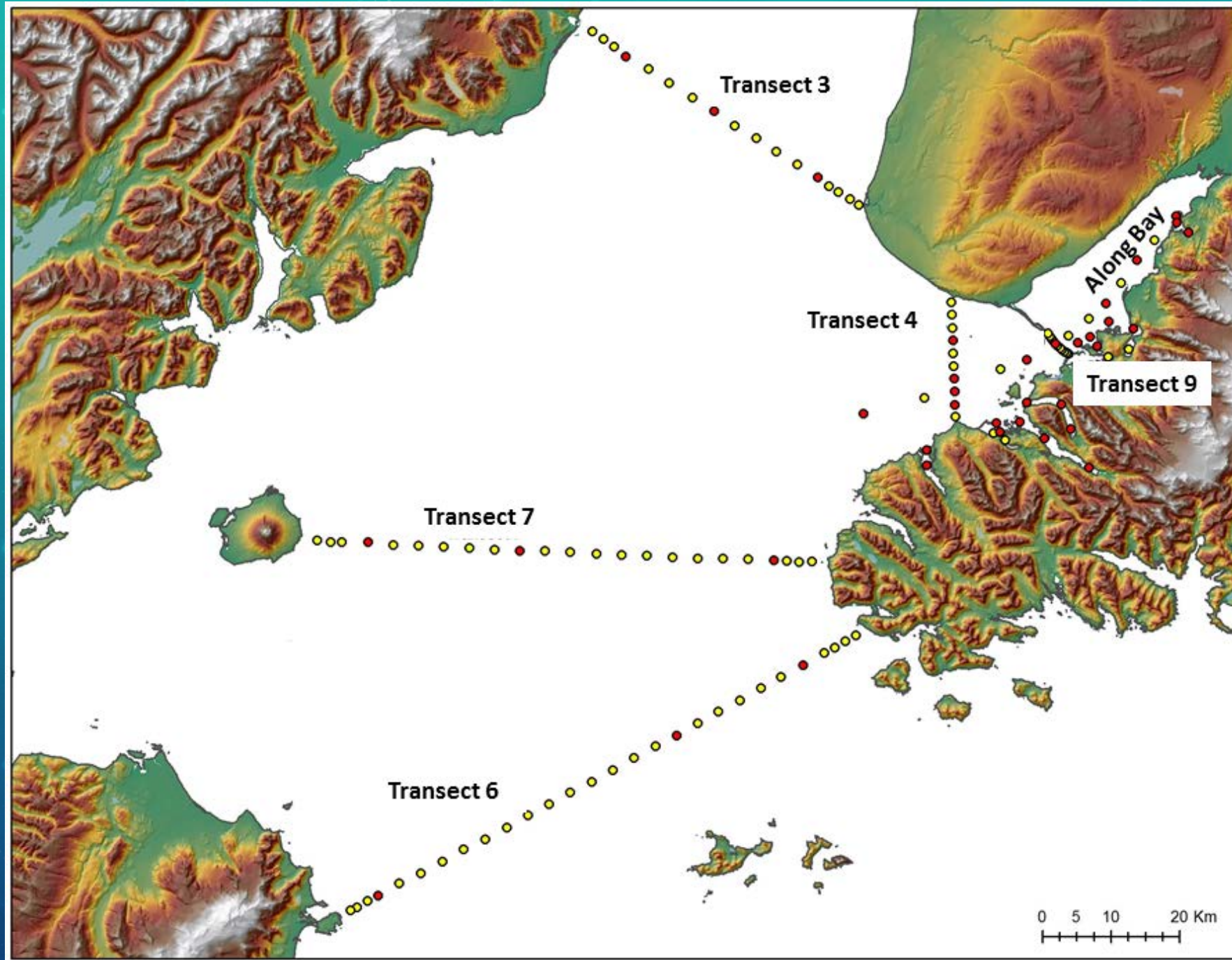


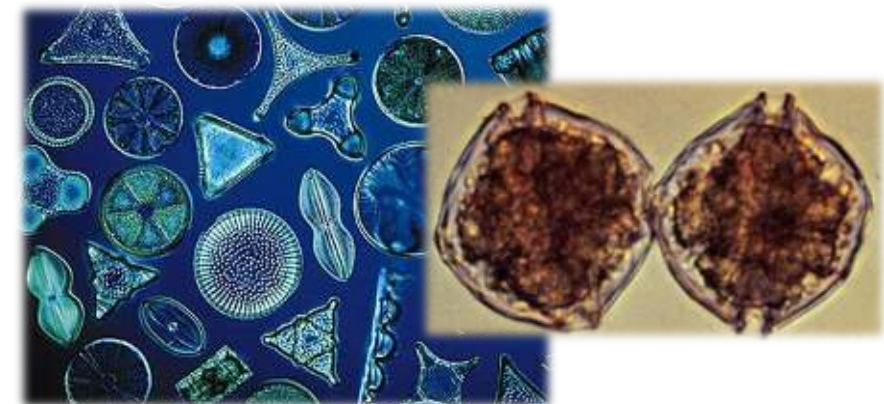
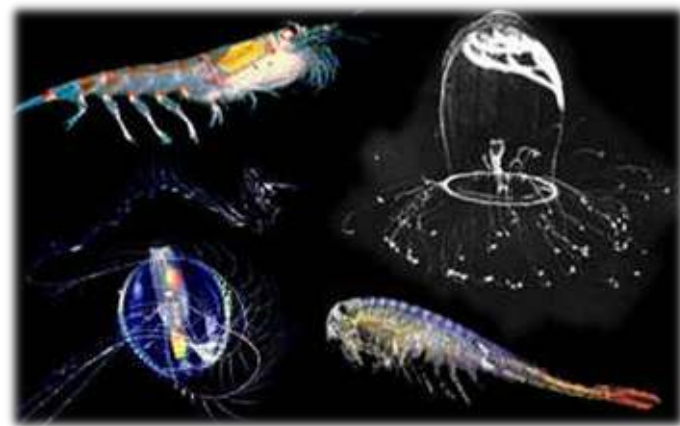
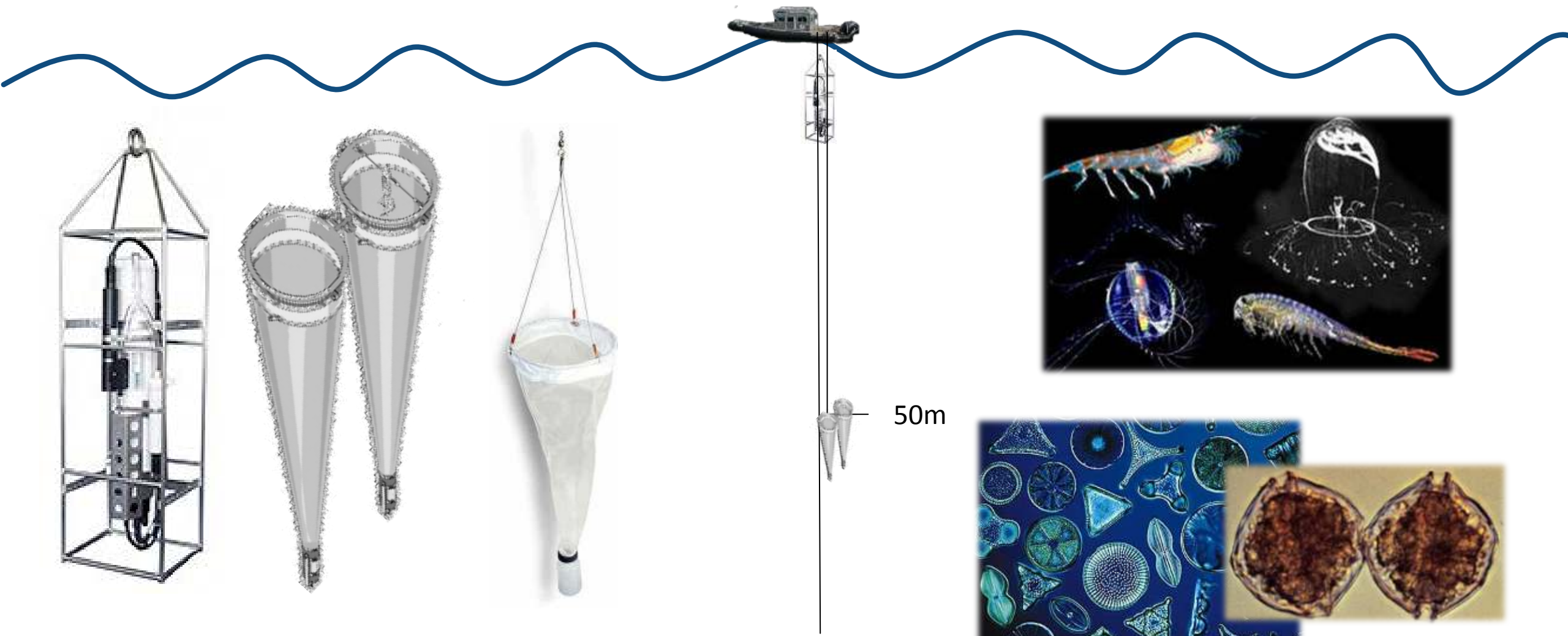
# Environmental Drivers Component

1. Collect oceanographic data around the Gulf of Alaska
  - Water temperature
  - Salinity
  - Dissolved oxygen
  - Turbidity
  - Chlorophyll
2. Sample zooplankton and phytoplankton communities
3. We collaborate with partners around the Gulf of Alaska
  - Seward Line Transect
  - Transect lines in Prince William Sound
  - Point locations in Cordova, Seldovia, and Homer harbors
  - Continuous plankton recorder on vessels of opportunity
  - Transects in Lower Cook Inlet and Kachemak Bay



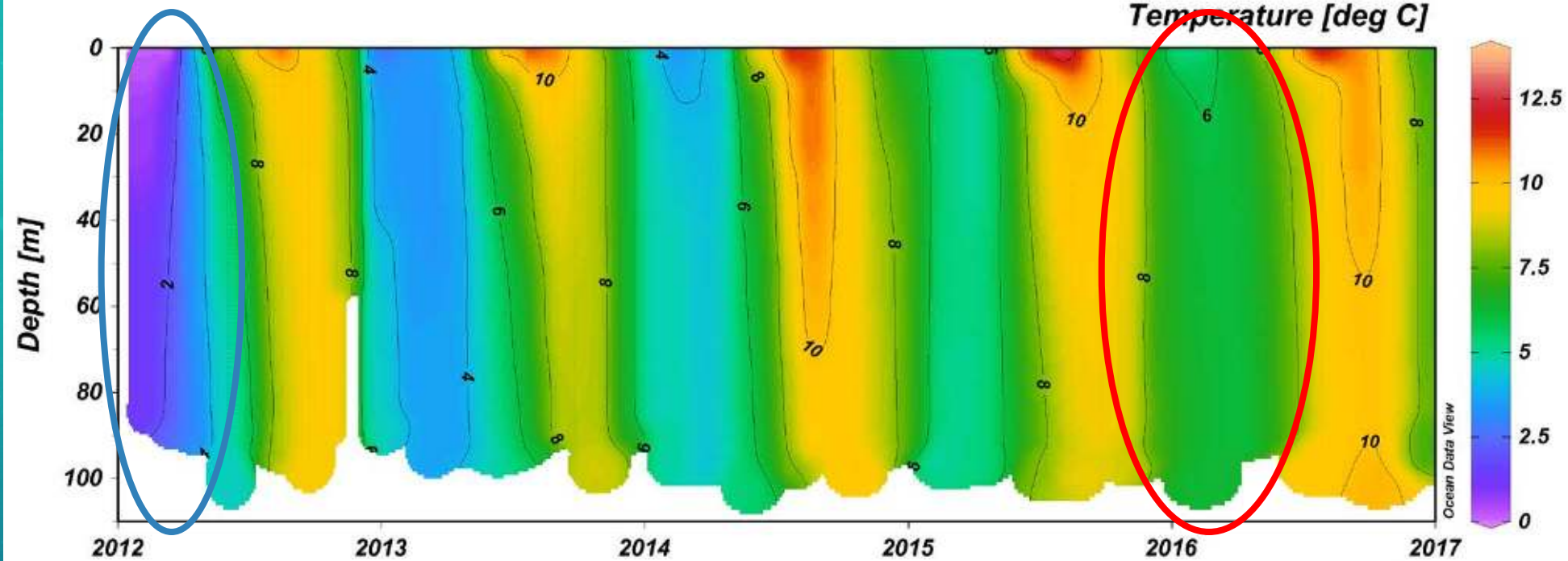




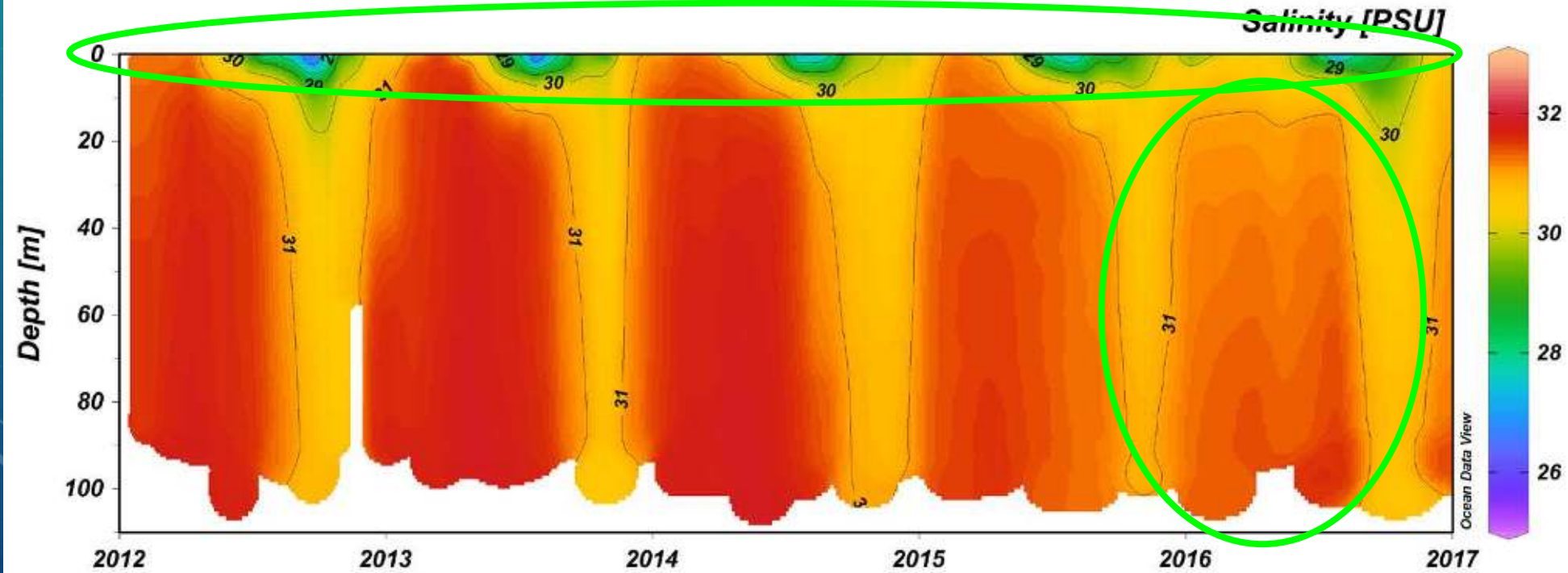




Temperature [deg C]



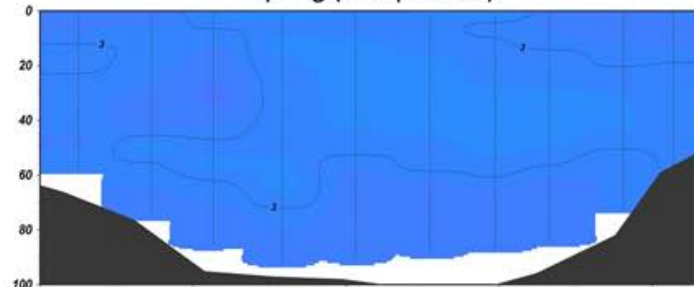
Salinity [PSU]



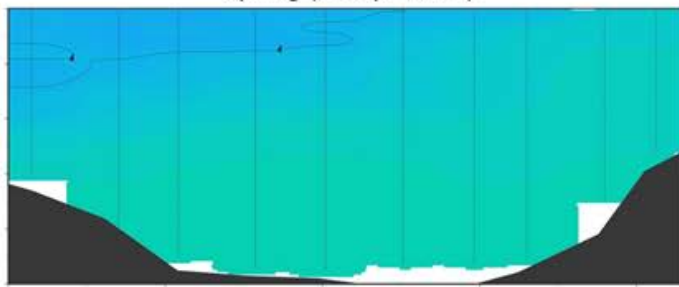
Temperature [deg C] Transect 9



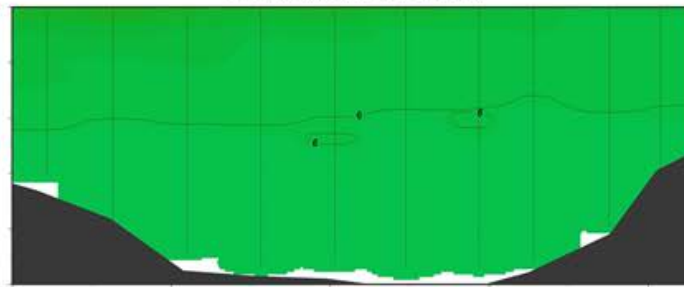
Spring (10 Apr 2012)



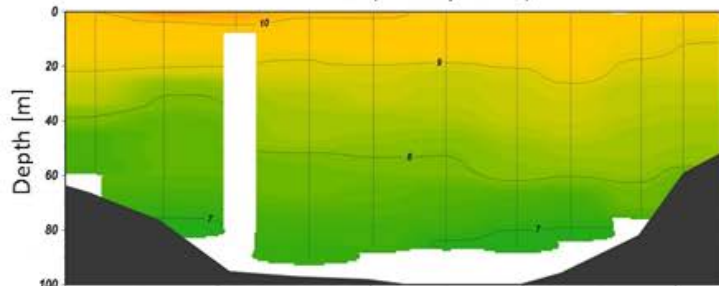
Spring (11 Apr 2014)



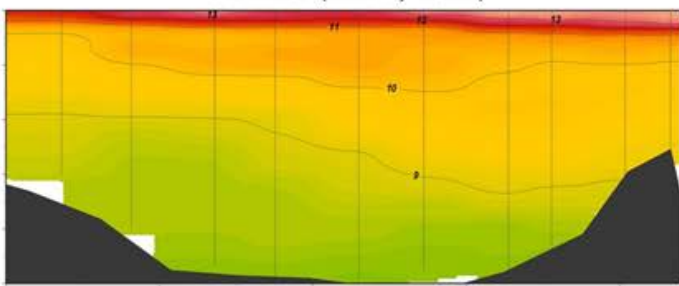
Spring (07 Apr 2016)



Summer (21 July 2012)



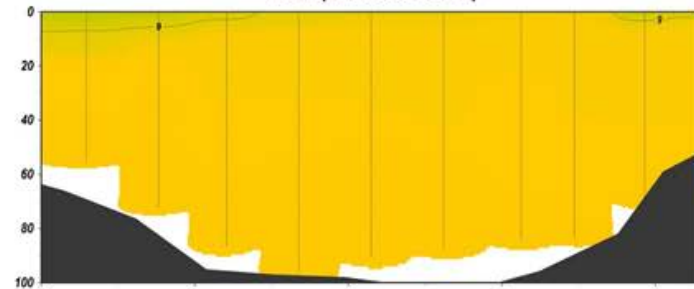
Summer (21 July 2014)



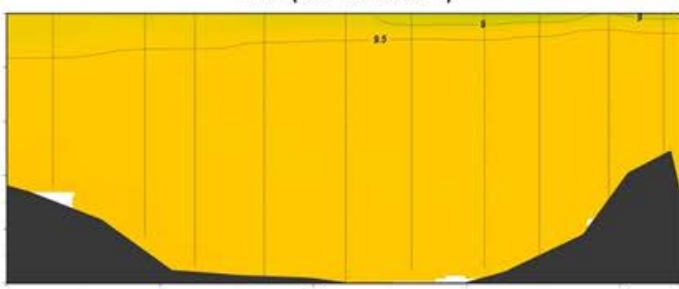
Summer (27 July 2016)



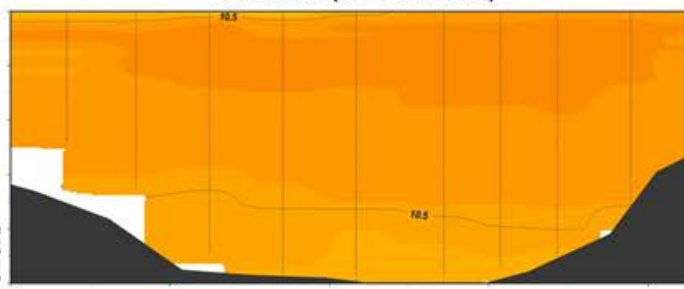
Fall (12 Oct 2012)



Fall (19 Oct 2014)



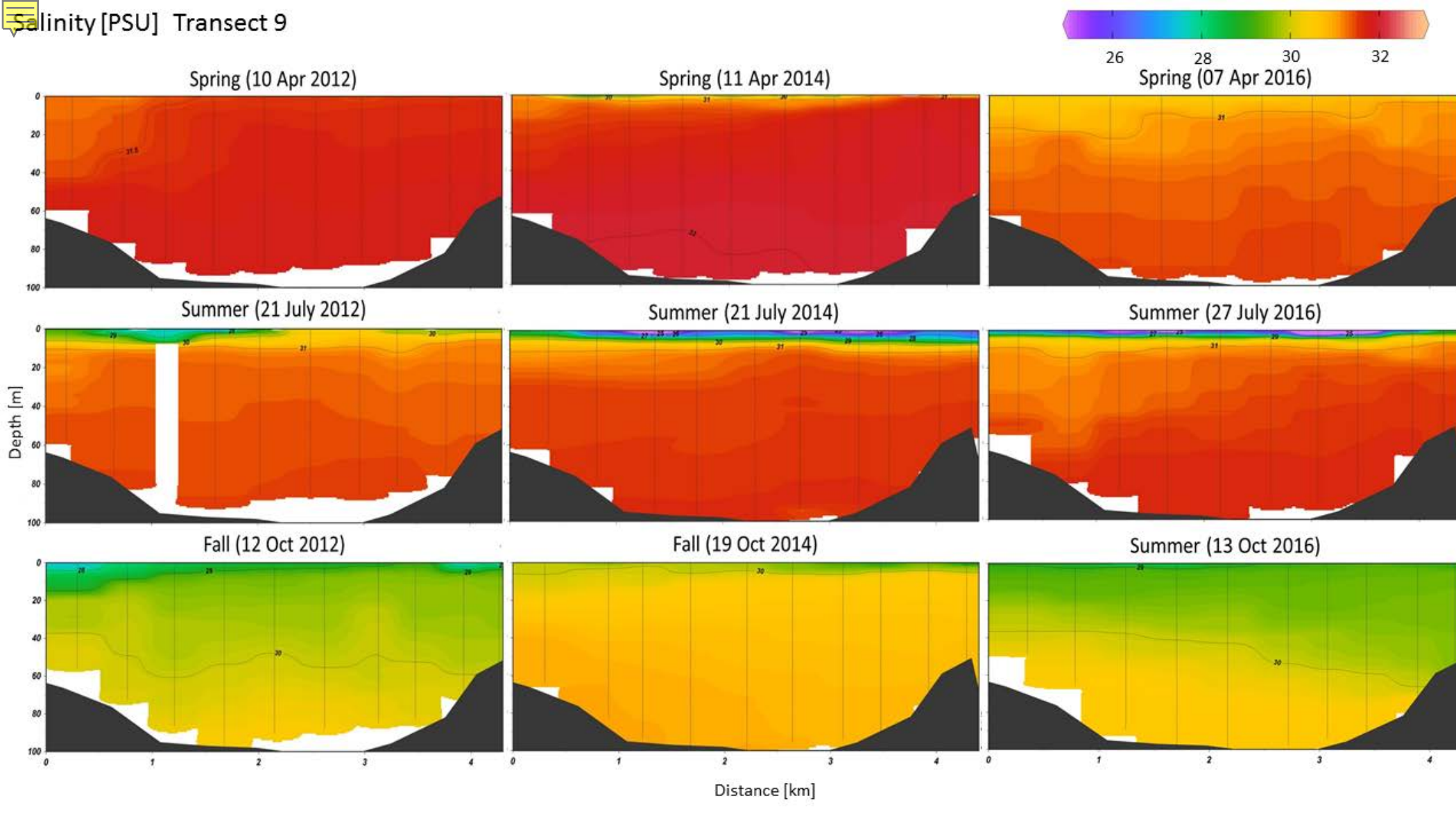
Summer (13 Oct 2016)



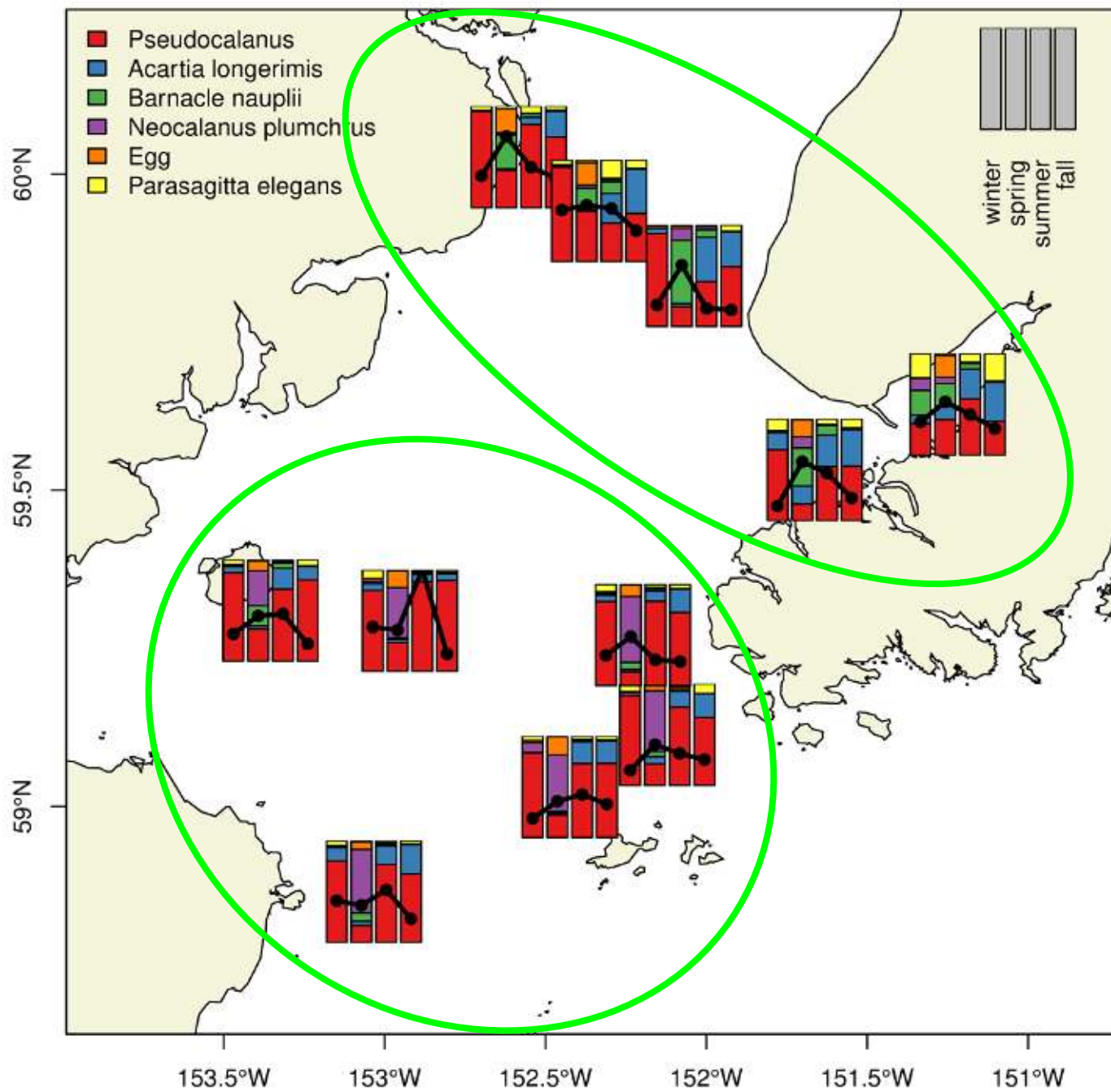
Distance [km]

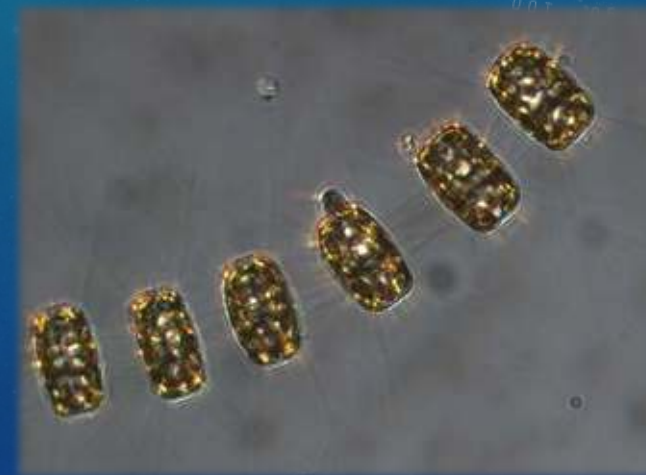
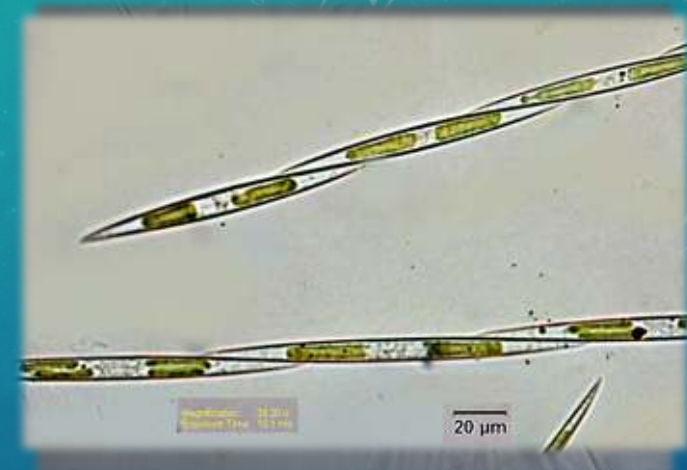
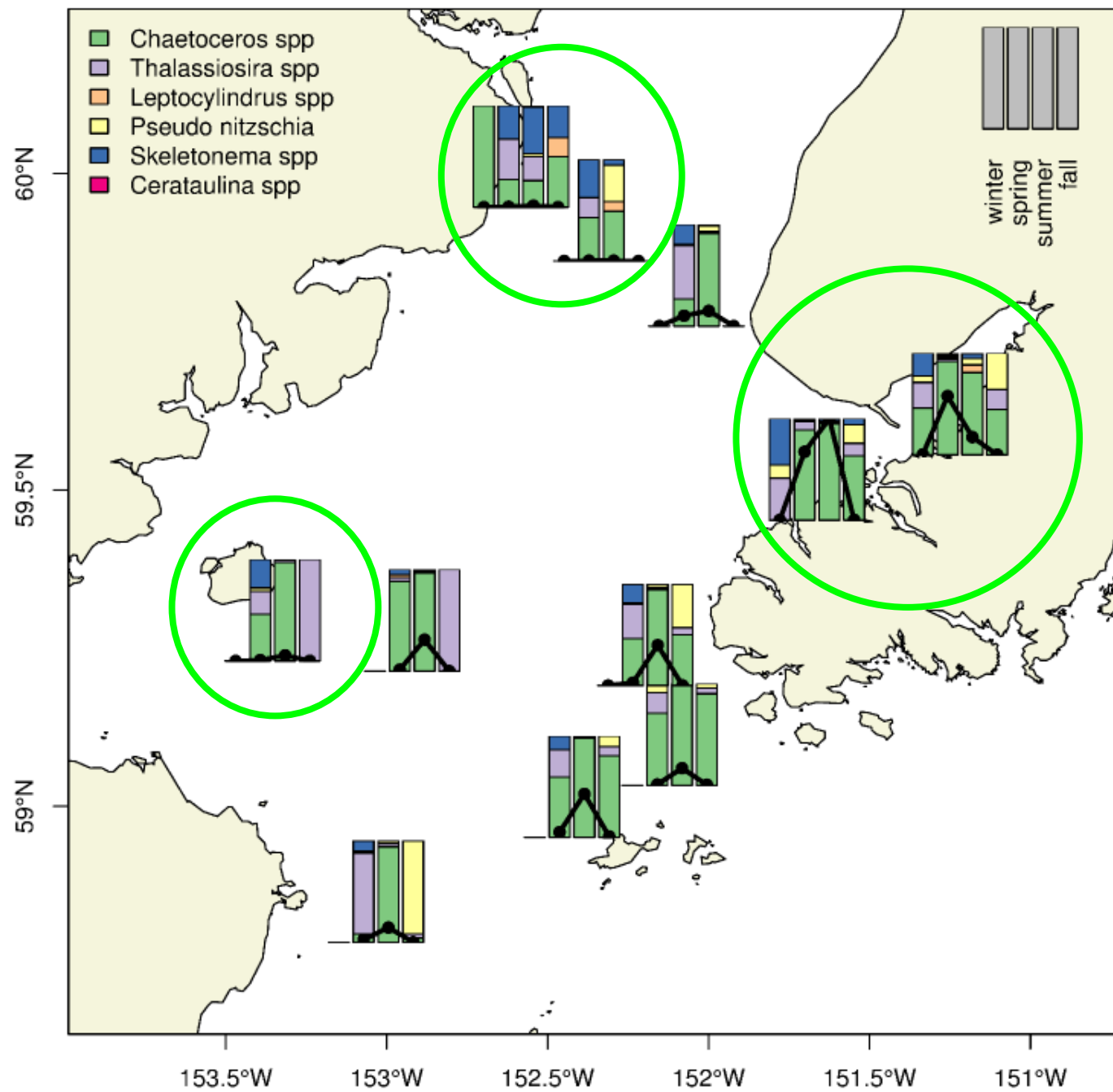


# Salinity [PSU] Transect 9













## Ecosystem Perspective Implications – Why do we care?

- Freshening waters
  - Fresh water lens on the surface = hard to mix up the water column
    - Fewer nutrients available
  - Change in salinity gradients - ACC
- Mixed water column
  - Increase in turbidity
    - Sunlight – bloom timing
- Warming water column
  - Change in species composition and abundance
  - Harmful Algal Blooms (HABs)
- Implications for higher trophic level organisms
- Model predictions
  - High resolution data spatially and temporally help inform oceanographic models
  - Plume and even potential dispersal of oil