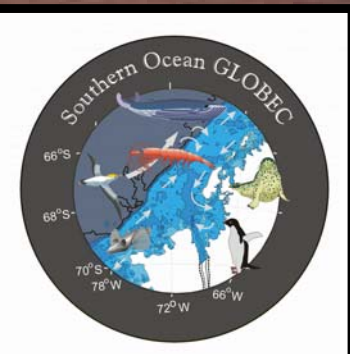


# “U.S. SO GLOBEC Synthesis and Modeling: Timing is Everything: The dynamic coupling among Phytoplankton, Ice, Ice Algae and Krill (PIIAK)”

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- Phytoplankton bloom decline
  - Timing of ice formation
    - Algae in sea ice
  - Krill feeding/energetics





**Goals:**

**This project has two primary goals:**

- **Develop, refine and link datasets (historical and SO-GLOBEC) and diagnostic models of phytoplankton decreases in the fall, phytoplankton biomass incorporation into sea ice, sea ice growth dynamics, sea ice algal production and biomass accumulation, larval krill energetics, condition and survival.**
- **Utilize developed models and historical data to hindcast variations (spatially within a season as well as interannual) in the quality of the pack ice habitat and larval krill condition west of the Antarctic Peninsula (WAP) from present back to 1979.**

**By achieving these goals we will be able to use summer data from the Palmer LTER regarding reproductive output and recruitment success to rank winters according to larval krill mortality. We will then compare model predictions of food availability, condition factor and indices of larval krill survival to determine if the comparison supports the circum-Antarctic correlation between the timing of sea ice advance and recruitment success. Finally, we will use the models to predict how far Southern Ocean warming may have proceeded before larval Krill can't make it through winter in key locations.**

