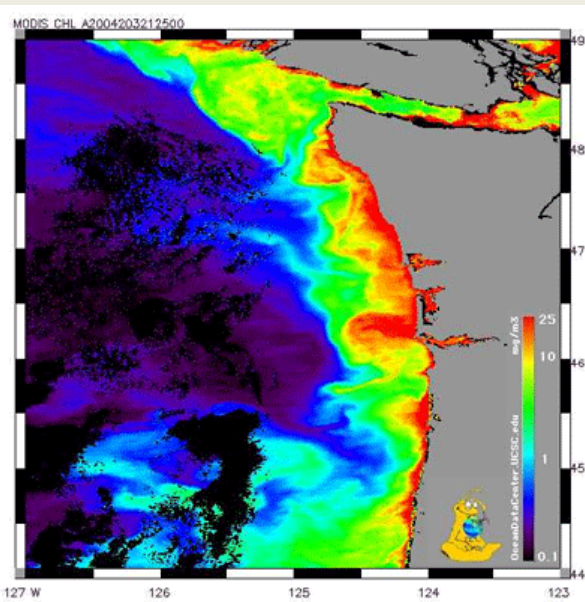


Marine Birds and Mammals on Line P

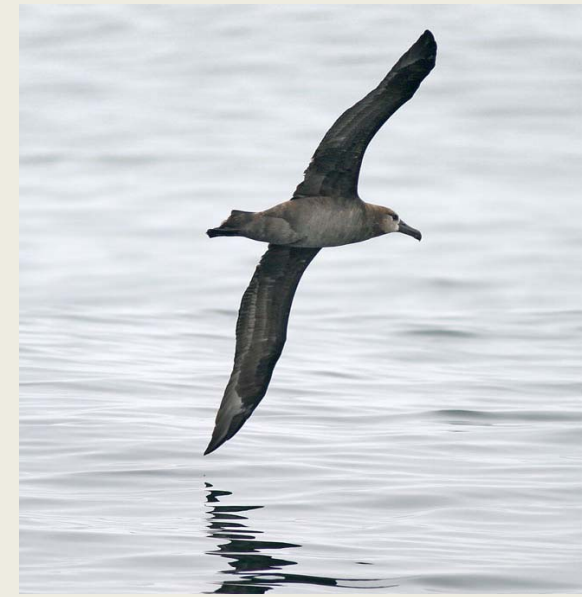


Bill Sydeman - Farallon Institute; Bodega Marine Lab/UC Davis

Ken Morgan – Canadian Wildlife Service/EC

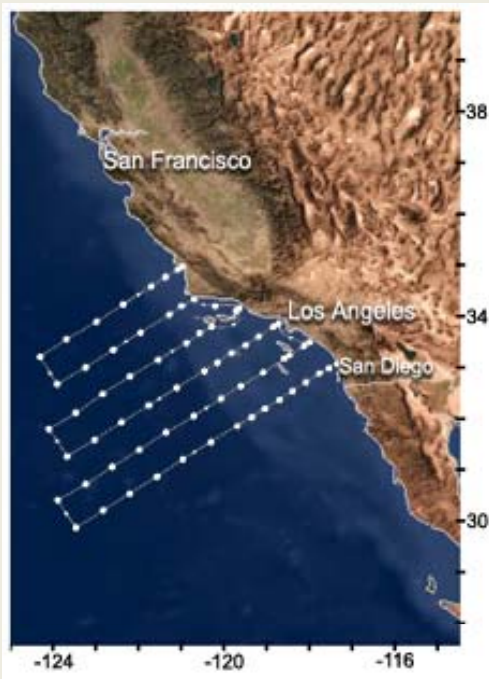


Goals of Program

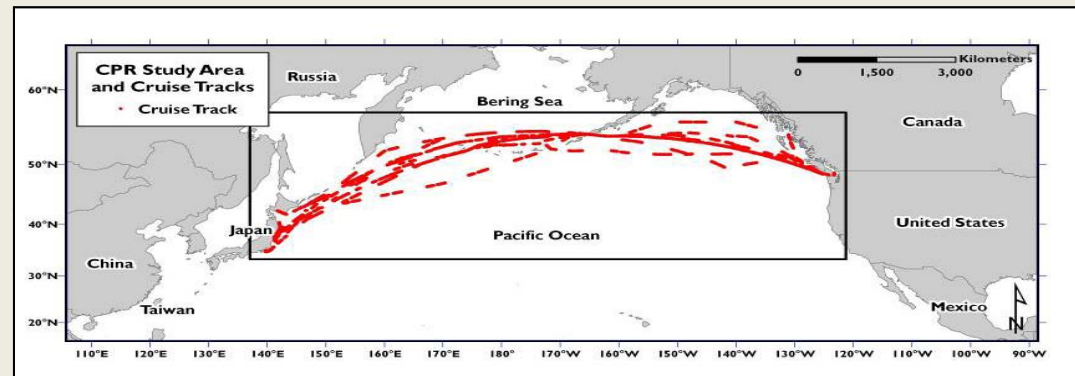


- (1) Climate Change-Ecosystem Change-Habitat Change in the Gulf of Alaska: integrated ecological analyses from physics to predators (primary goal...)**
- (2) Complement Lower Trophic Level (LTL) Biological Oceanographic Investigation With Upper Trophic Level (UTL) Data**
- (3) Ocean Literacy Via Publically-Appreciated Wildlife**
- (4) Species-at-Risk for Oiling and By-Catch In Coastal B.C.**
- (5) Ecological Indicators for Fisheries and ? (... in the future)**

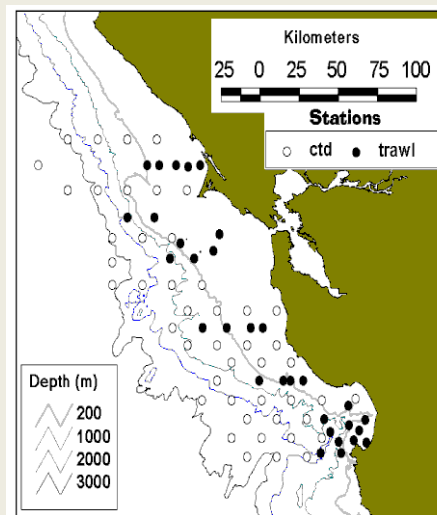
Line P Birds and Mammals, Part of Coordinated At-Sea Studies of Top Predators in the North Pacific



(1) E.g., CalCOFI Birds and Mammals; May 1987 –present



(2) CPR Birds and Mammals; June 2002 - present



(3) Rockfish Birds and Mammals; May 1996 - present

...amongst others...

Some Key Strategies of Line P Seabird and Marine Mammal Investigations

- Varying life history and foraging strategies can be used to examine climate change-ecosystem change in the SE GOA
- Coastal-pelagic habitat coupling
- Long-term study; multiple time scales



Northern Fur Seal; myctophids;
migrant from AK to Line P region



Black-footed Albatross; squid; migrant from
Hawaii to SE GOA



Cassin's Auklet, plankton, Breeds in B.C. (Triangle Is.)

Line P Birds and Mammals Time-Series

- June 1996 – present, generally 3x/year with a couple of gaps...
- Costs – observer, travel, and database management; ~\$10K/cruise
- ACCESS Database – fully available and clean, 1996-2006 (2007/2008 under construction...)
- Numerous presentations, publications, and governmental reports



Some Key Findings

- Importance of La Perouse Bank (hotspot) to foraging seabirds and mammals (Yen et al. 2005, DSR II)
- Re-distribution of seabirds from coastal to oceanic environment with climate variability (Yen et al. 2005, DSR II)
- Seabird associations with satellite-derived frontal structures (O'Hara et al. 2006, DSR II)
- Density-dependent effects on distribution (O'Hara et al. 2006)
- Atlas of B.C. seabird distribution and abundance (CWS/EC 2008)



The Future



- We'd like to continue...
- More collaboration with physical scientists and biological oceanographers
- Funding uncertain (consortium approach?)
- Manuscripts/analyses in preparation:
 - Sub-tropical gadfly petrels in the GOA: indicators of changing conditions?
 - Comparison of CPR and Line P-derived at-sea density estimates for the SE GOA
 - Prey consumption of seabirds in the SE GOA (top-down effects)