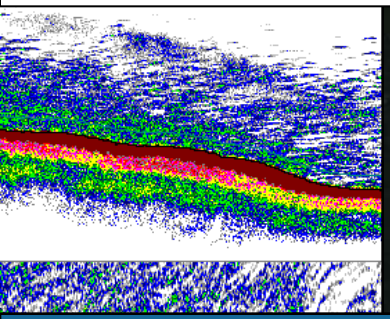
Applied California Current Ecosystem Studies



North-Central California Pelagic Ecosystem
Very Preliminary Update - 2010

J. Jahncke, M. Elliott, J. Howar, R. Bradley, P. Warzybok

Cordell Bank Sanctuary Advisory Council Meeting – November 2010

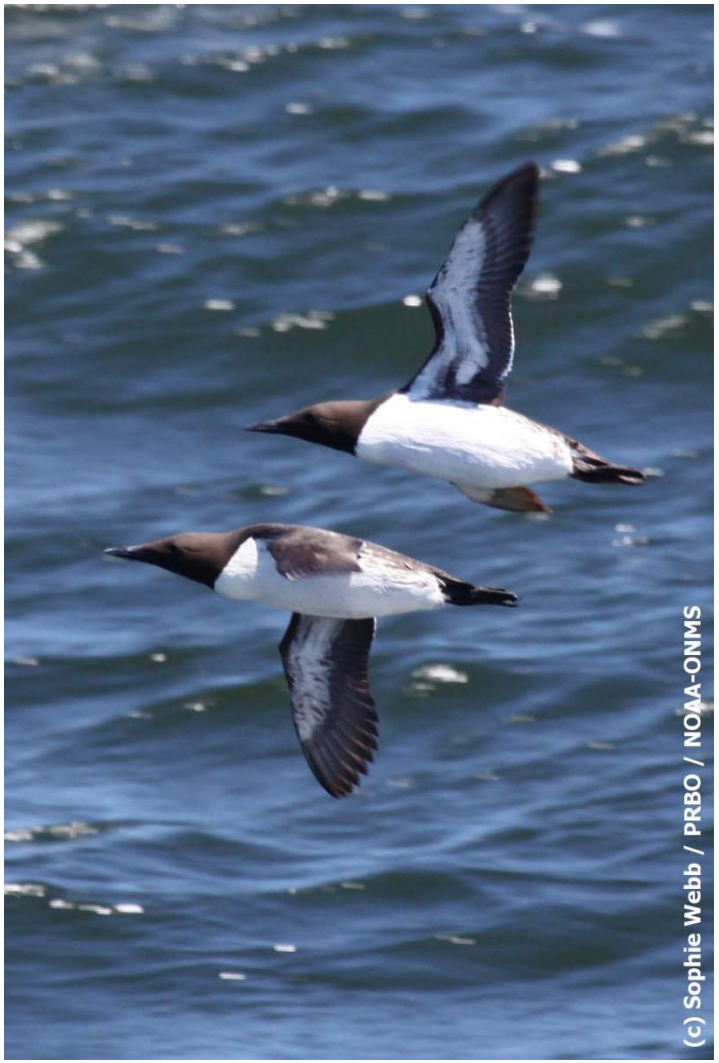
Applied California Current Ecosystem Studies

ACCESS Partnership

Conducting collaborative ocean research to inform resource managers, policy makers and conservation partners.

Founders:

Members:

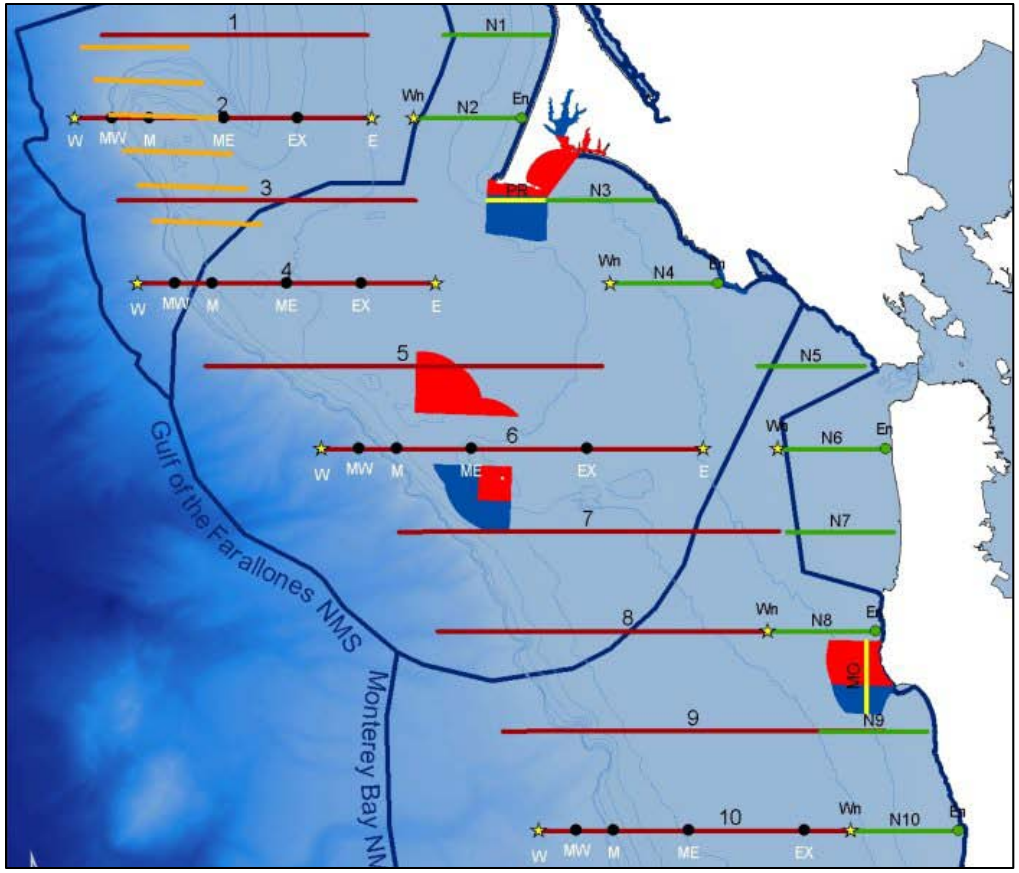


National Marine Sanctuaries are sentinel sites

- At sea research in CB/GFNMS since 2004 (PRBO, NOAA, ACCESS)
- Colony research on Farallon Islands since 1968 (PRBO and USFWS)

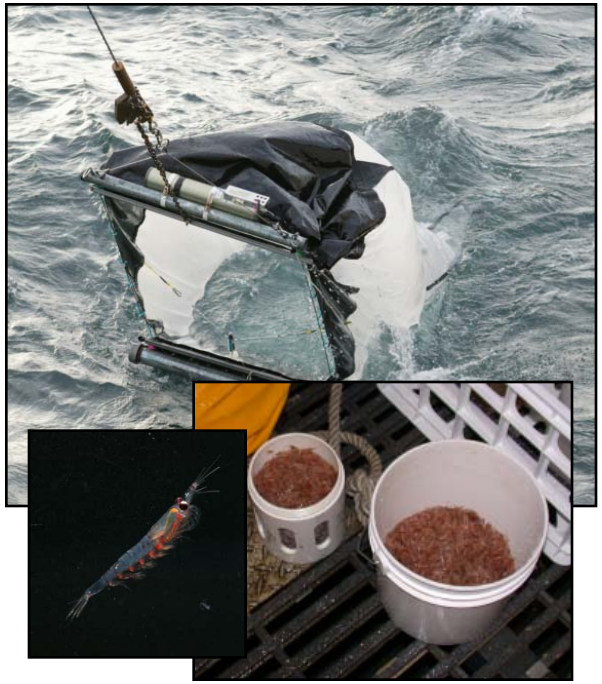
RV John H. Martin

RV Fulmar

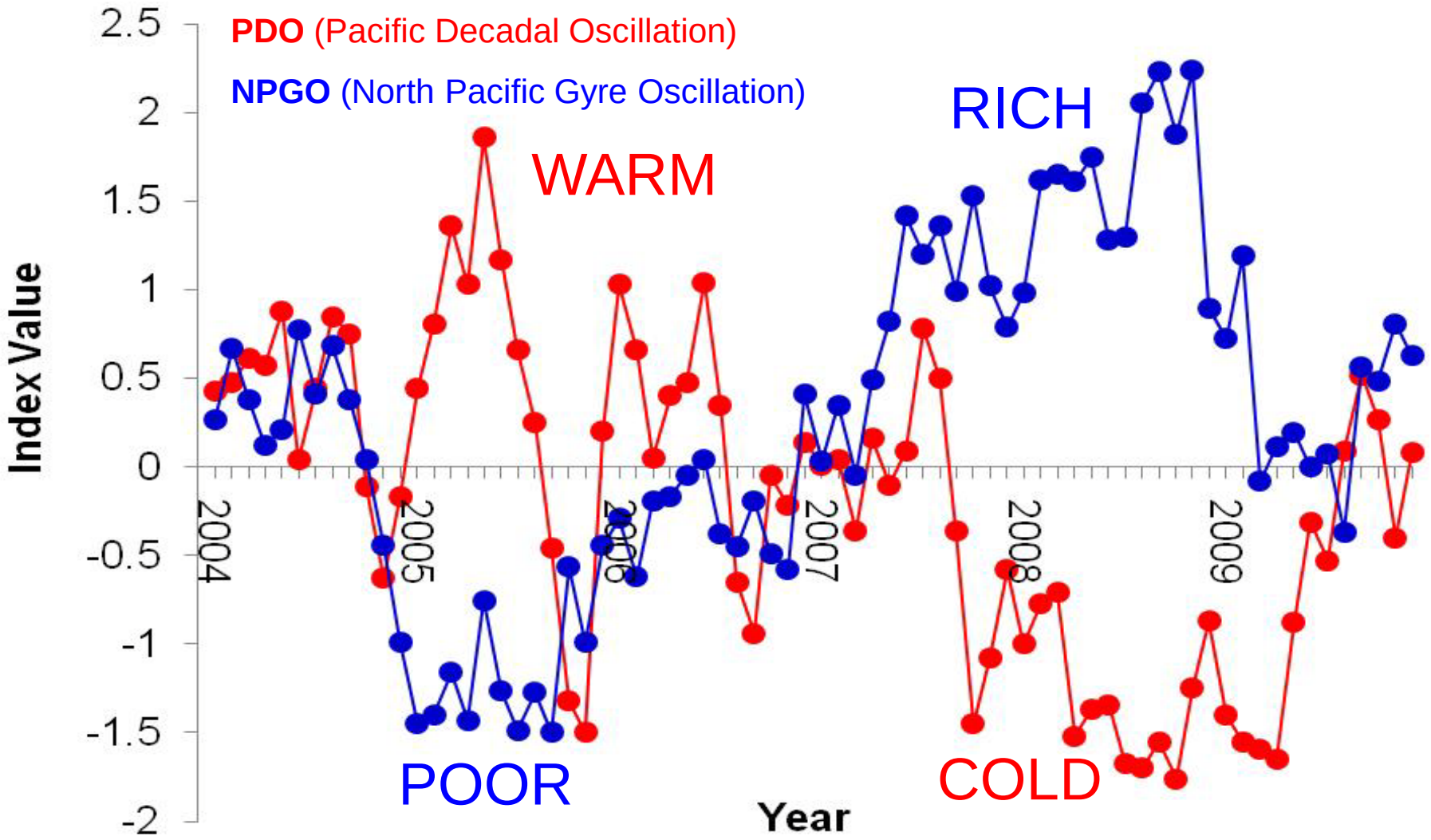


Research takes an ecosystem approach

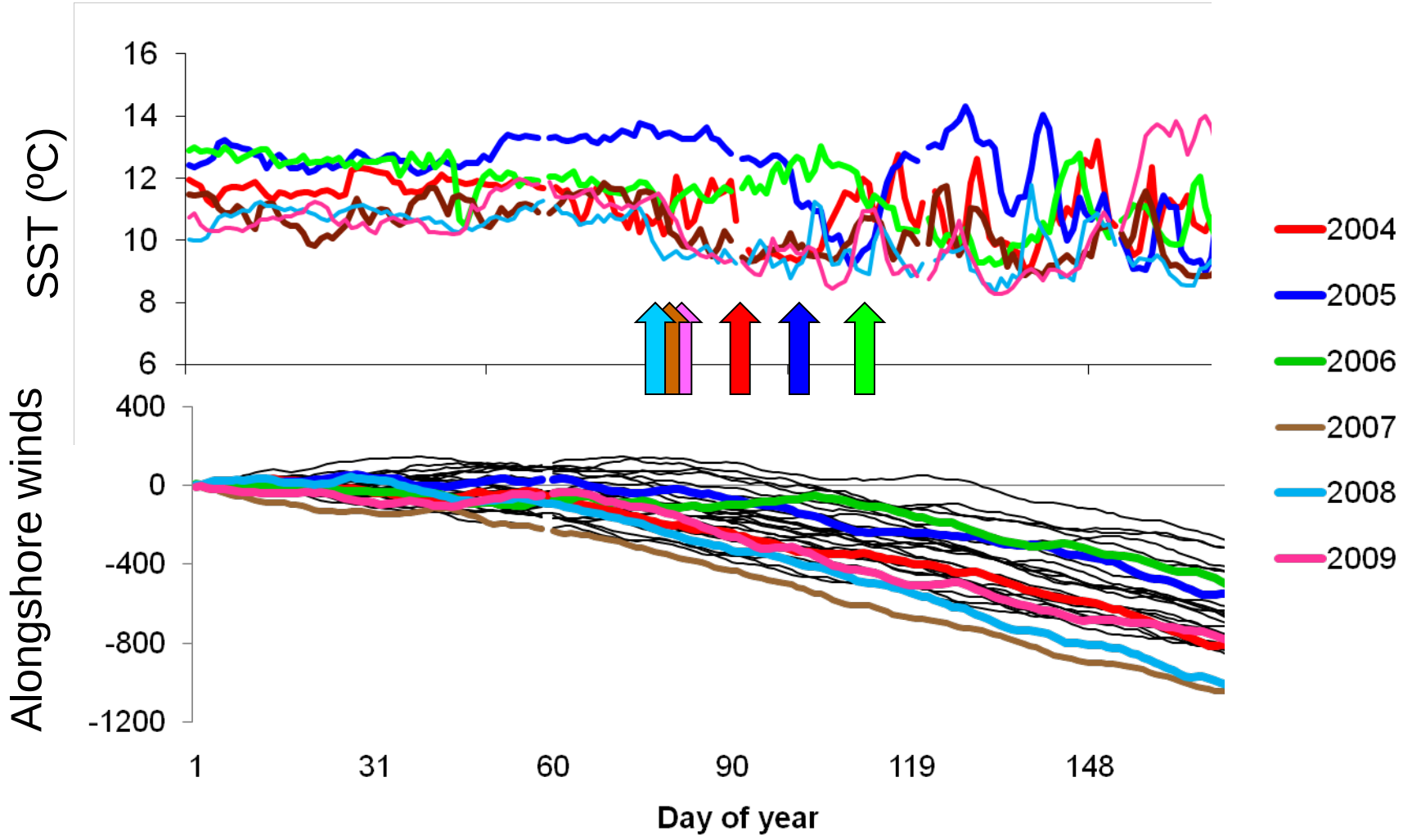
- Oceanography (CTD casts and continuous CT and fluorometry)
- Zooplankton/fish (hydroacoustics and nets)
- Birds/mammals (standardized strip and line transects)



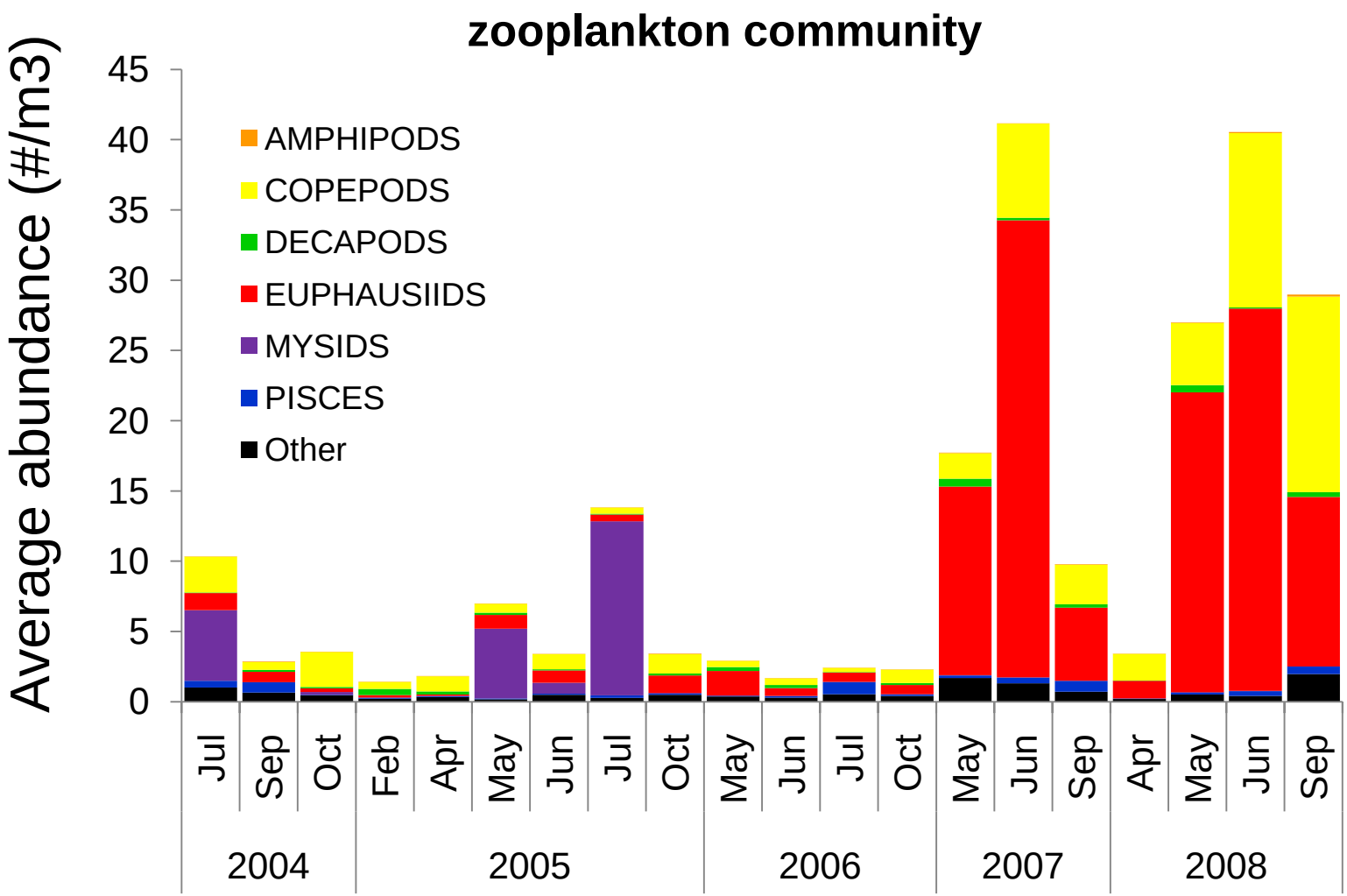
Extremely variable ocean conditions



SST and alongshore winds

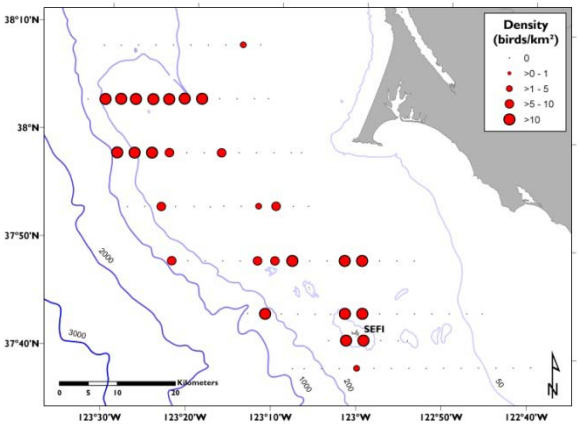


Abundant zooplankton in cold-productive conditions



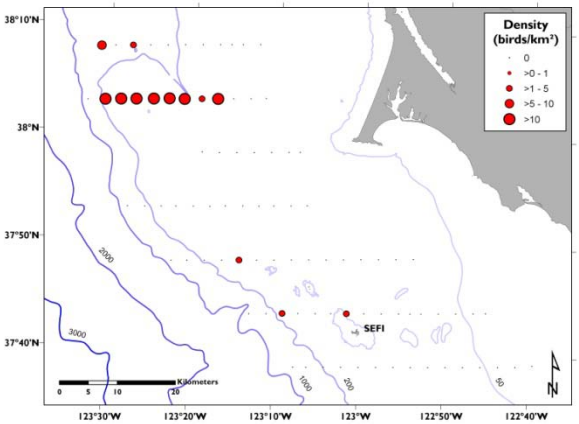
Cassin's auklet distribution

2005



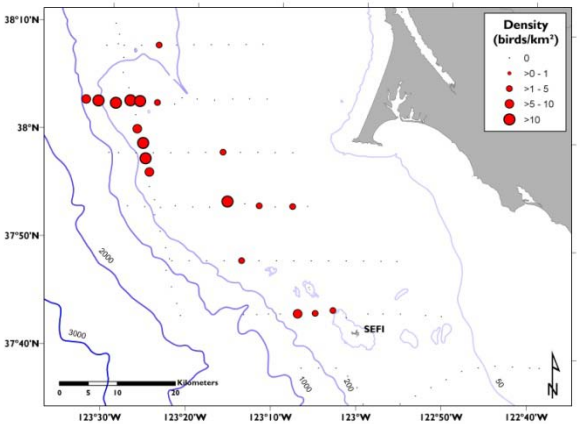
Cassin's Auklet- Gulf of the Farallones - June 2005

2006



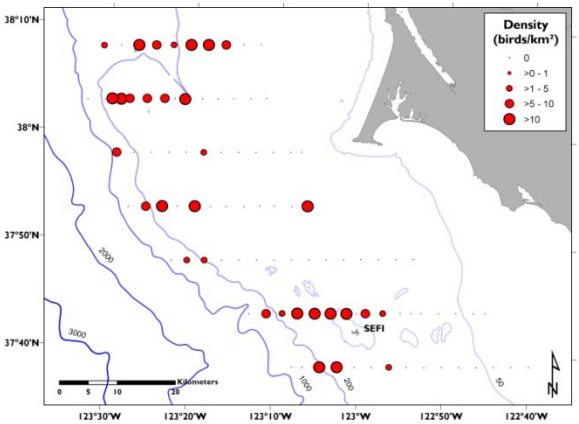
Cassin's Auklet- Gulf of the Farallones - June 2006

2007



Cassin's Auklet- Gulf of the Farallones - June 2007

2008



Cassin's Auklet- Gulf of the Farallones - June 2008

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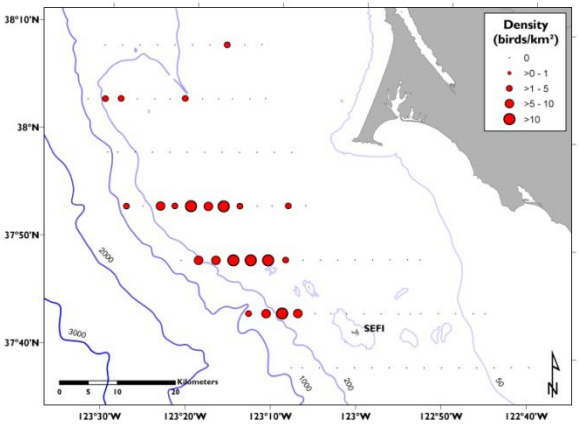
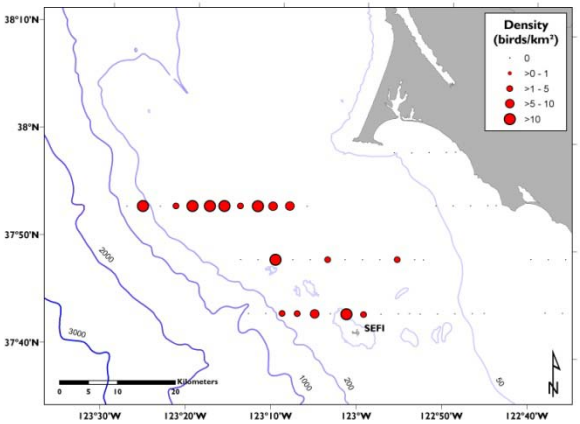


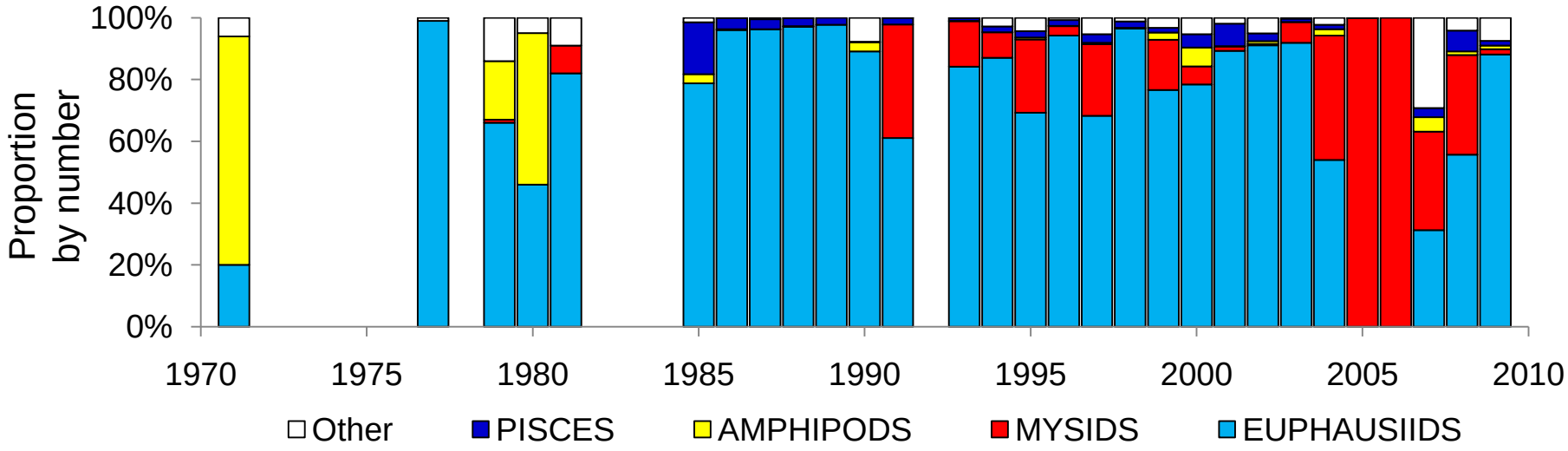
Cassin's Auklet- Gulf of the Farallones - June 2009

2010

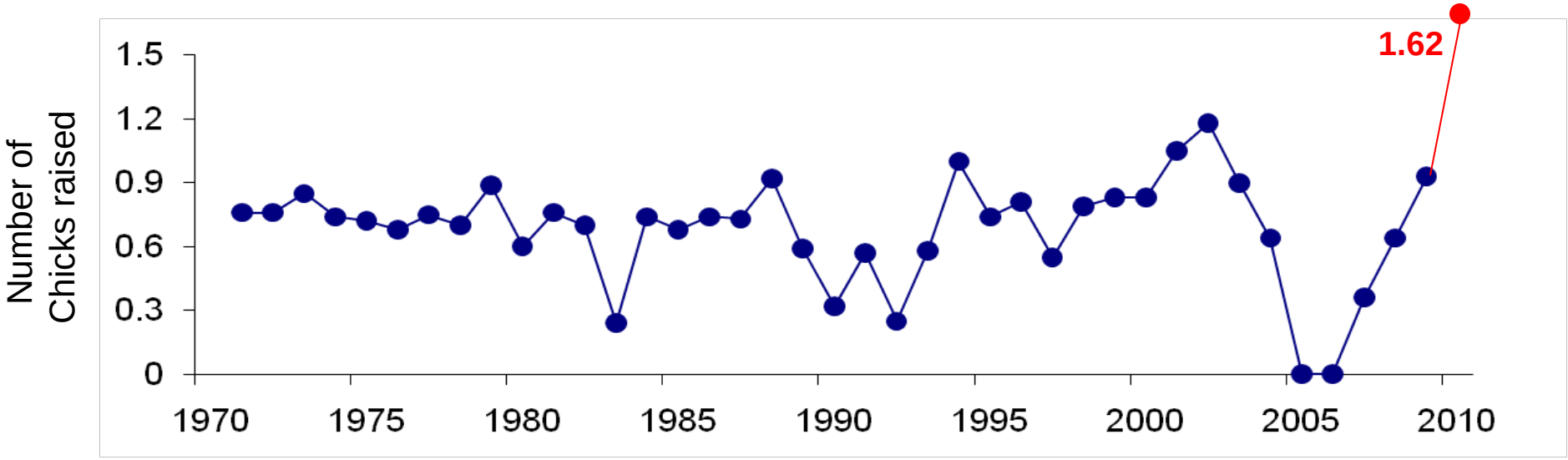


Cassin's Auklet- Gulf of the Farallones - June 2010

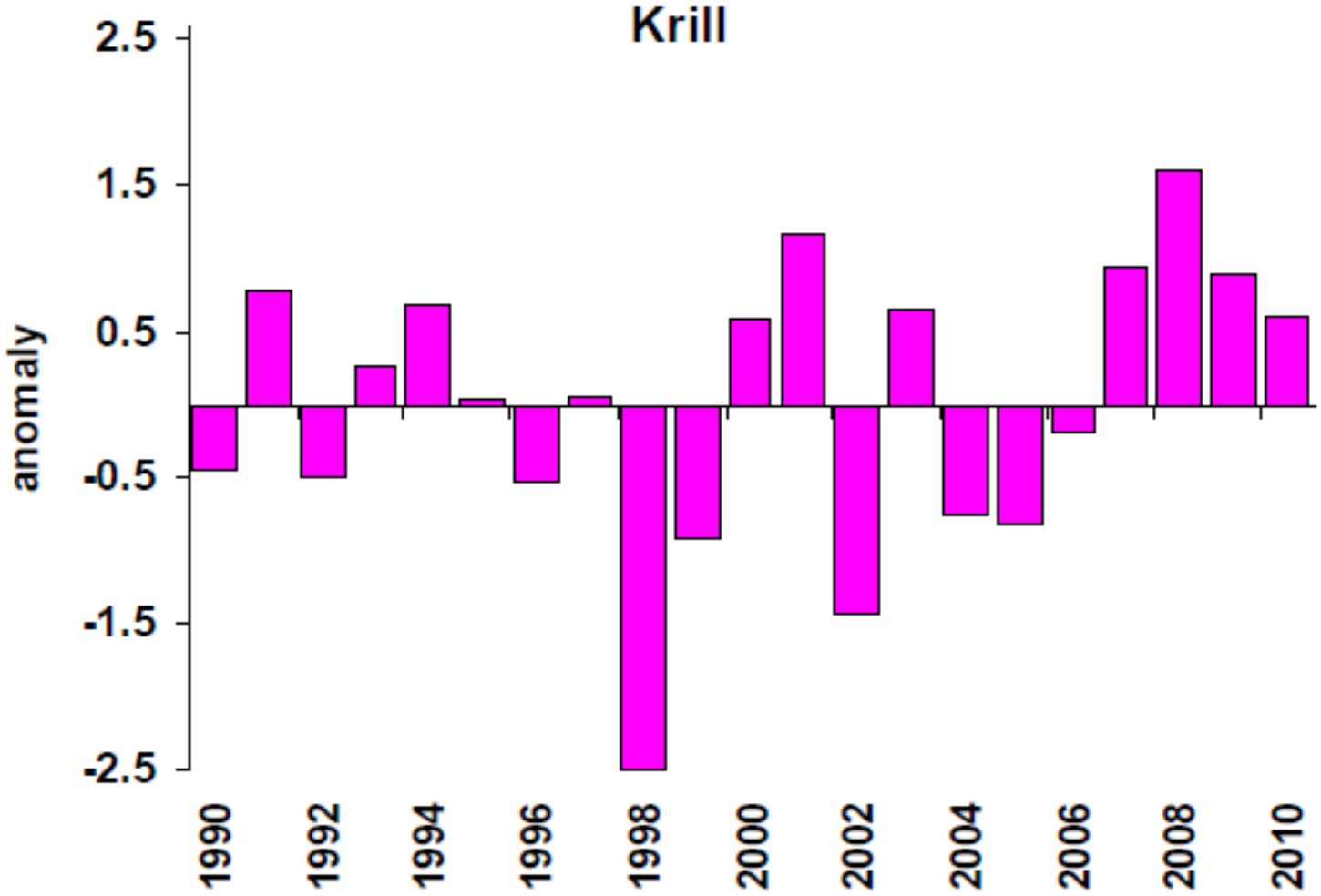
Cassin's auklets diet



Cassin's auklet productivity

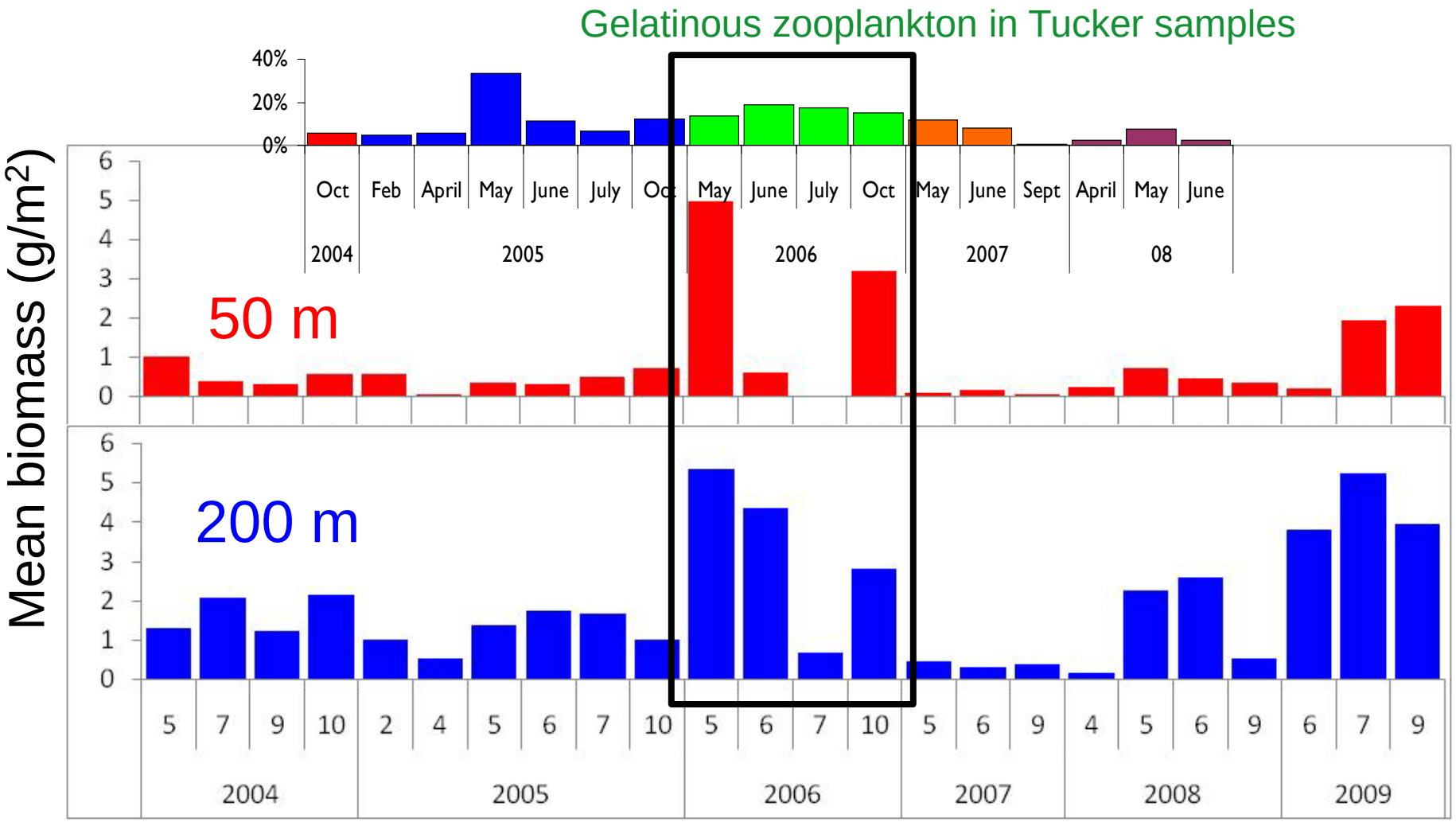


Krill catch – NMFS Rockfish Cruises



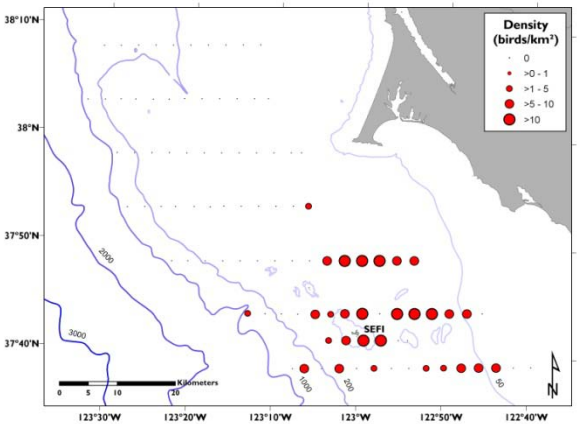
John Field, Steve Ralston and Keith Sakuma, Fisheries Ecology Division, SWFSC, NOAA

Acoustic krill biomass – ACCESS Cruises



Common murre distribution

2005



Common Murre- Gulf of the Farallones - June 2005

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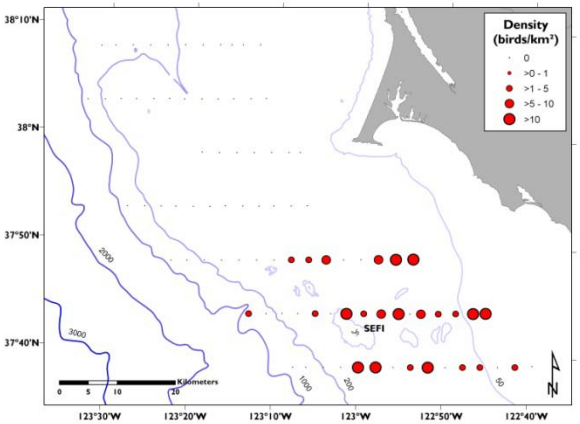

Common Murre- Gulf of the Farallones - June 2006

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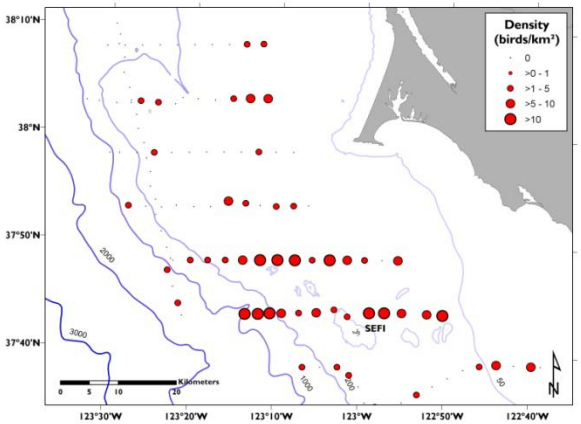

Common Murre- Gulf of the Farallones - June 2007

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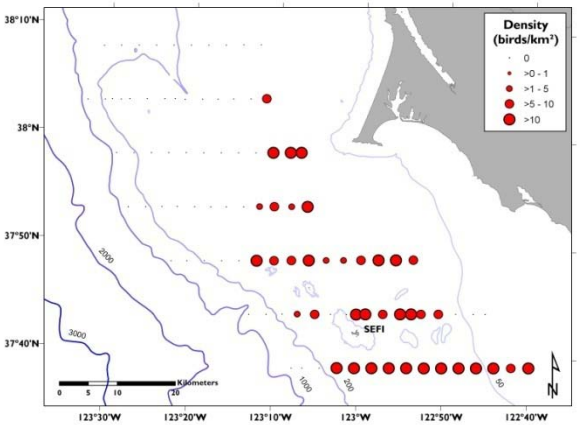

Common Murre- Gulf of the Farallones - June 2008

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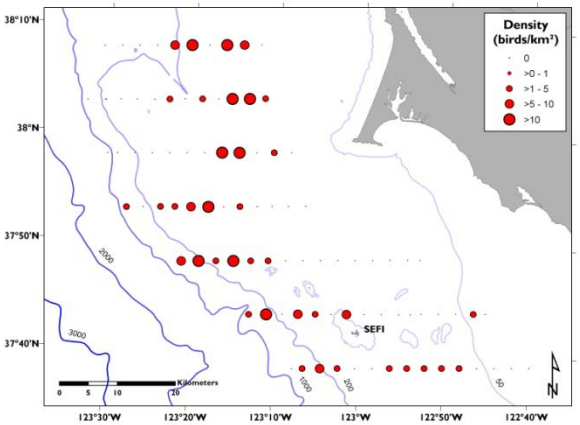

Common Murre- Gulf of the Farallones - June 2009

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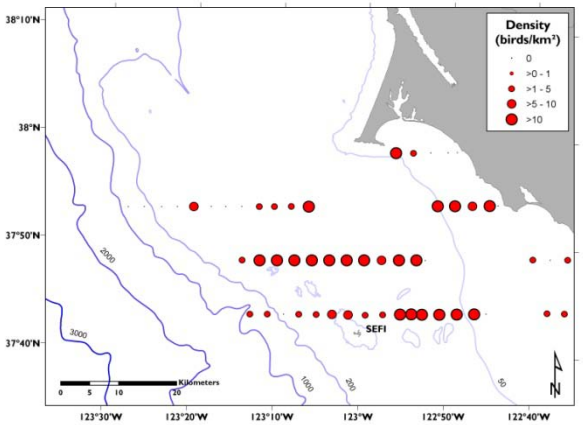
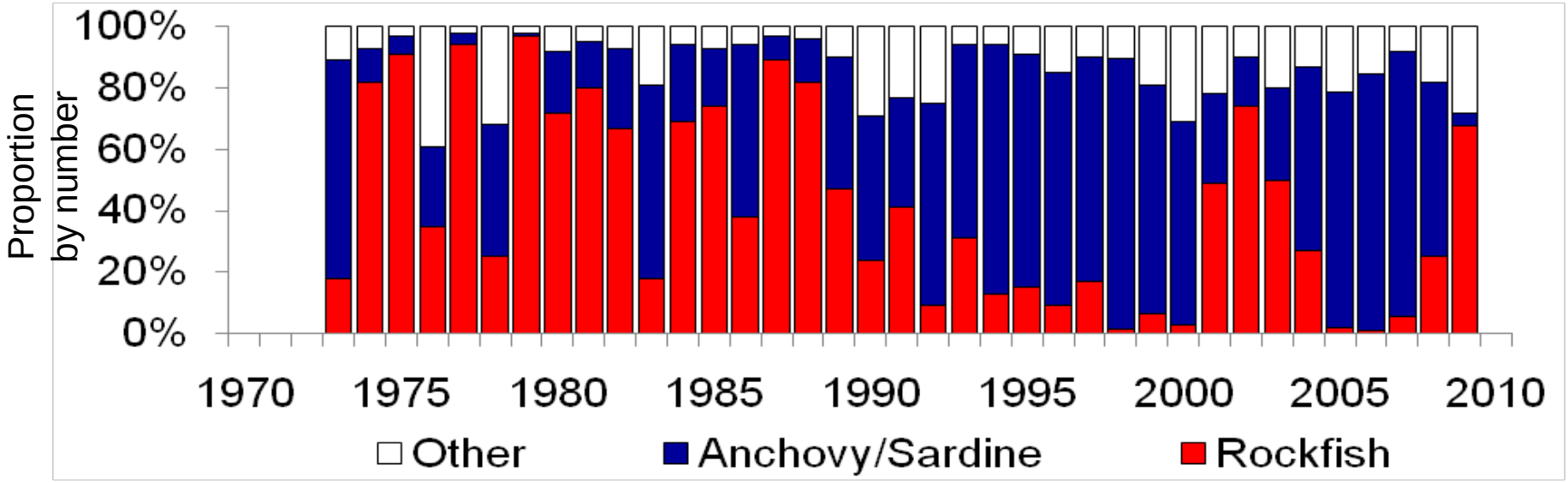
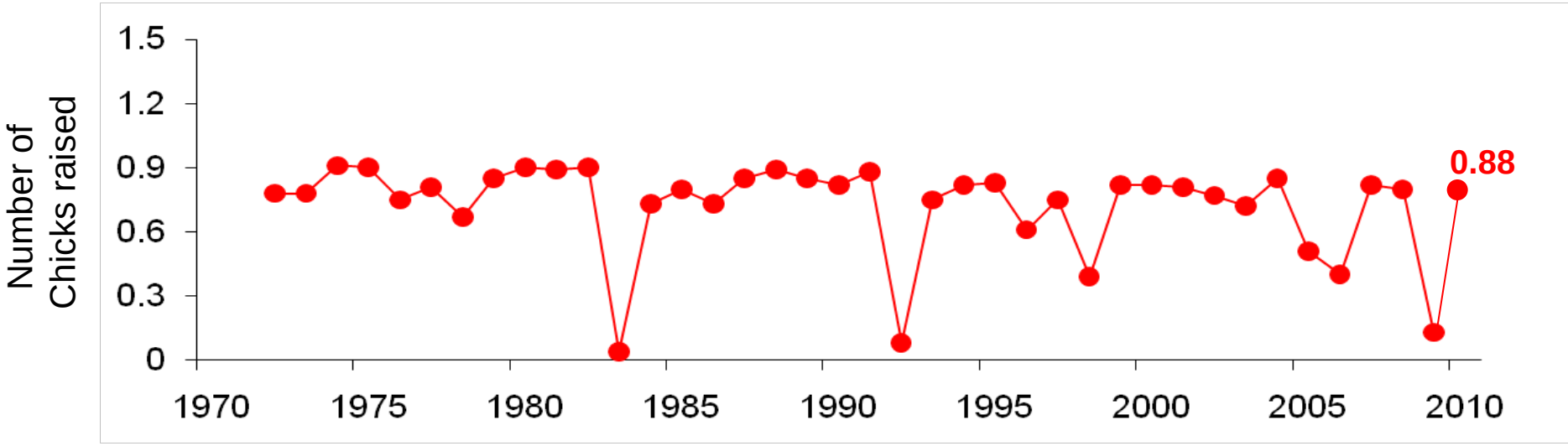


Common Murre- Gulf of the Farallones - June 2010

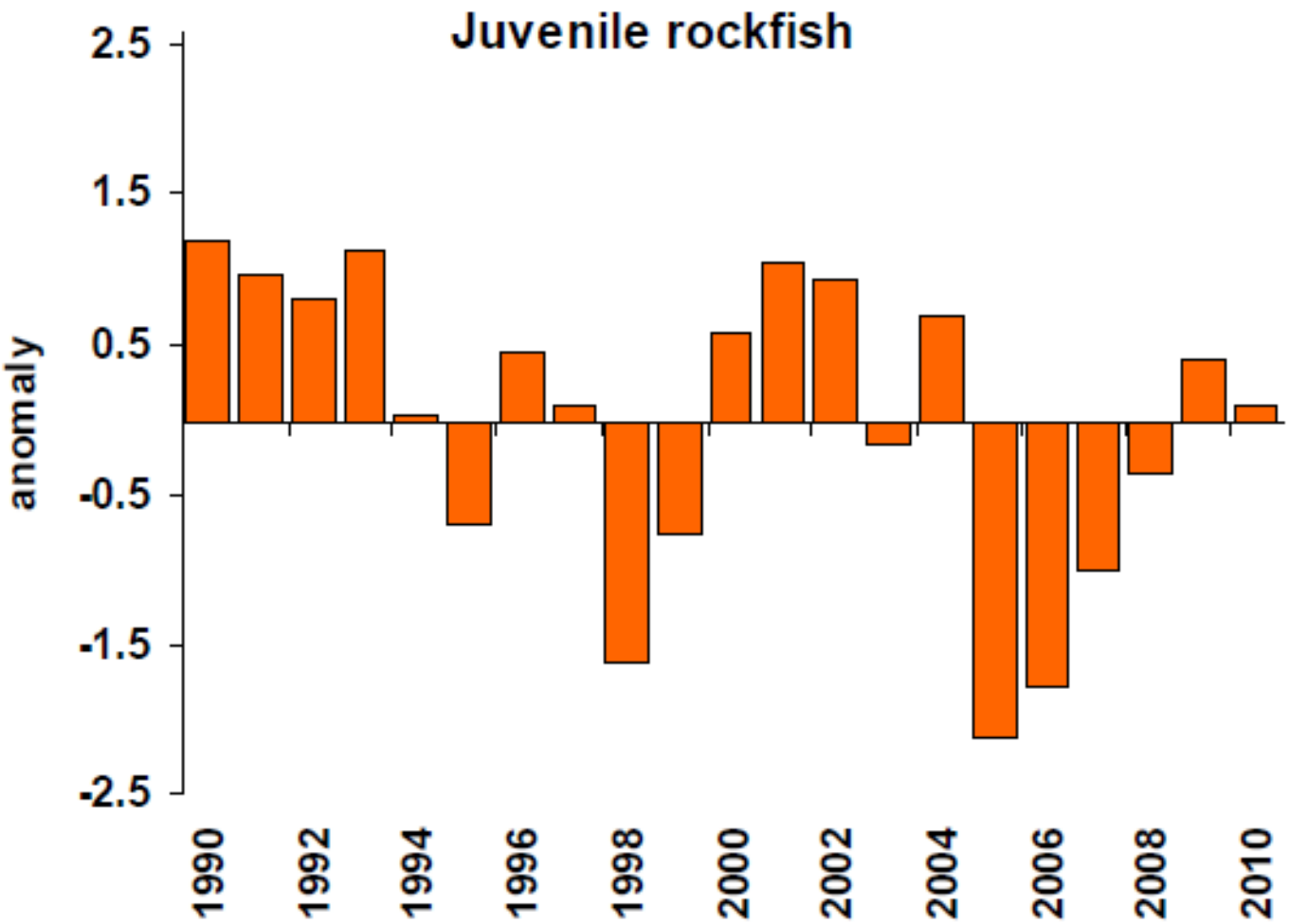
Common murre diet



Common murre productivity



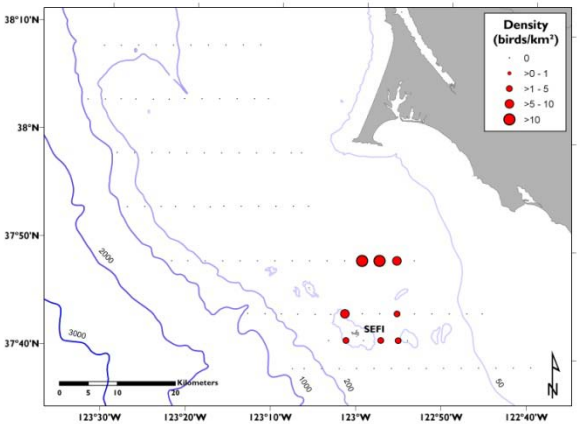
Rockfish – NMFS Rockfish Cruises



John Field, Steve Ralston and Keith Sakuma, Fisheries Ecology Division, SWFSC, NOAA

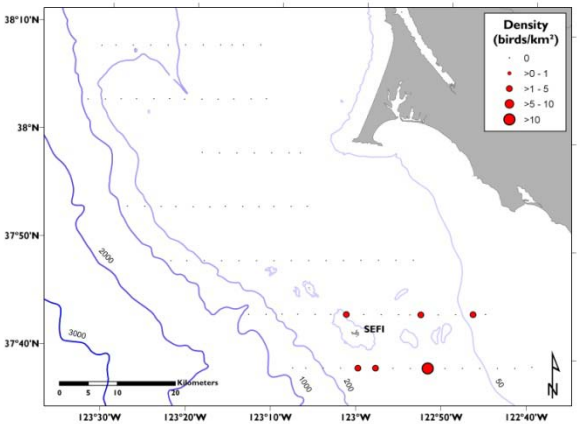
Brandt’s cormorant distribution

2005



Brandt's Cormorant- Gulf of the Farallones - June 2005

2006



Brandt's Cormorant- Gulf of the Farallones - June 2006

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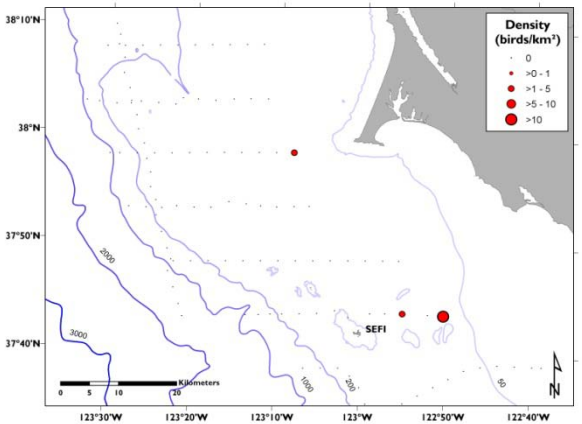

Brandt's Cormorant- Gulf of the Farallones - June 2007

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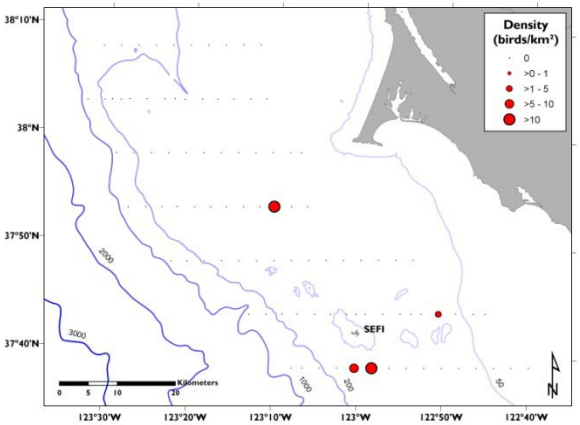

Brandt's Cormorant- Gulf of the Farallones - June 2008

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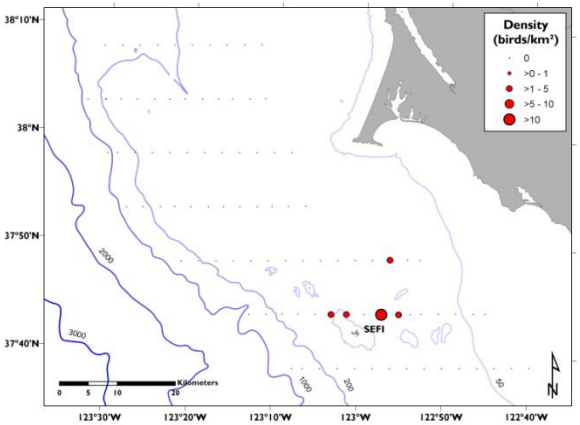

Brandt's Cormorant- Gulf of the Farallones - June 2009

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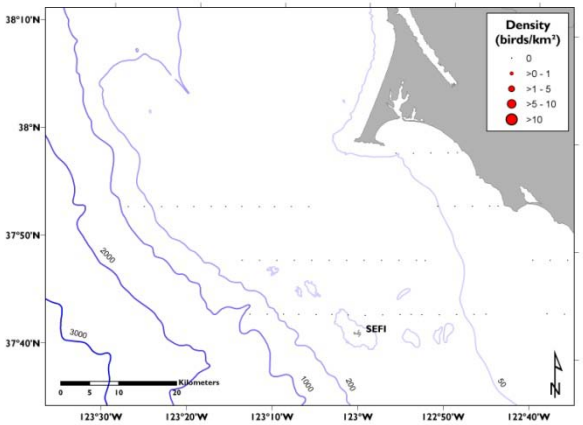
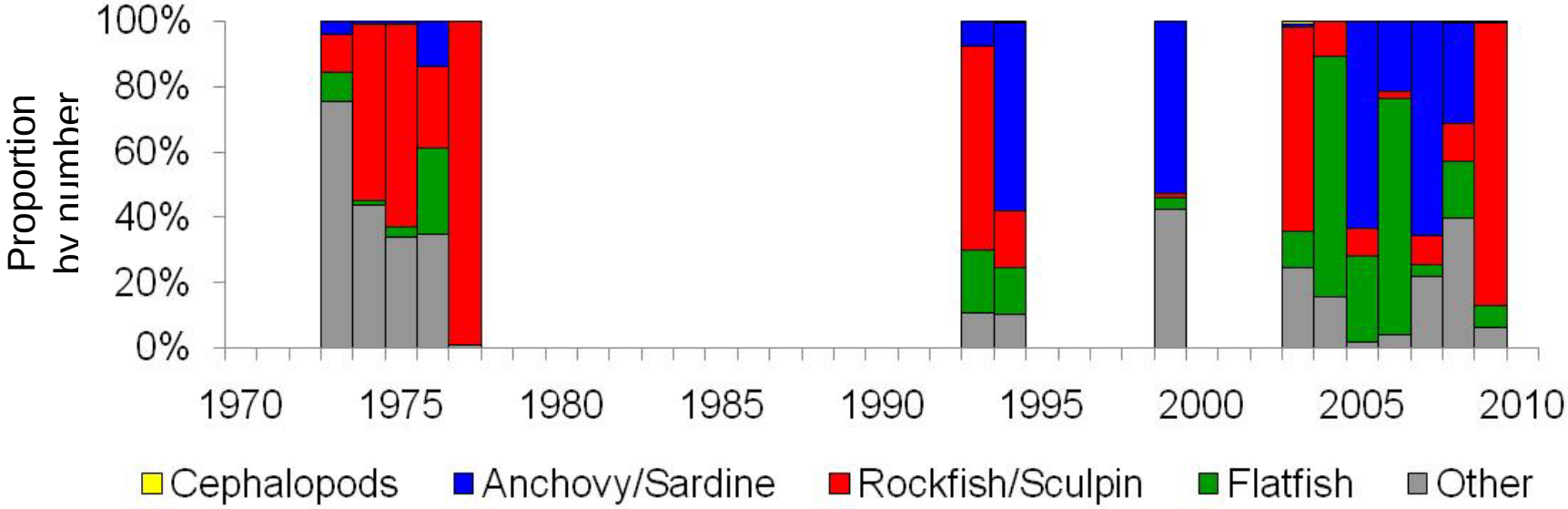
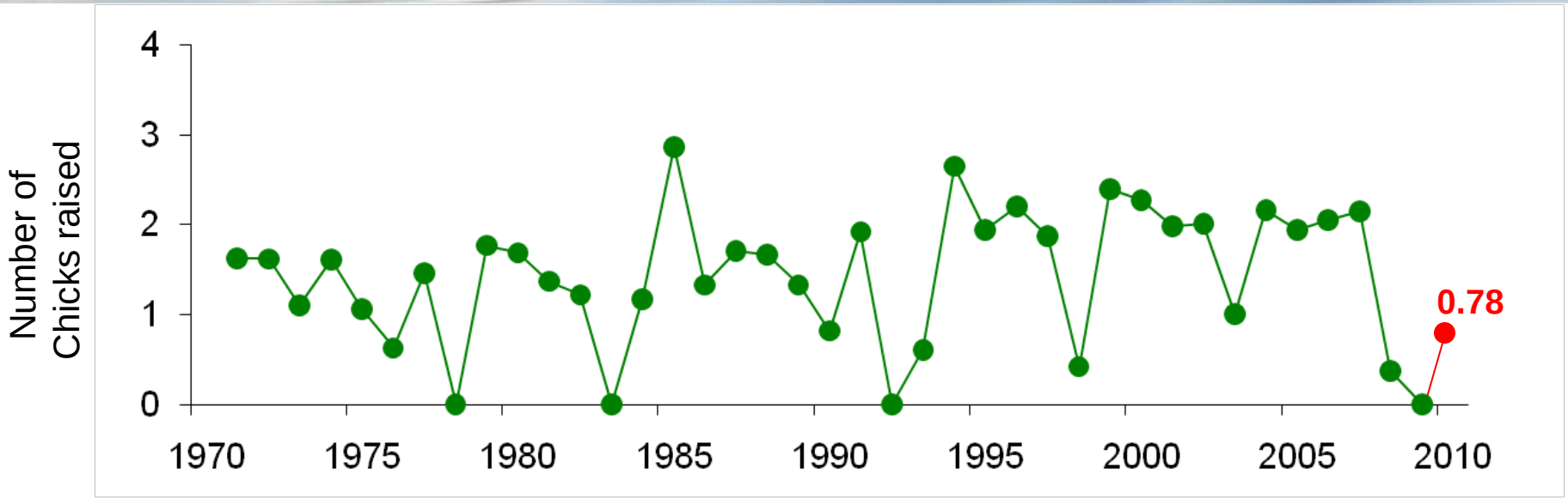


Brandt's Cormorant- Gulf of the Farallones - June 2010

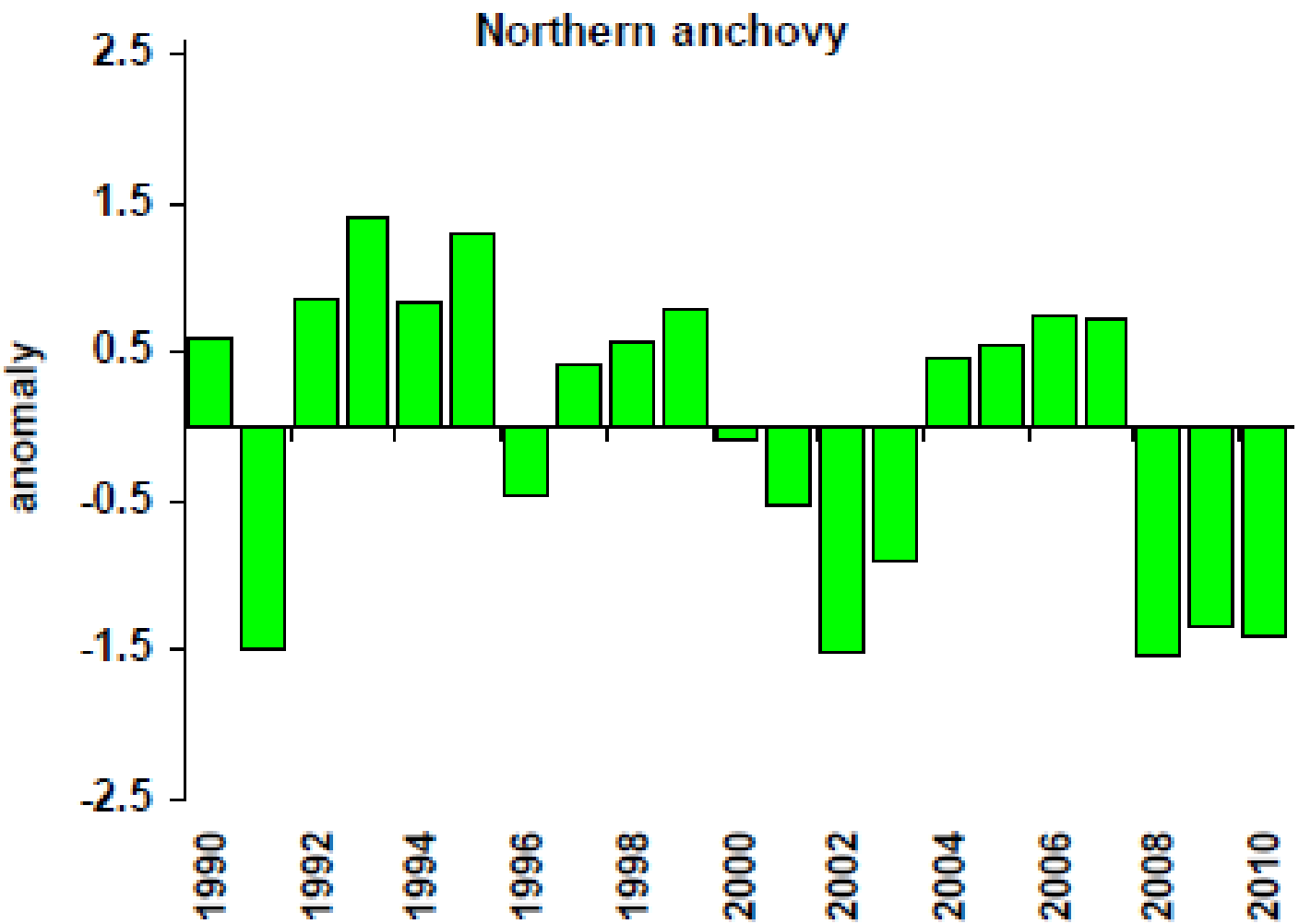
Brandt's cormorant diet



Brandt's cormorant productivity



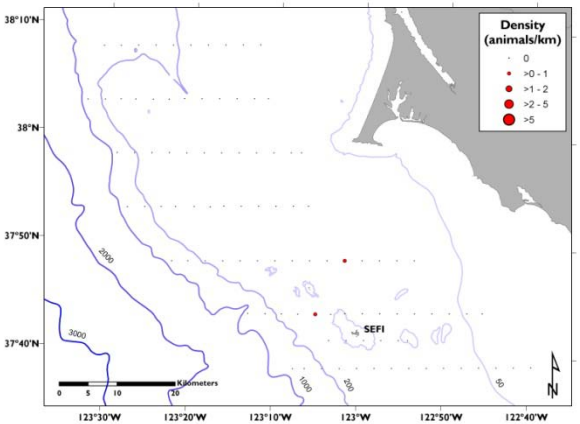
Anchovy – NMFS Rockfish Cruises



John Field, Steve Ralston and Keith Sakuma, Fisheries Ecology Division, SWFSC, NOAA

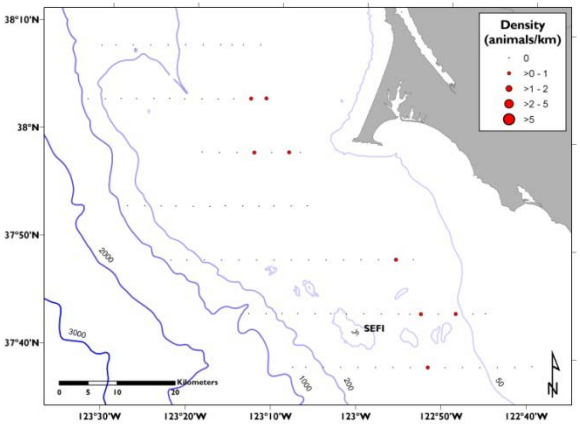
Humpback whale distribution (Jun)

2005



Humpback Whale- Gulf of the Farallones - June 2005

2006



Humpback Whale- Gulf of the Farallones - June 2006

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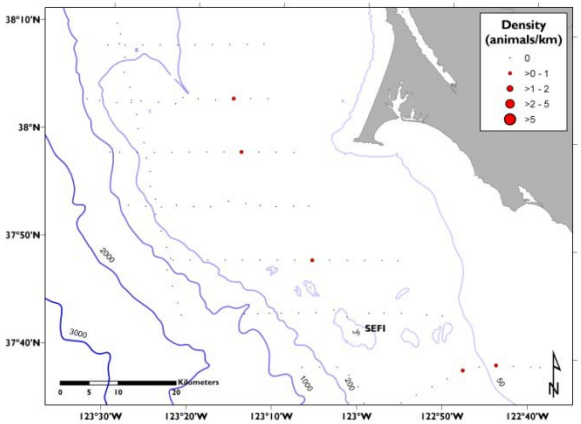

Humpback Whale- Gulf of the Farallones - June 2007

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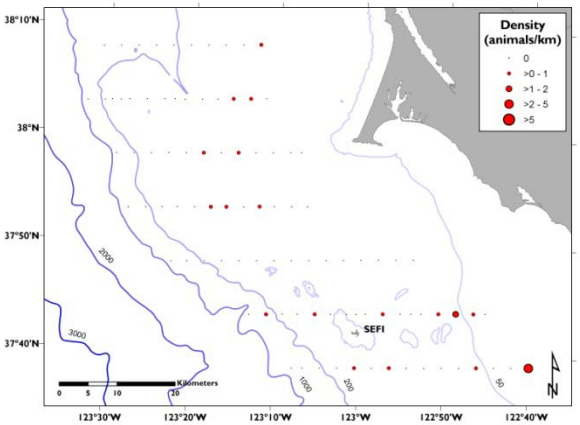

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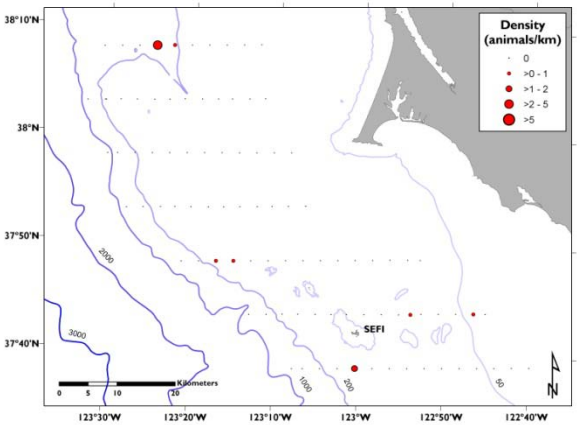

Humpback Whale- Gulf of the Farallones - June 2009

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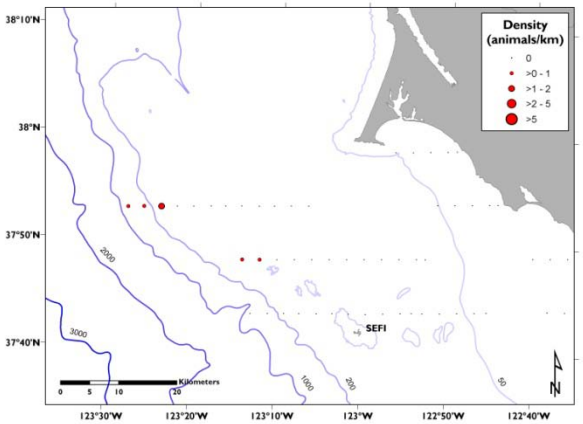
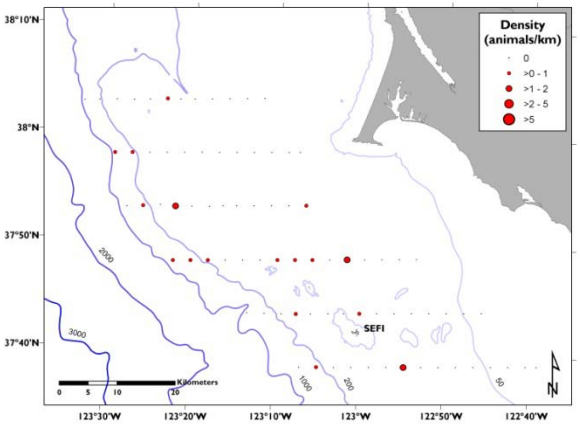


Humpback Whale- Gulf of the Farallones - June 2010

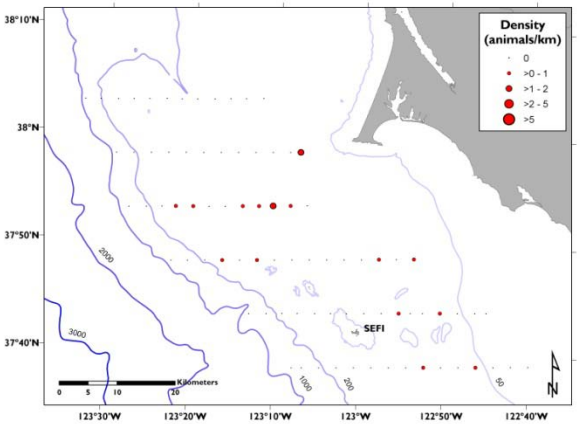
Humpback whale distribution (Sep-Oct)

2005



Humpback Whale- Gulf of the Farallones - October 2005

2006



Humpback Whale- Gulf of the Farallones - October 2006

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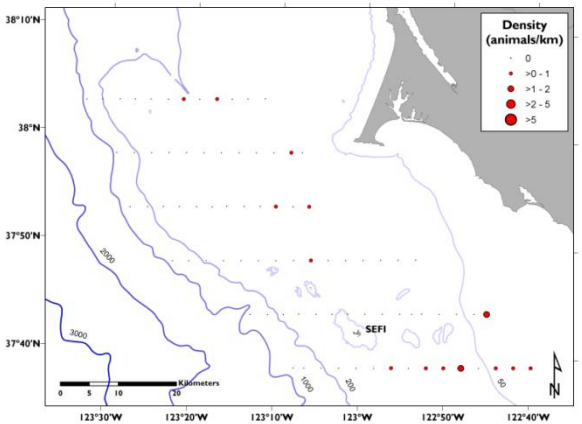

Humpback Whale- Gulf of the Farallones - September 2007

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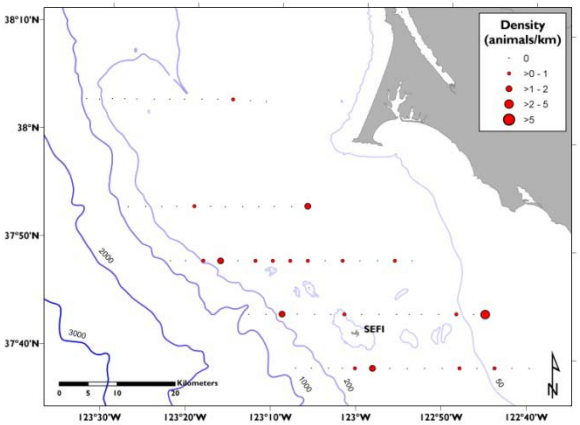

Humpback Whale- Gulf of the Farallones - September 2008

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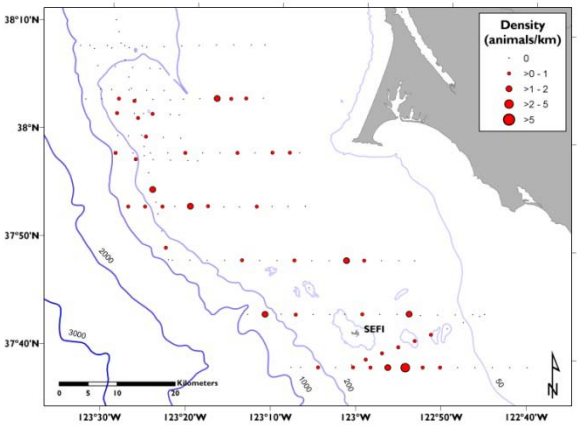

Humpback Whale- Gulf of the Farallones - September 2009

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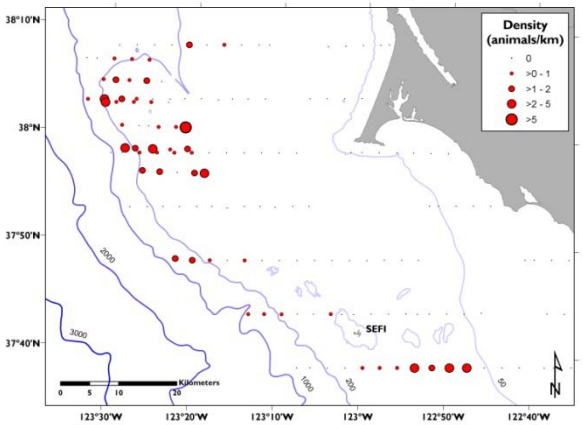
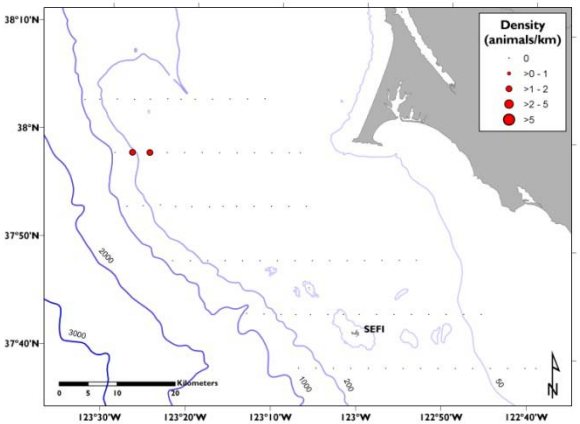


Humpback Whale- Gulf of the Farallones - September 2010

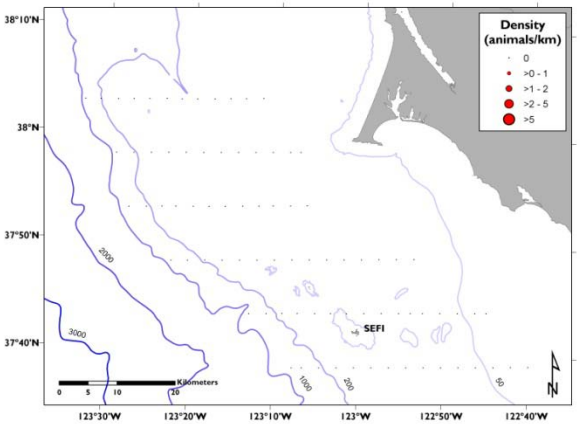
Blue whale distribution (Sep-Oct)

2005



Blue Whale- Gulf of the Farallones - October 2005

2006



Blue Whale- Gulf of the Farallones - October 2006

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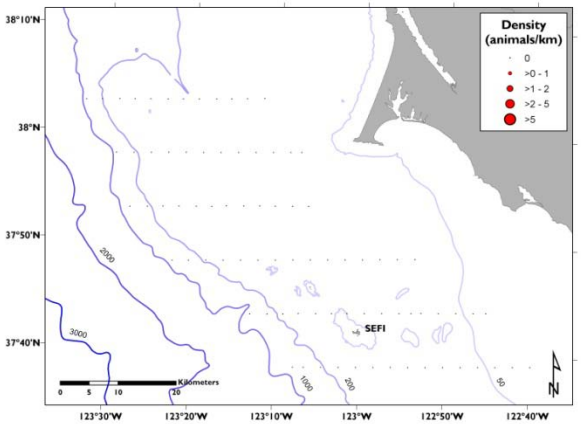

Blue Whale- Gulf of the Farallones - September 2007

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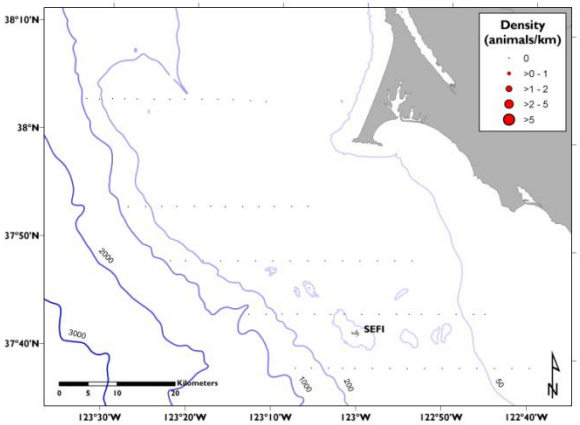

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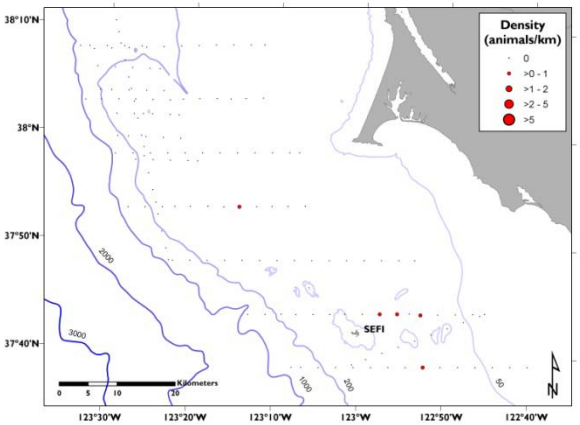

Blue Whale- Gulf of the Farallones - September 2009

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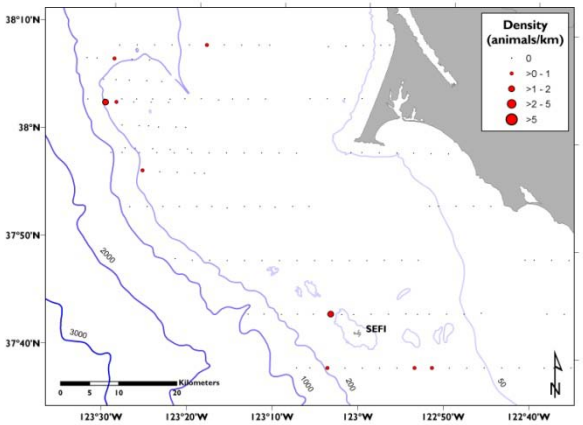
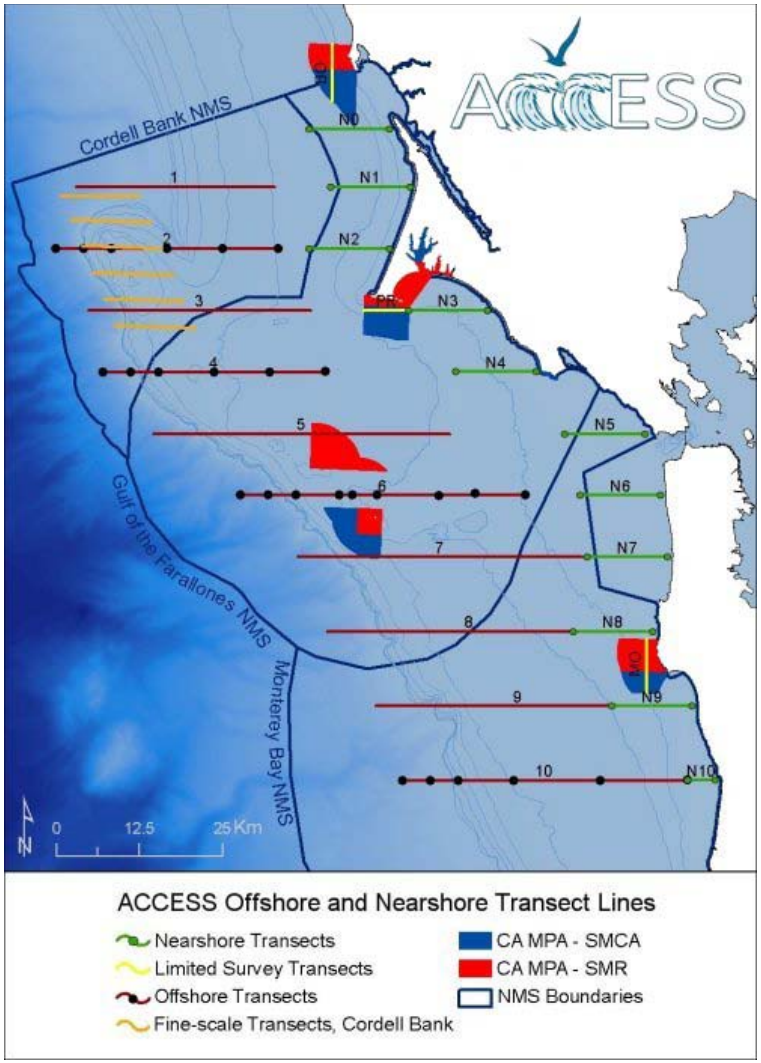


Blue Whale- Gulf of the Farallones - September 2010

Science goals

- Examine **spatial and temporal relationships** between ocean processes, zooplankton, and marine birds and mammals
- Identify **persistent locations** of predator and prey aggregations
- Develop **indicators** of ecosystem health, to detect and understand change on a variety of scales.



Management applications

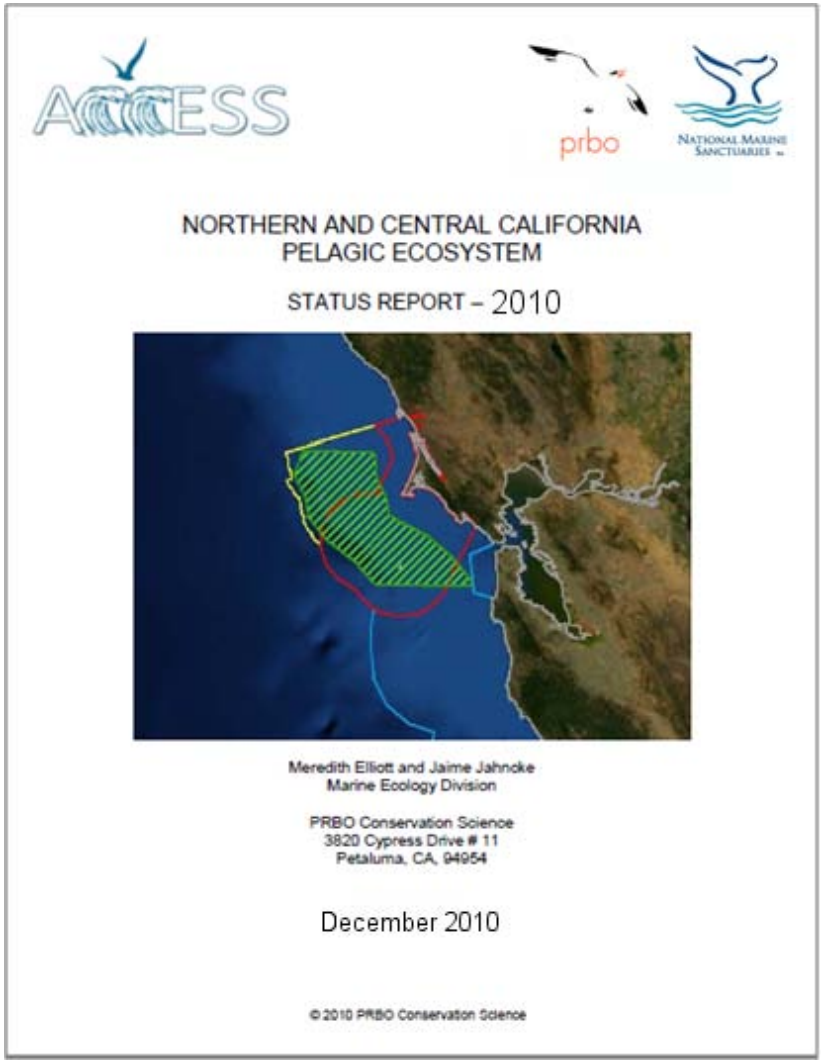
- **Wildlife** – improve conservation of top predators and food webs
- **Ocean zoning** – guide human uses to protect the ocean
- **Climate change** – document change on the marine ecosystem
- **Fish populations** – contribute to ecosystem-based management
- **Water quality** – ecosystem effects of freshwater outflow.

First ACCESS Report coming soon

Summarizes information on:

- Climate
- Oceanography
- Nutrients (OA)
- Primary production
- Zooplankton
- Fish (forage fish/ fisheries)
- Birds (at-sea/colonies)
- Mammals (at-sea/rookeries)

Recent data in the context of available historical data



NORTHERN AND CENTRAL CALIFORNIA PELAGIC ECOSYSTEM

STATUS REPORT – 2010

Meredith Elliott and Jaime Jahncke
Marine Ecology Division

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3820 Cypress Drive # 11
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December 2010

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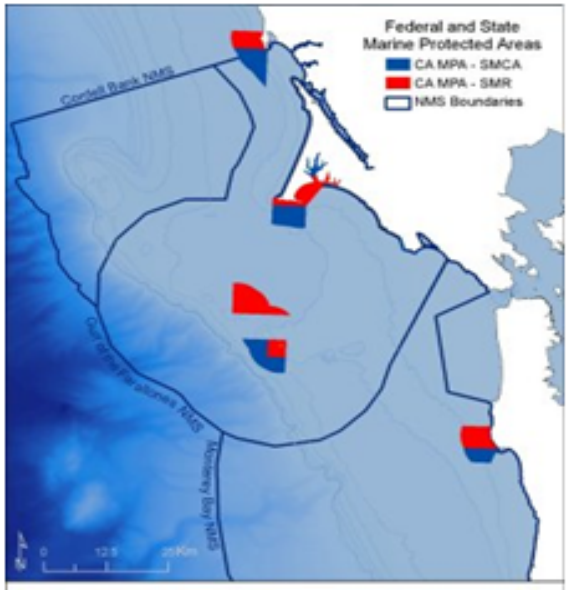
ACCESS is a partnership that supports marine wildlife conservation and healthy marine ecosystems in northern and central California by conducting ocean research to inform resource managers, policy makers and conservation partners.

Effective management and conservation of natural resources requires adaptive management strategies that are informed by robust analysis of past and present data and information at an ecosystem scale.

ACCESS focuses on the oceanic habitats in Federal and State waters of northern and central California, encompassing NOAA – National Marine Sanctuary waters (Cordell Bank, Gulf of the Farallones and Monterey Bay) and the potential National Marine Sanctuary expansion area south of Point Arena.

ACCESS was formed by **PRBO Conservation Science**, **Cordell Bank National Marine Sanctuary**, and **Gulf of the Farallones National Marine Sanctuary**.

Download a 1-page description of our project.



Click here to download a full size map of the study area showing transect lines and oceanographic stations.

Acknowledgments

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Farallones Marine Sanctuary Association

PRBO Staff, Interns and Volunteers