



2014-2015 Oceanographic Anomalies in the Gulf of Alaska

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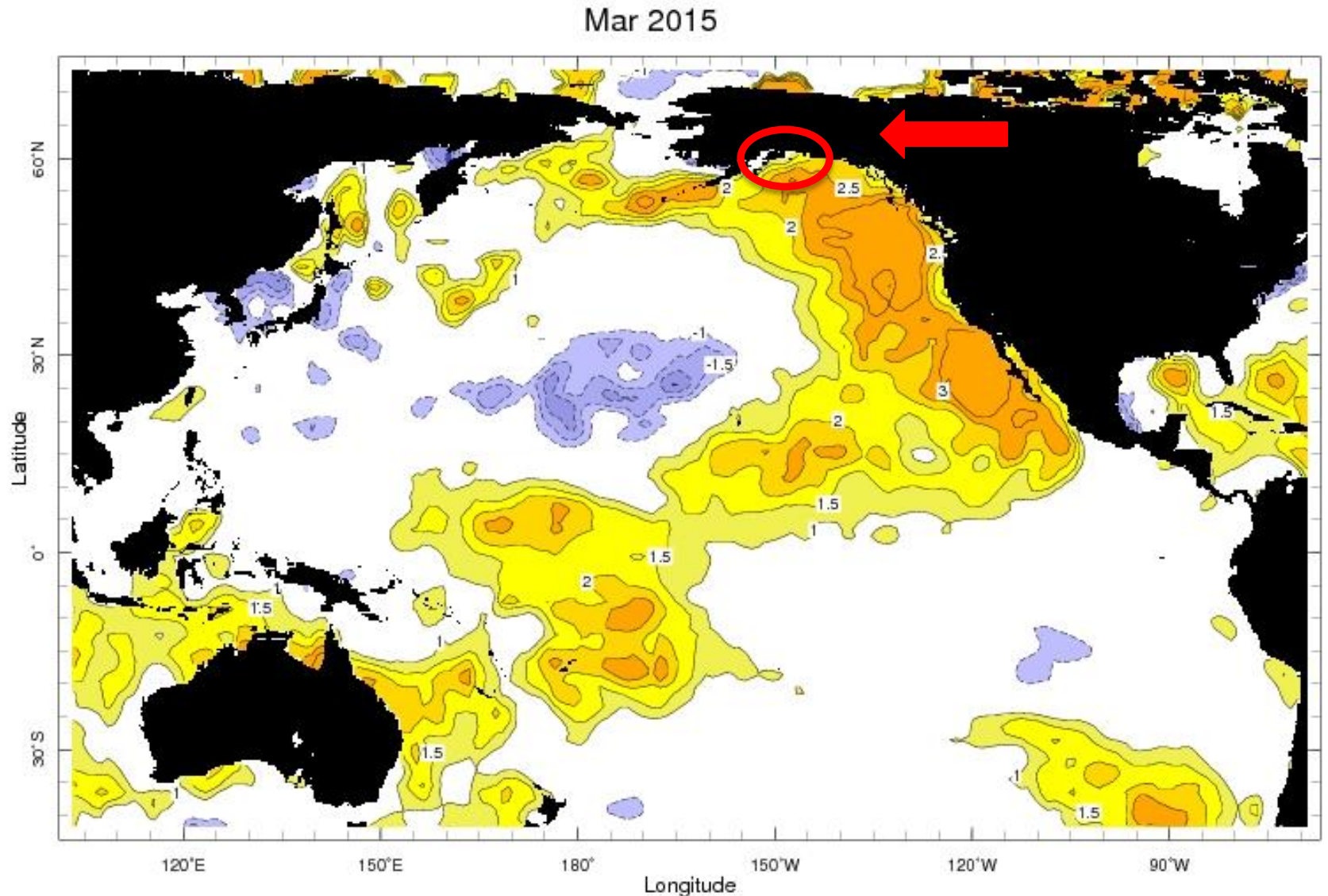


**Exxon Valdez
Oil Spill Trustee Council**

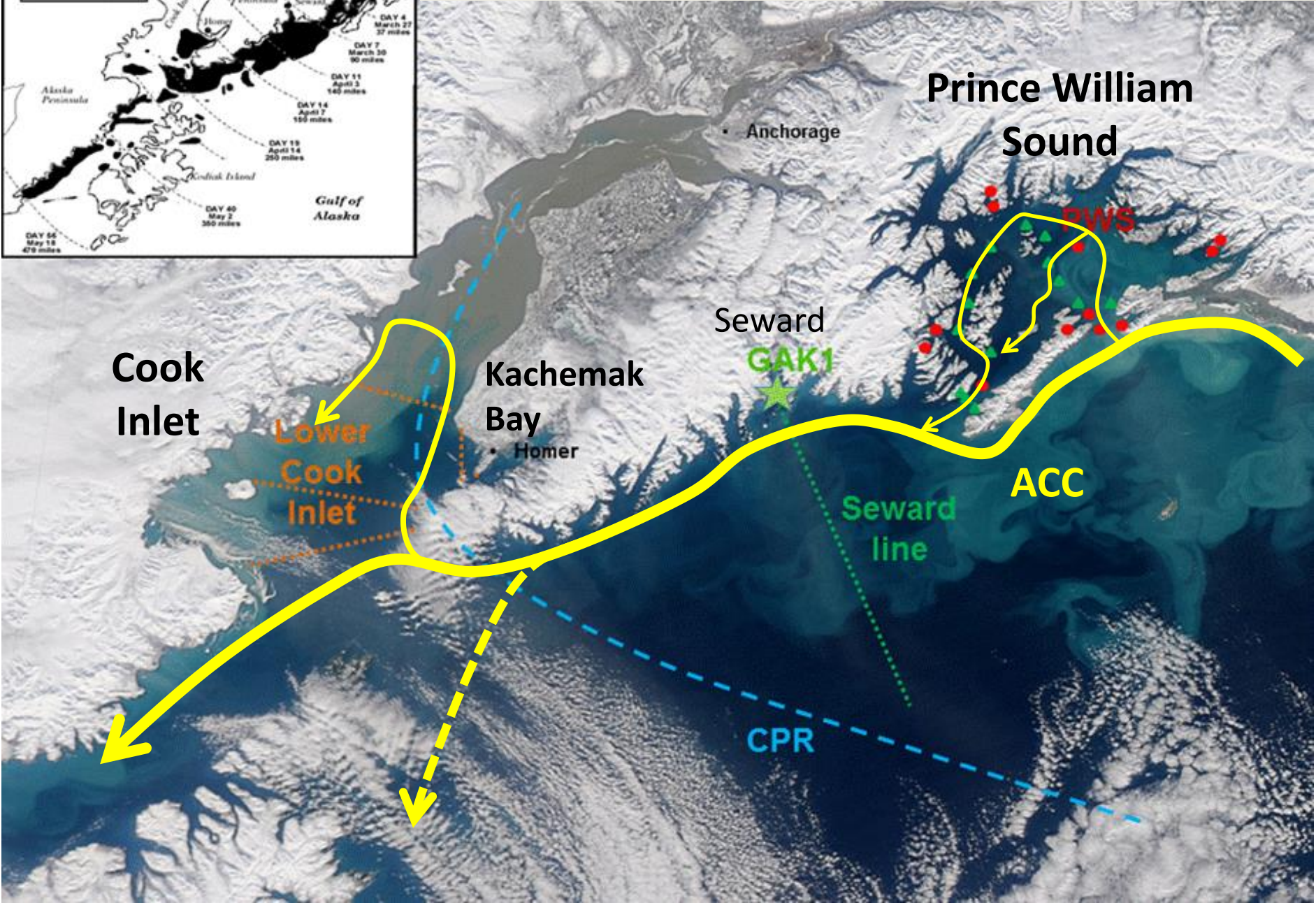


2014-2015 anomalies: Gulf of Alaska

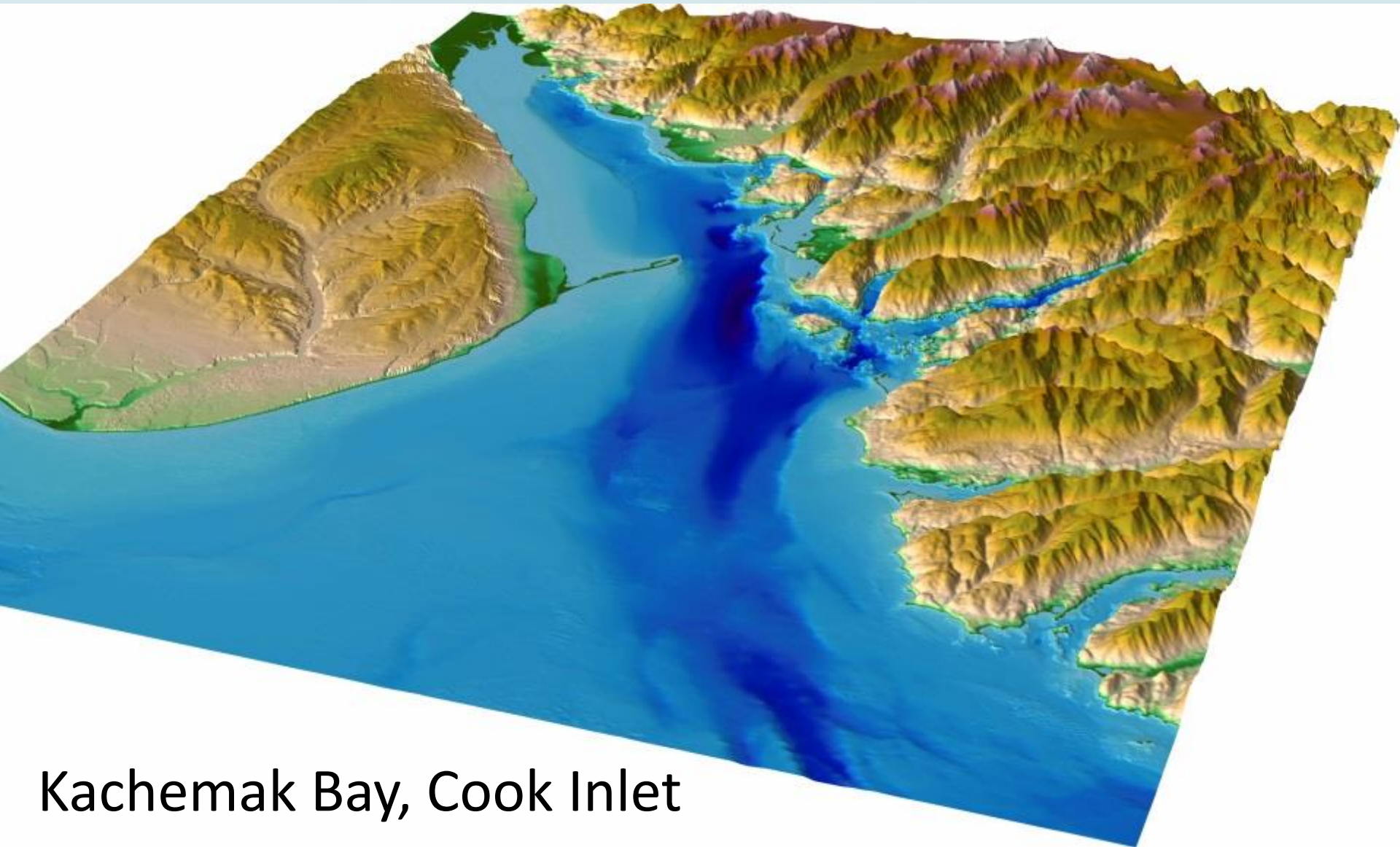
Satellite SST Anomaly – March 2015 (R. Thoman)



Gulf of Alaska oceanography

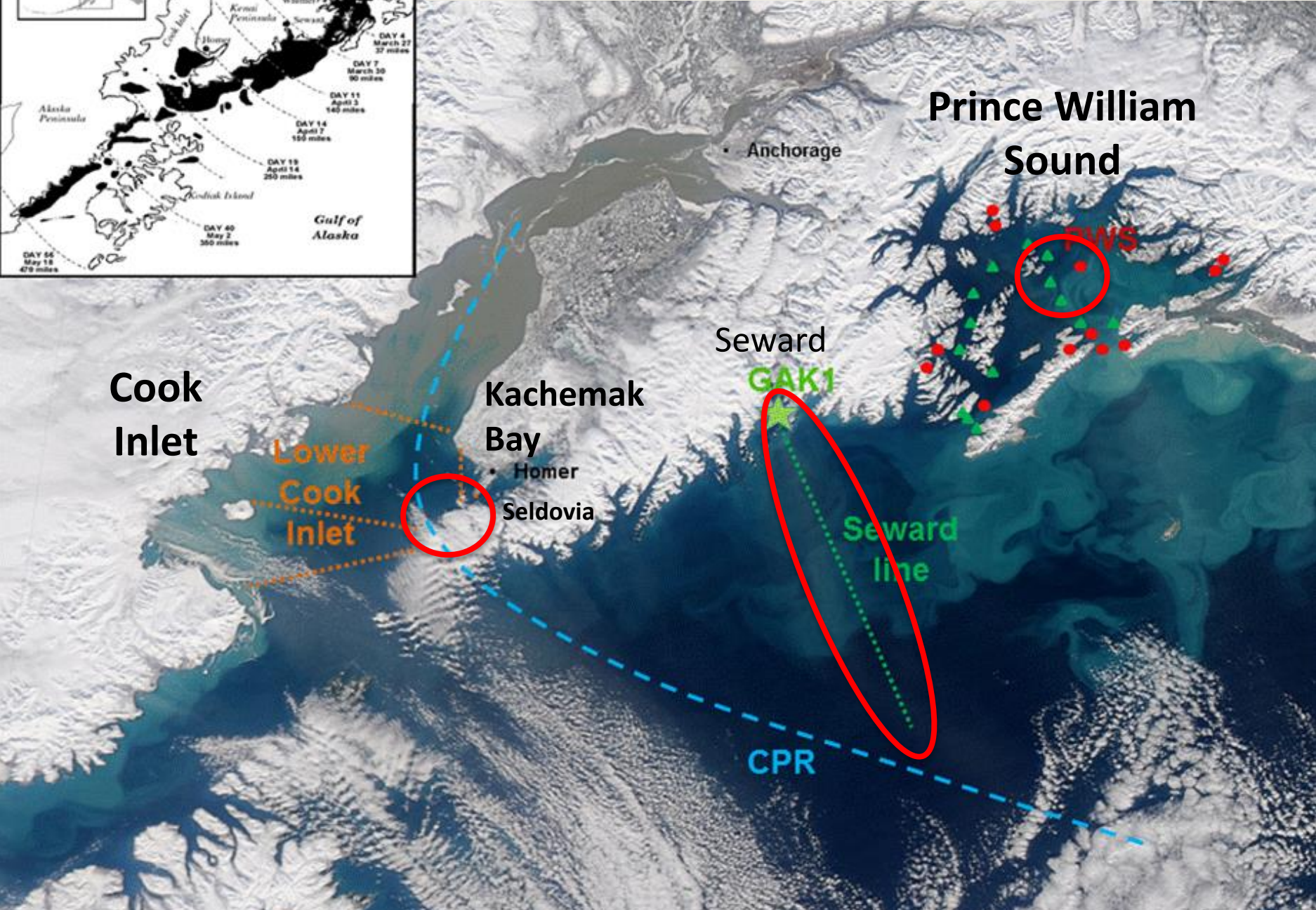


Coastal Alaska: Local influences



Kachemak Bay, Cook Inlet

Gulf Watch Alaska Oceanography



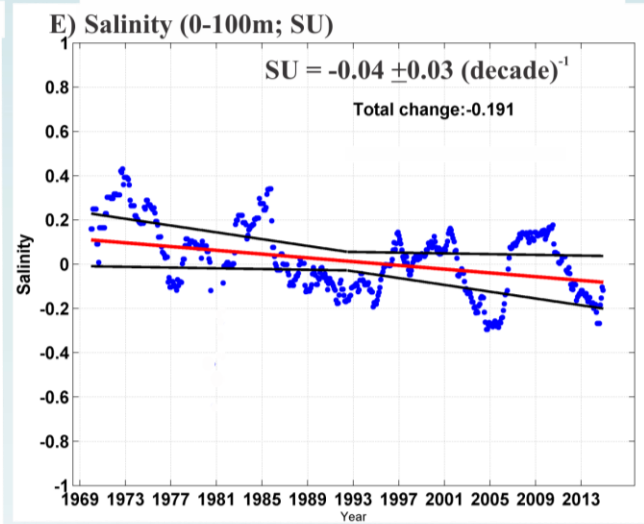
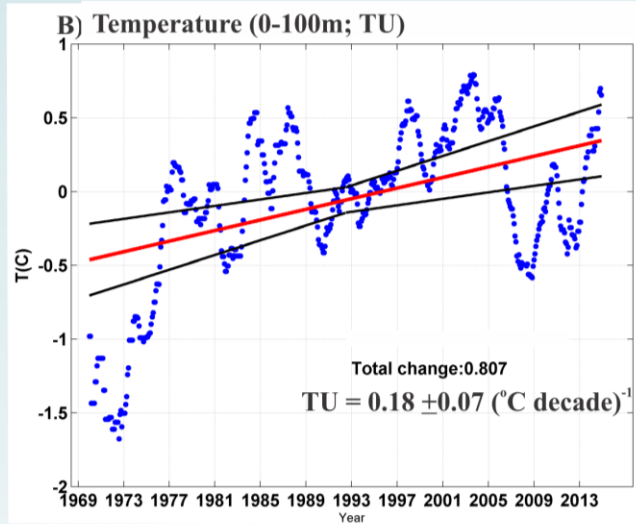


Coastal Anomalies: GAK1 mooring

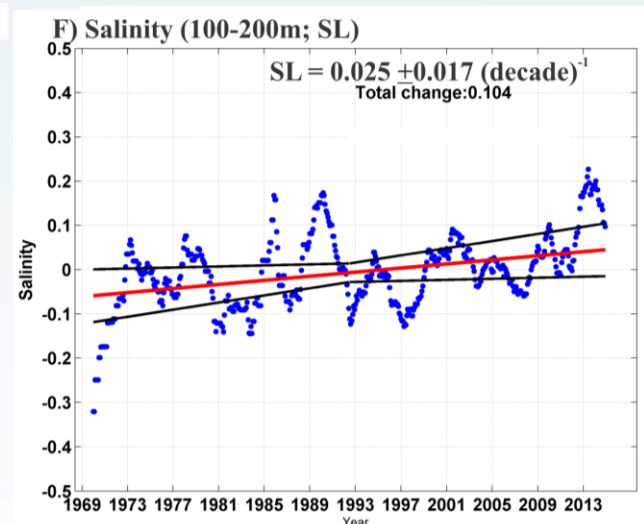
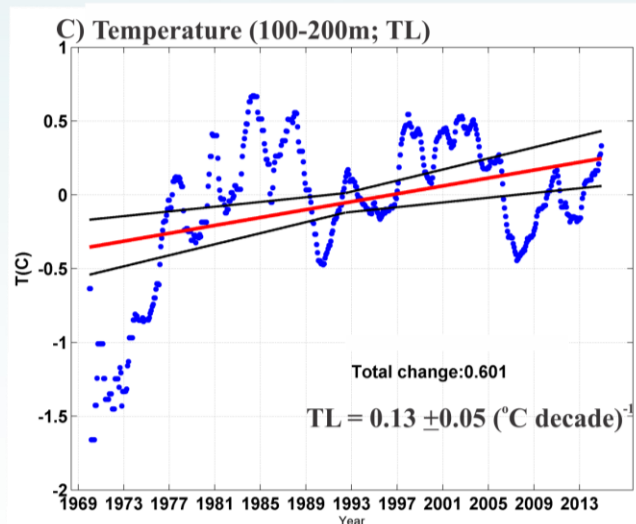
Temperature

Salinity

0-100 m



100-200 m

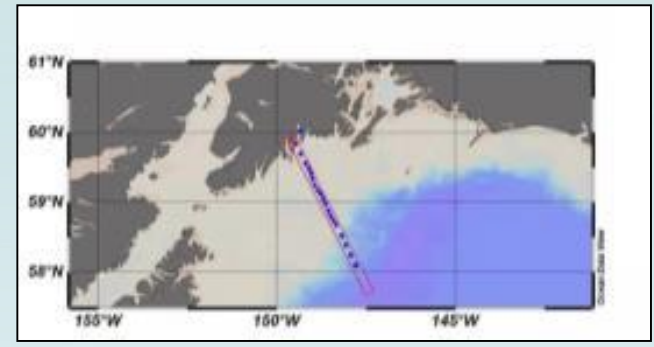


T. Weingartner
 S. Danielson



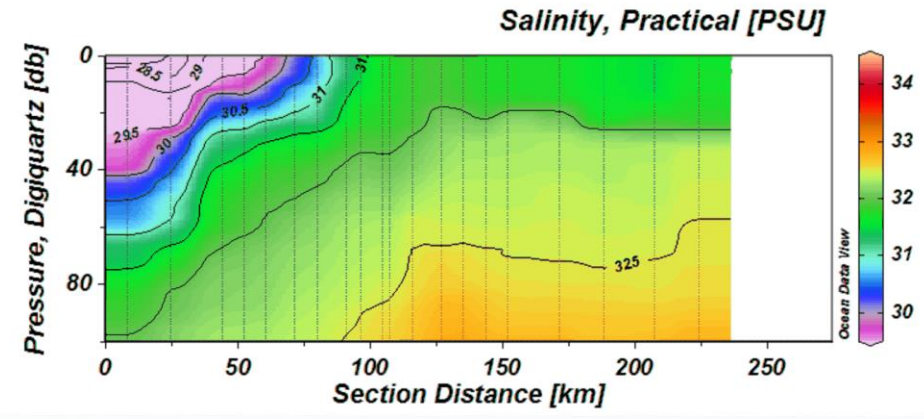
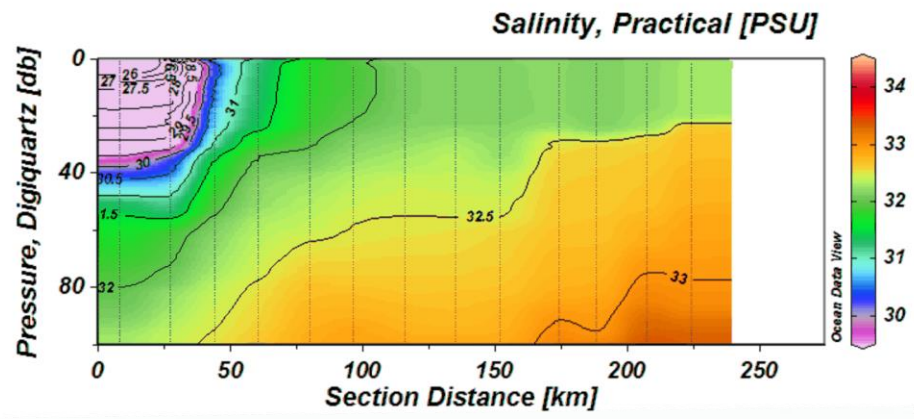
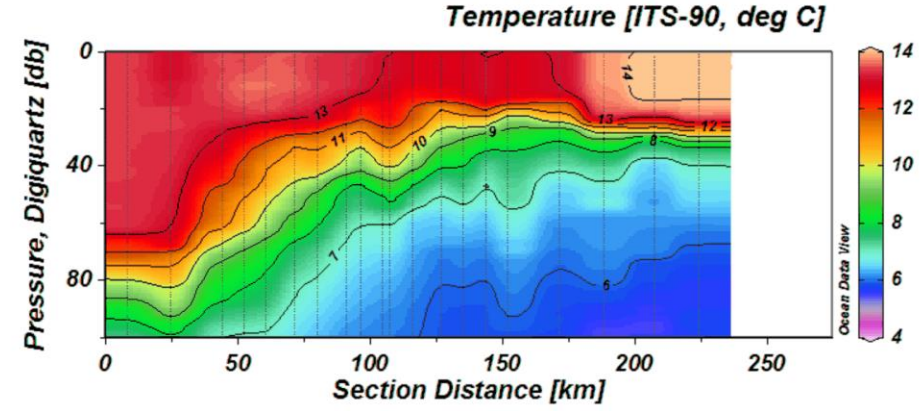
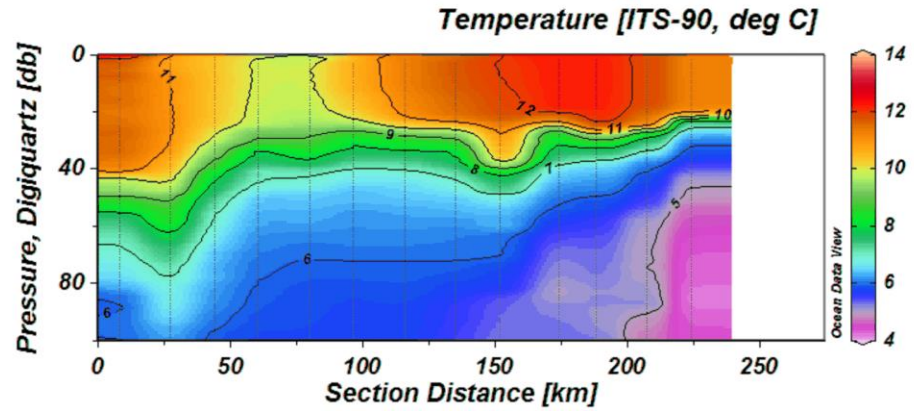
Shelf Water Temperature & Salinity

Seward Line



September 2013

September 2014 **WARM**



Coast \longrightarrow Slope

R. Hopcroft

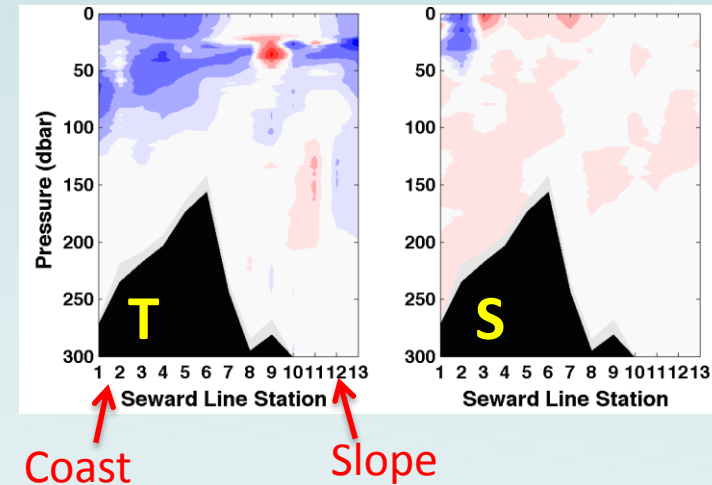
Seward Line Hydrography

- 2006-2012 coastal (GAK1) temperatures were mostly cooler than 1970-2014 long-term trend line
- Late summer 2013 was anomalously salty and cool across the Seward Line
- 2014 warmed and freshened
- 2014 warming stands out along with the El Nino events of 1997/8 & 2002/3

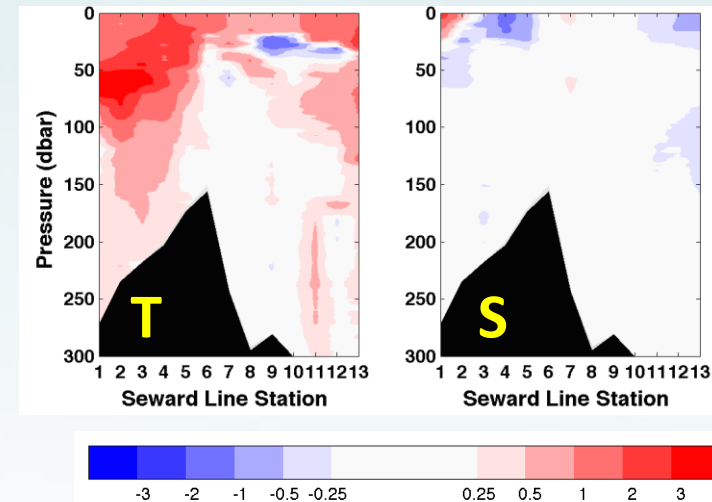
2013-2014 T & S anomalies not uniform with depth—vertical stratification change

Possible impacts on euphotic zone nutrient supply and cycling?

September 2013



September 2014

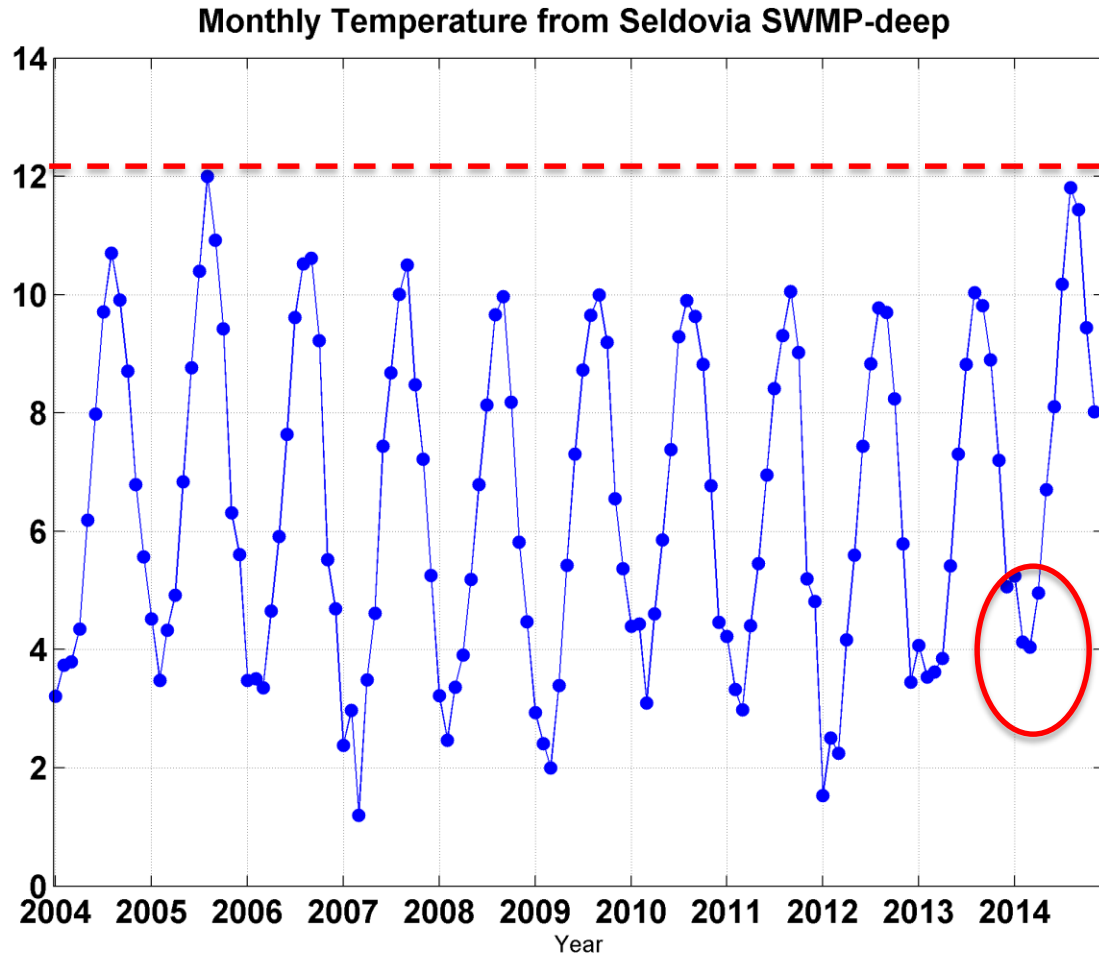
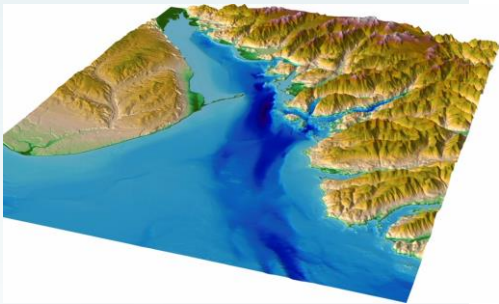


Anomaly ($^{\circ}\text{C}$ & PSU)



Estuary temperatures: 2004-2014

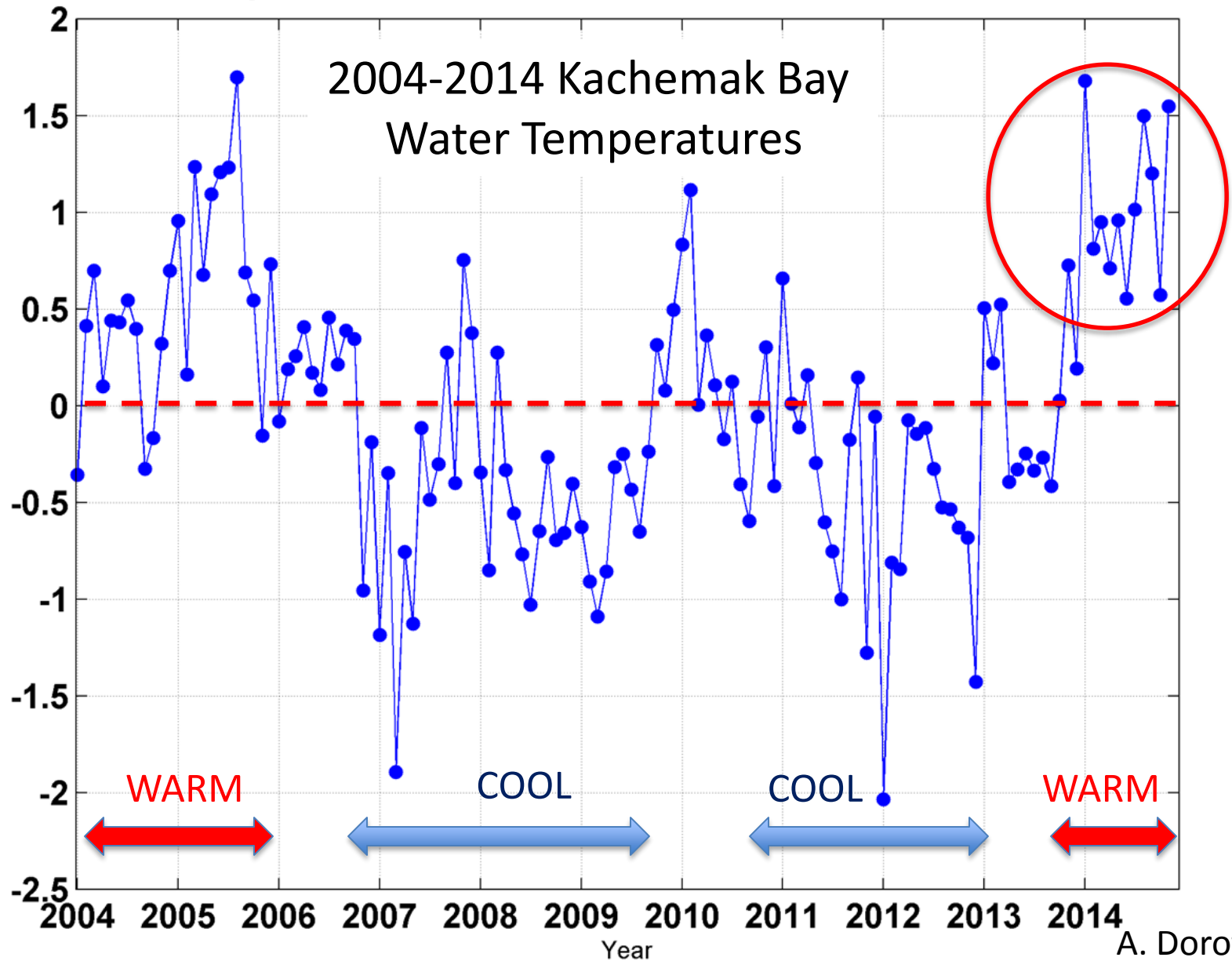
Seldovia Harbor - Kachemak Bay, Cook Inlet



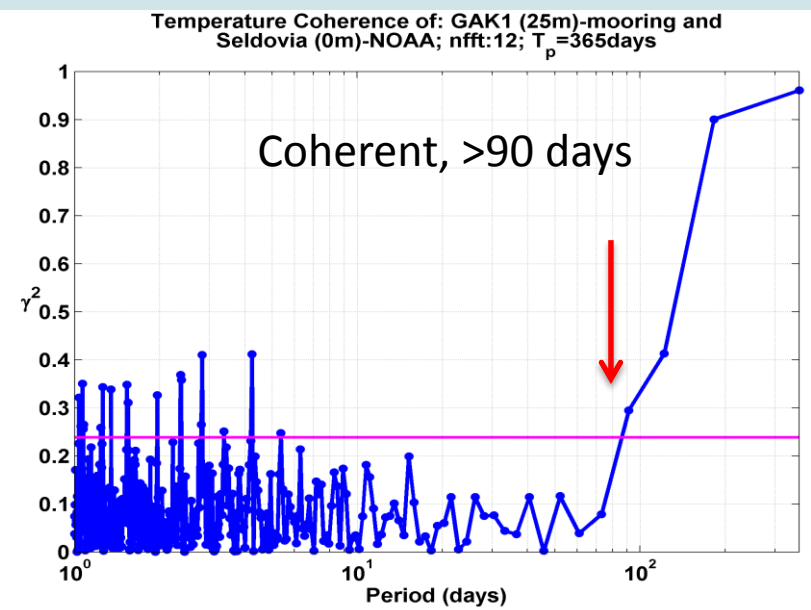
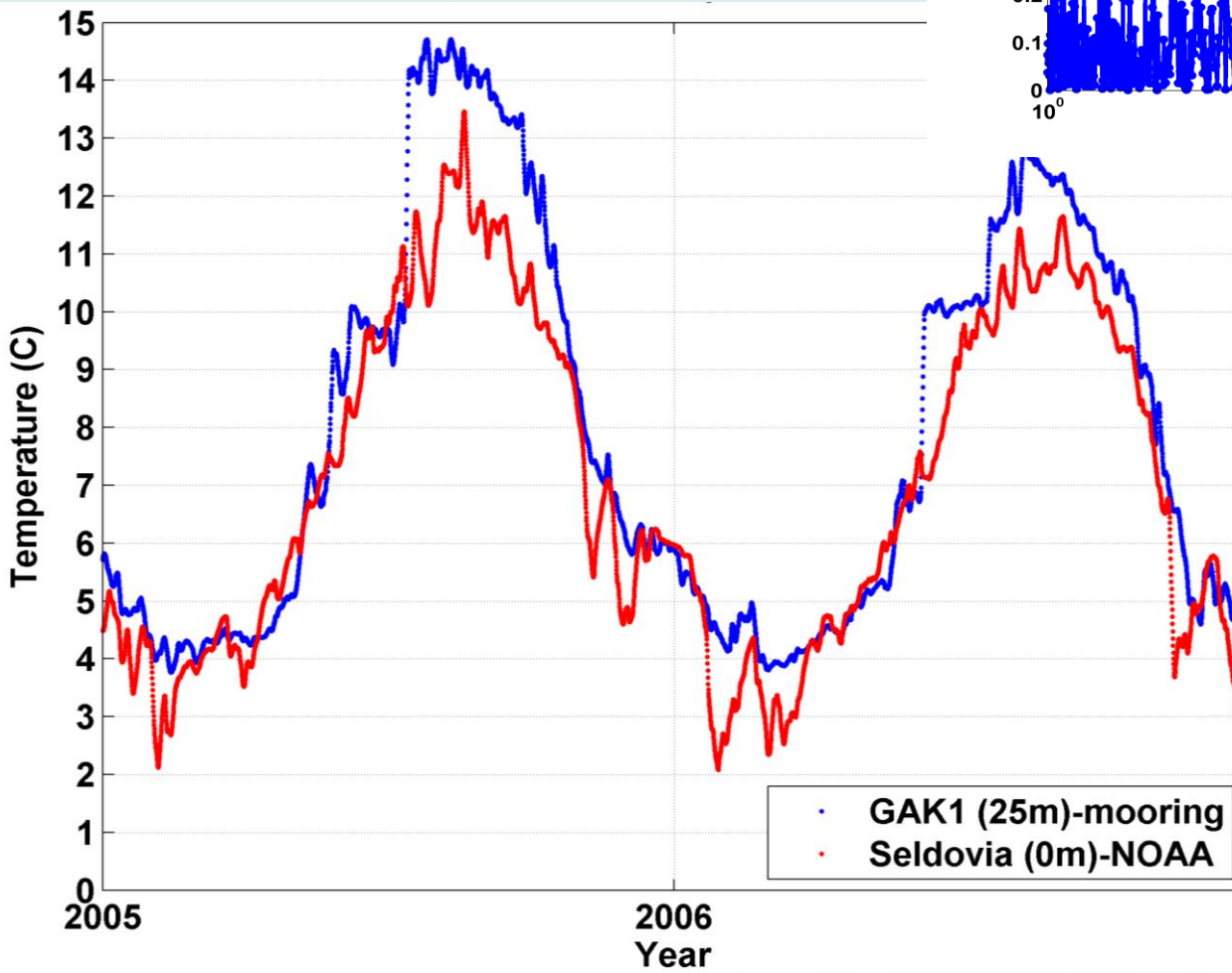
A. Doroff
K. Holderied

Data: Kachemak Bay National Estuarine Research Reserve station

Monthly Temperature Anomalies from Seldovia SWMP-deep



Estuary-shelf water temperature comparison



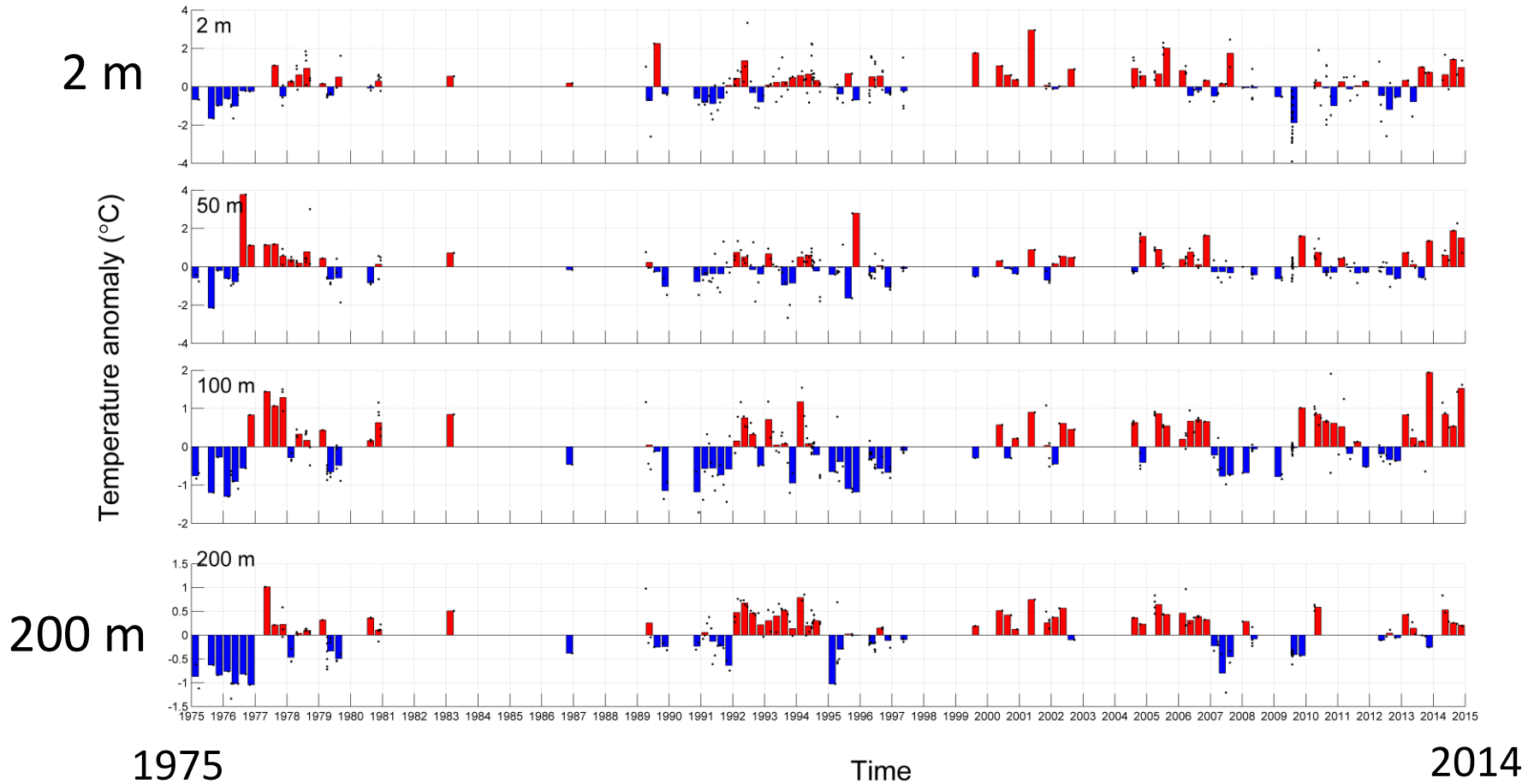
GAK1 mooring
(shelf, 25m)

Kachemak Bay
(Seldovia, 5 m)

K. Holderied
T. Weingartner

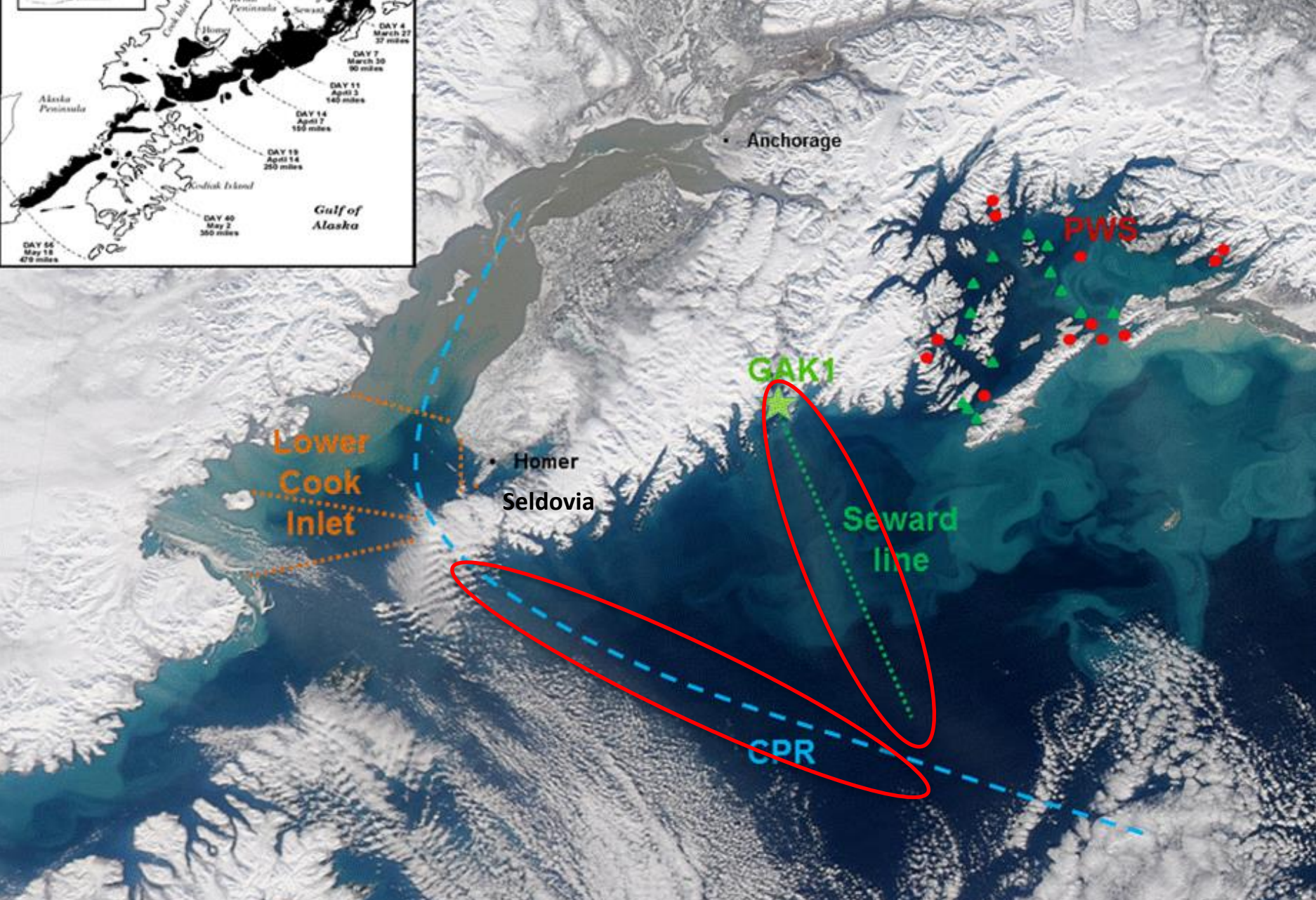
Estuary: Central Prince William Sound

Temperature anomalies from CTD casts: 1975-2014

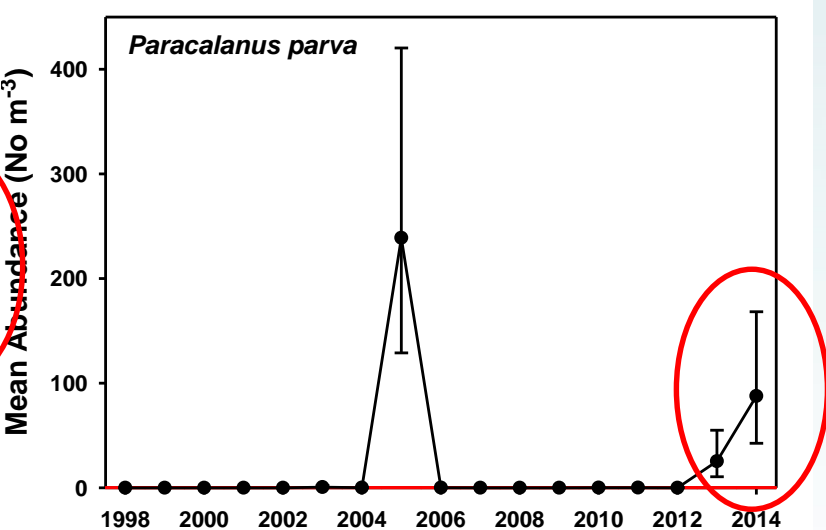
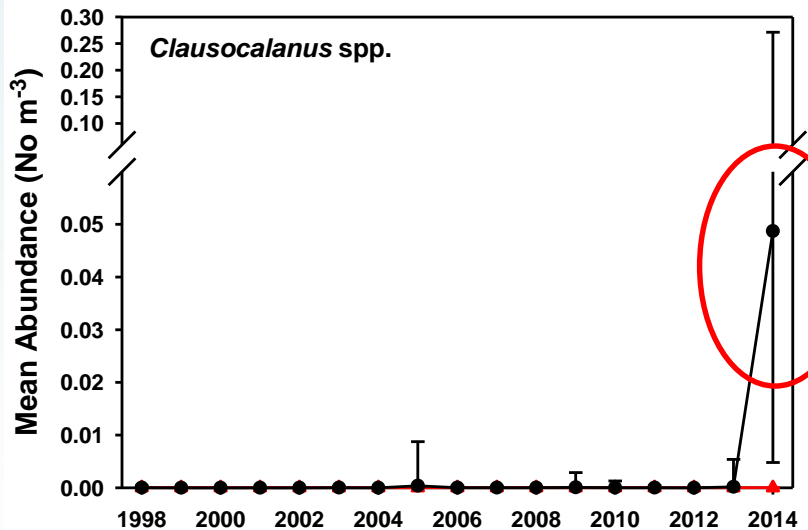
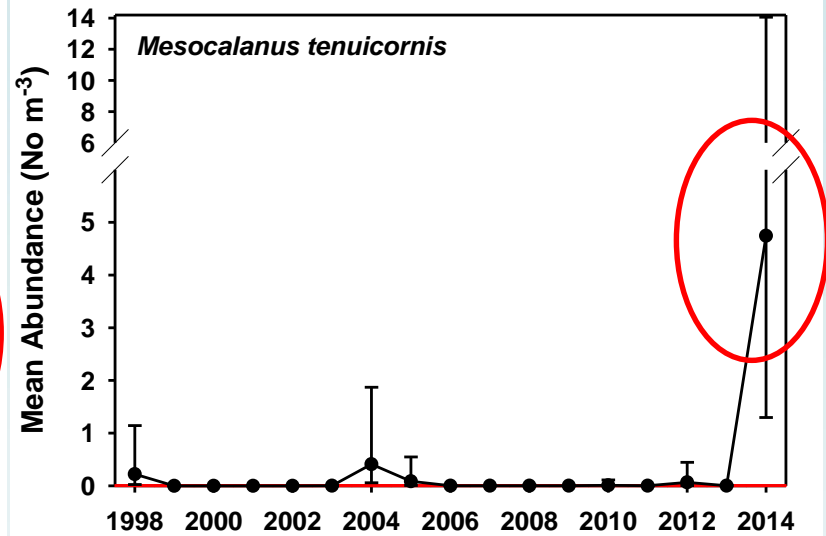
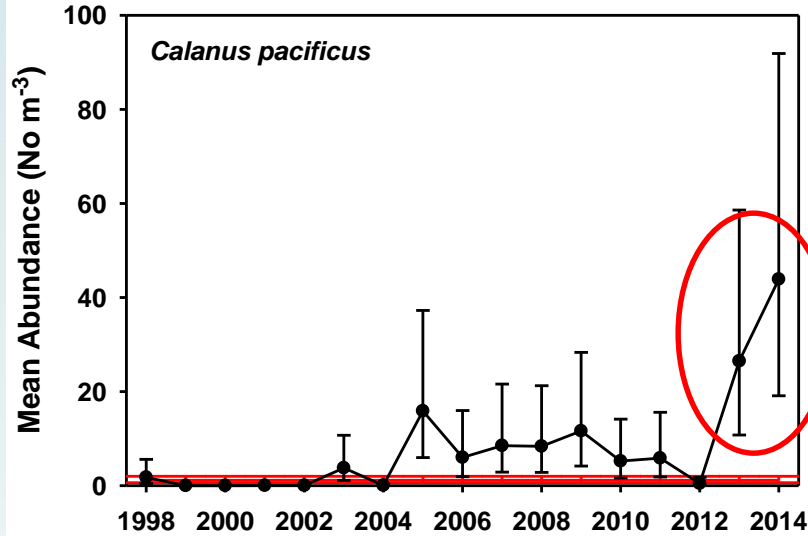


R. Campbell

Gulf Watch Alaska Zooplankton

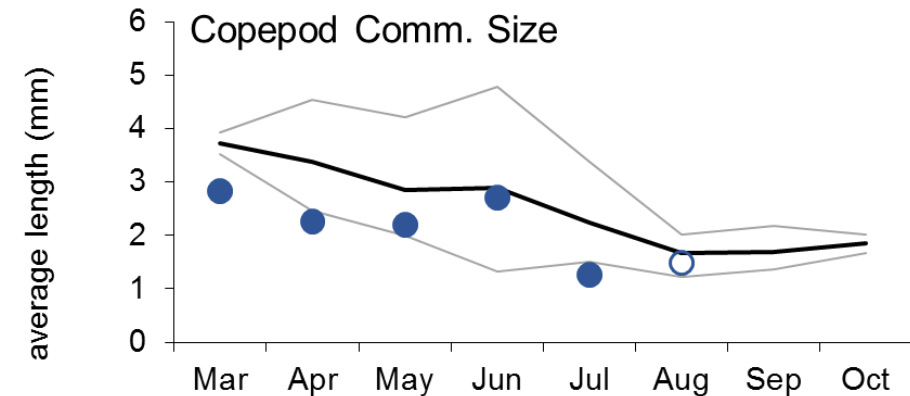
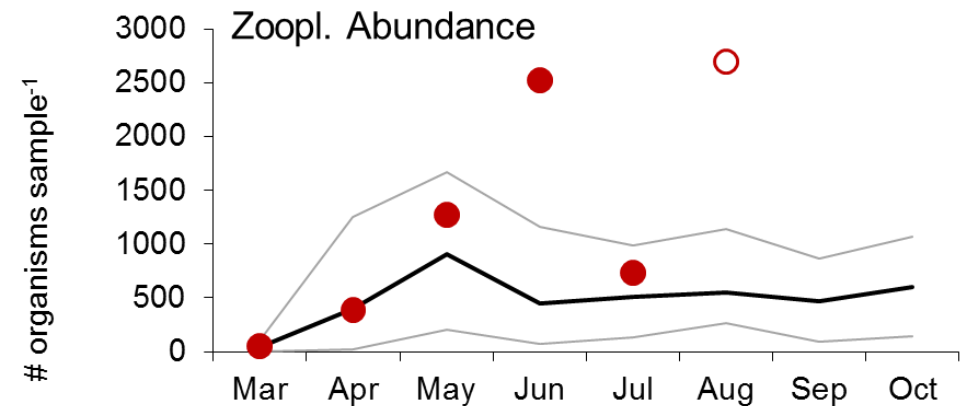
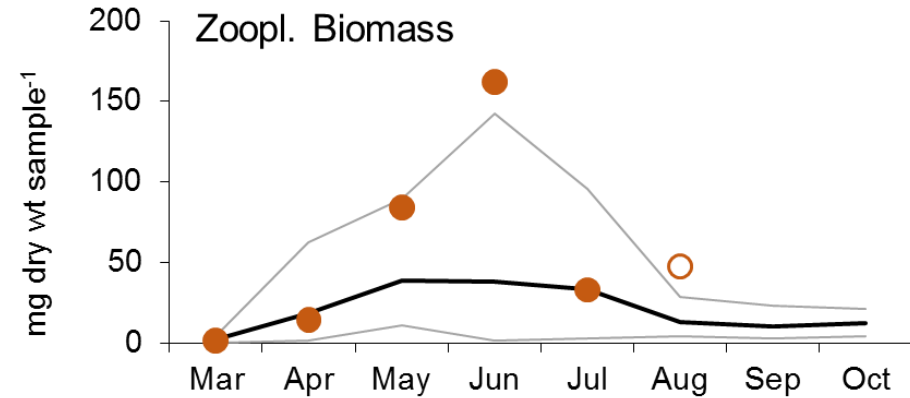
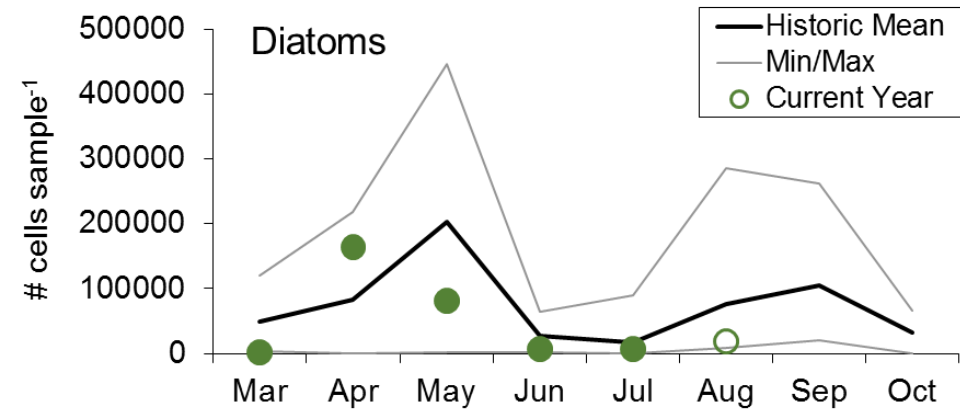


2014 anomaly: Seward Line zooplankton 4 southern copepod species: 1998-2014



2014 anomaly: Zooplankton on shelf

Continuous Plankton Recorder (CPR) time series: 2000-2014



- Long term monthly mean (2000-2013)
- Long term monthly minimum/maximum (2000-2013)
- Provisional 2014 monthly mean
- Finalized 2014 monthly mean



Questions?

www.gulfwatchalaska.org



Exxon Valdez
Oil Spill Trustee Council

Understanding the impacts of the Exxon Valdez oil spill through long-term monitoring.

In the two decades following the Exxon Valdez oil spill (EVOB), and after extensive restoration, research and monitoring efforts, it has been recognized that full recovery from the spill will take decades and requires long-term monitoring of both the injured resources and factors other than residual oil that may continue to inhibit recovery or adversely impact resources that have recovered.

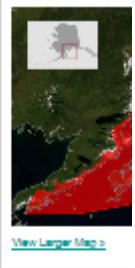
Monitoring information is valuable for assessing recovery of injured species, managing those resources and the services they provide, and informing the communities who depend on the resources. In addition, long-term, consistent, scientific data is critical to allow us to detect and understand ecosystem changes and shifts that directly or indirectly (e.g. through food web relationships) influence the species and services injured by the spill.

Gulf Watch Alaska is the long-term ecosystem monitoring program of the [Exxon Valdez Oil Spill Trustee Council](#). The current five-year, \$12 million program began in February 2012 and is the first increment of a program anticipated to span a 20-year period. The program is organized into four related ecosystem monitoring components, with data management, modeling, and synthesis projects providing overall integration across the program.

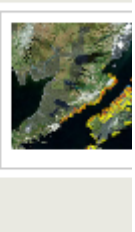
Much of the work completed as part of the Gulf Watch Alaska program could not be accomplished without the leveraging of support, funding and resources by our [partners and collaborators](#).

Where are We Monitoring?

More than 20 scientists in multiple teams are collecting data in the Prince William Sound, to the outer Kenai Peninsula.



[View Larger Map](#)




[Gulf of Alaska Data Integration Portal](#)

Gulf of Alaska Data Portal

Welcome to the Gulf of Alaska Data Integration Portal. This portal provides access to a wide range of Gulf of Alaska data including:

- Sensor feeds, operational oceanographic and atmospheric models, and satellite observations;
- Monitoring and research studies covering oceanography, plankton, fish, marine bird and mammals; and
- Research programs including [Gulf Watch Alaska](#) and historic studies funded by the [Exxon Valdez Oil Spill Trustee Council](#).

The data are provided in two formats: one is a catalog showing a listing of available data sets; the other is an interactive map that allows users to view data from the region. When available, metadata are provided with each file with specific study and contact information.

Use the FEEDBACK tab on the left side of the screen if you have questions or comments.

Data Layer Catalog

The Data Layer Catalog is a listing of the data layers currently available through the Gulf of Alaska Data Portal. Users can browse data sets by category or keyword and search through metadata, or click to access brief project descriptions with links to original source.



Interactive Data Portal

The Interactive Ocean Portal displays map-projected data from in and around the Gulf of Alaska. Most, but not all, data sets available in the Catalog can be viewed in the portal. Users can graphically explore individual or multiple data layers, as well as drag and drop a

