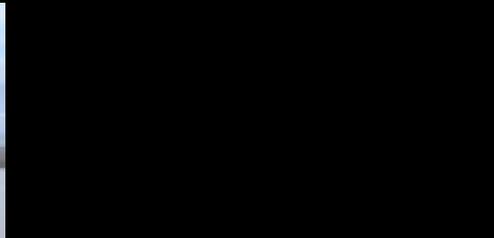


# Understanding How Park Ecosystems Are Changing

3rd Biennial Monitoring Symposium,  
Southwest Alaska Network  
Alaska SeaLife Center, Seward Alaska



Long-term Vital Signs Monitoring in the Southwest Alaska Network  
Alagnak      Aniakchak      Katmai      Kenai Fjords      Lake Clark

# 2nd Biennial Monitoring Symposium, Southwest Alaska Network

- What is the NPS Inventory and Monitoring Program?
- What is the Southwest Alaska Network?
- Context for today's presentations



Long-term Vital Signs Monitoring in the Southwest Alaska Network

Alagnak

Aniakchak

Katmai

Kenai Fjords

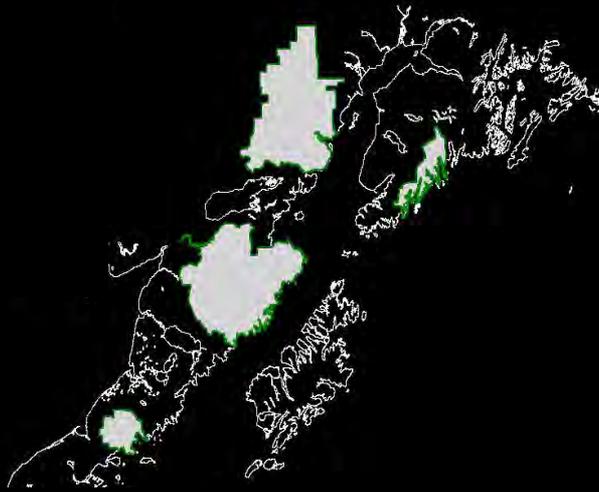
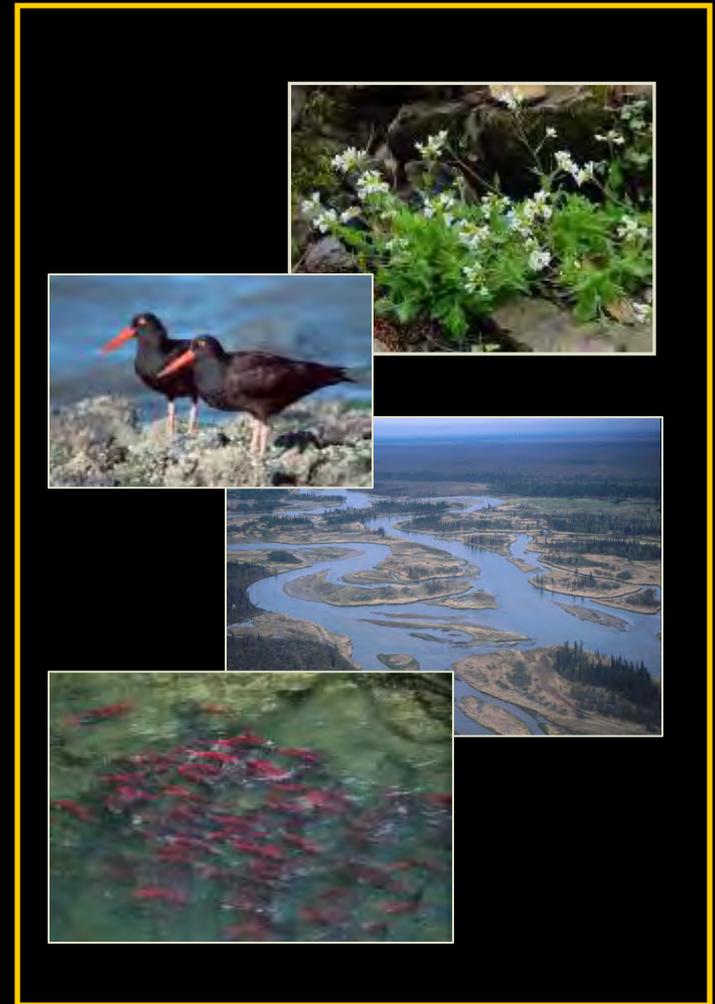
Lake Clark

# What is the NPS Inventory and Monitoring Program?



# Monitoring in National Parks

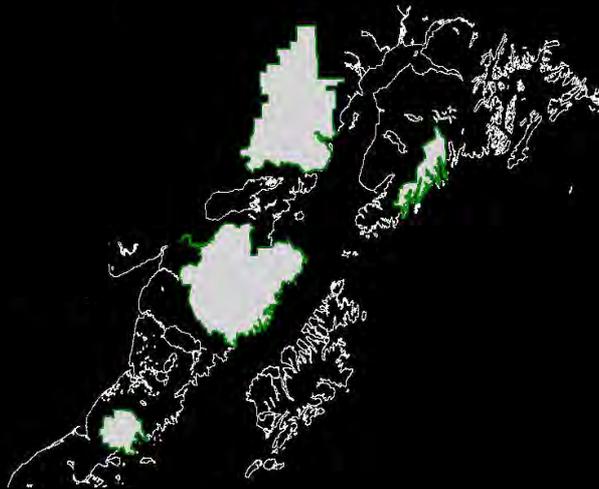
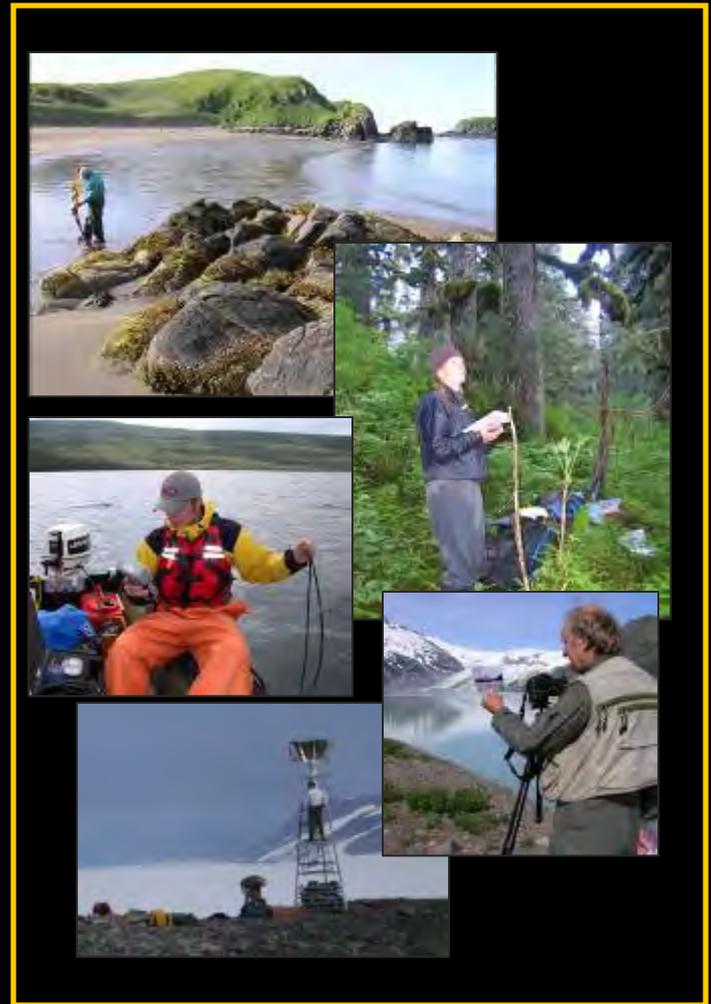
Long-term monitoring will focus on "*Vital Signs*," which are physical, chemical, and biological elements and processes of park ecosystems that represent the overall health or condition of park resources.



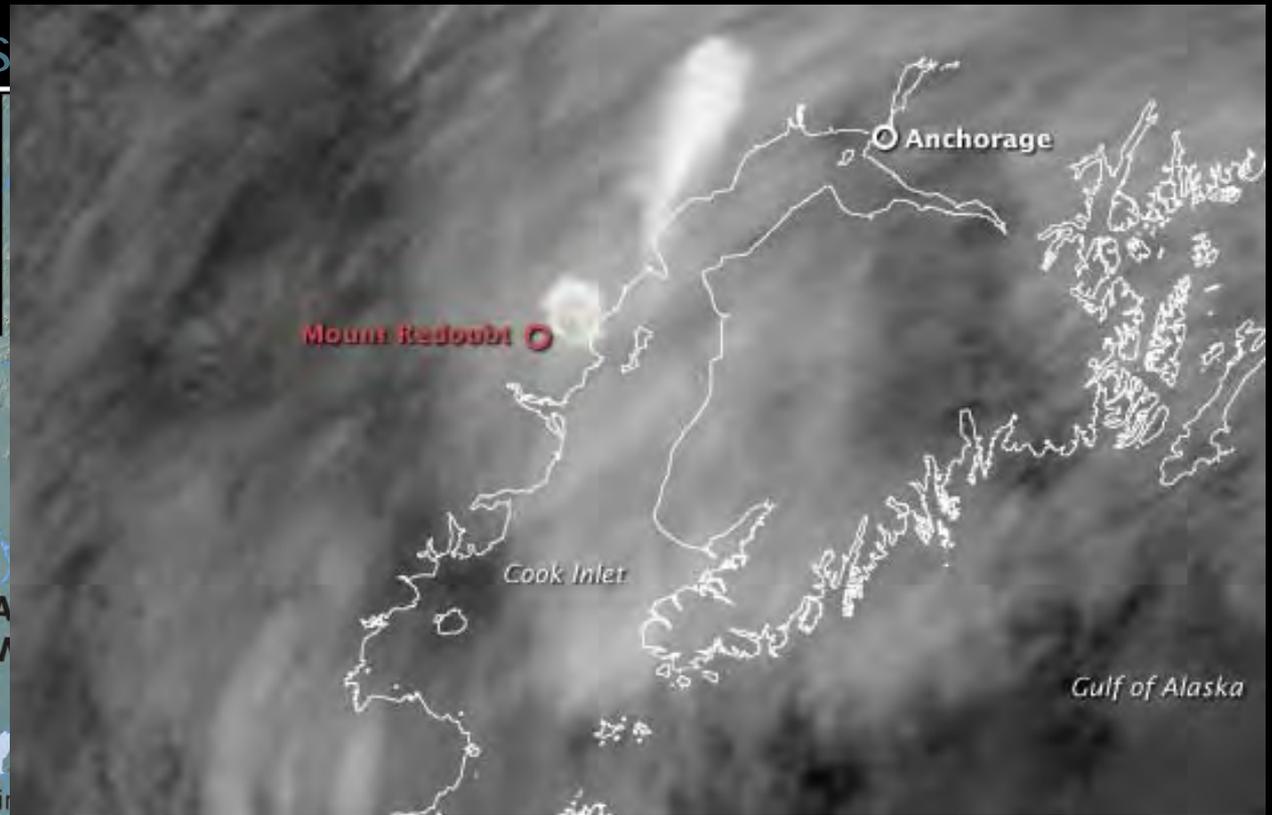
# Monitoring in National Parks

The purpose of long-term monitoring is to:

- 1) determine the status and detect changes in the condition of park resources; and
- 2) to provide timely and accessible reports on the status and trends of park ecosystems to park managers and others.



# What is



# Monitoring in Southwest Alaska National Parks

A goal of SWAN is to provide the scientific foundation for effective, long-term protection and management of natural resources in these five units of the National Park System.

The purpose of Biennial Symposiums is to provide an opportunity for project investigators to report to park staff, cooperating agencies, and the public on progress, significant findings, and highlights.

## 2nd Biennial Long-term Monitoring Symposium -Homer in 2007



Long-term Vital Signs Monitoring in the Southwest Alaska Network  
Alagnak      Aniakchak      Katmai      Kenai Fjords      Lake Clark

# Monitoring in SWAN National Parks

Monitoring from a holistic perspective that covers a wide range of ecological levels; and utilizing a variety of sampling techniques from satellites to ground-based measurements.



Long-term Vital Signs Monitoring in the Southwest Alaska Network  
Alagnak      Aniakchak      Katmai      Kenai Fjords      Lake Clark

- SWAN had its start in 2002 with Alan Bennett
- Many scoping meeting covering: nearshore, freshwater, terrestrial, wildlife etc
- Initial list of 65+ Vital Signs, then 38, now a few less
- Conceptual Models (Diagrams) –a key method to describe the components of the future monitoring and their linkages



Long-term Vital Signs Monitoring in the Southwest Alaska Network

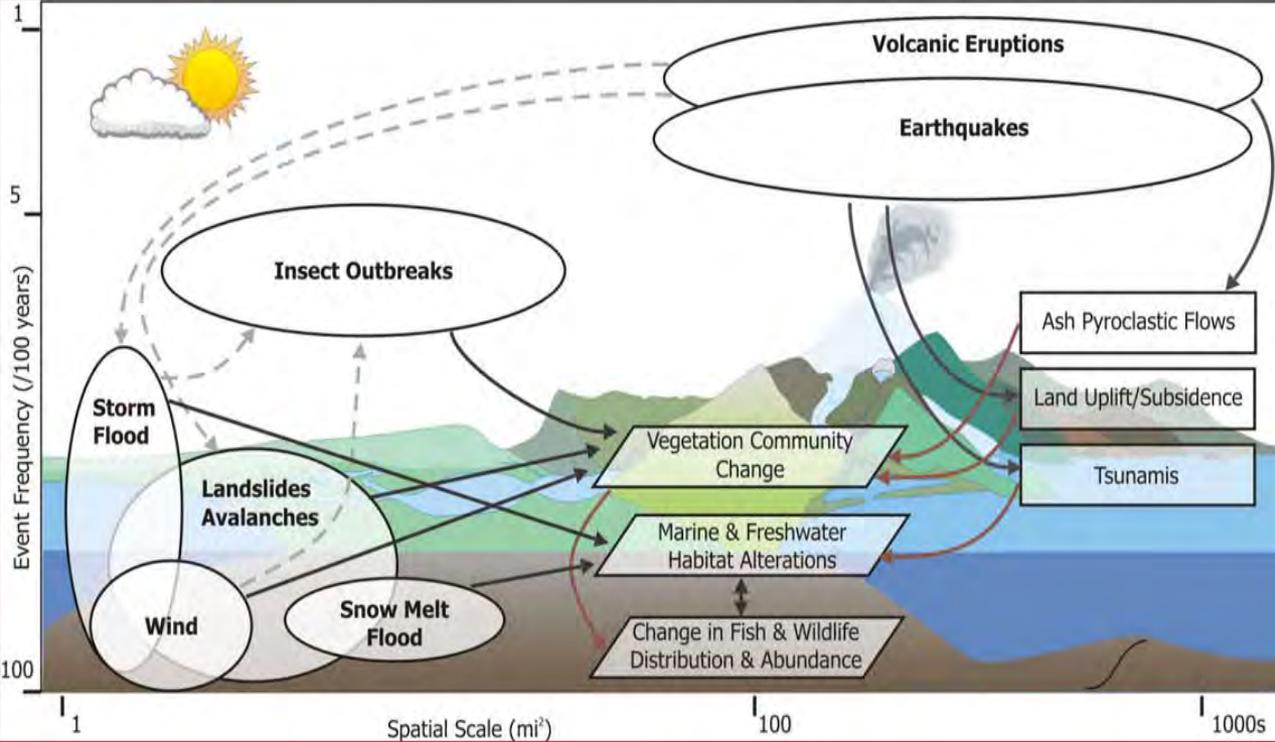
Alagnak

Aniakchak

Katmai

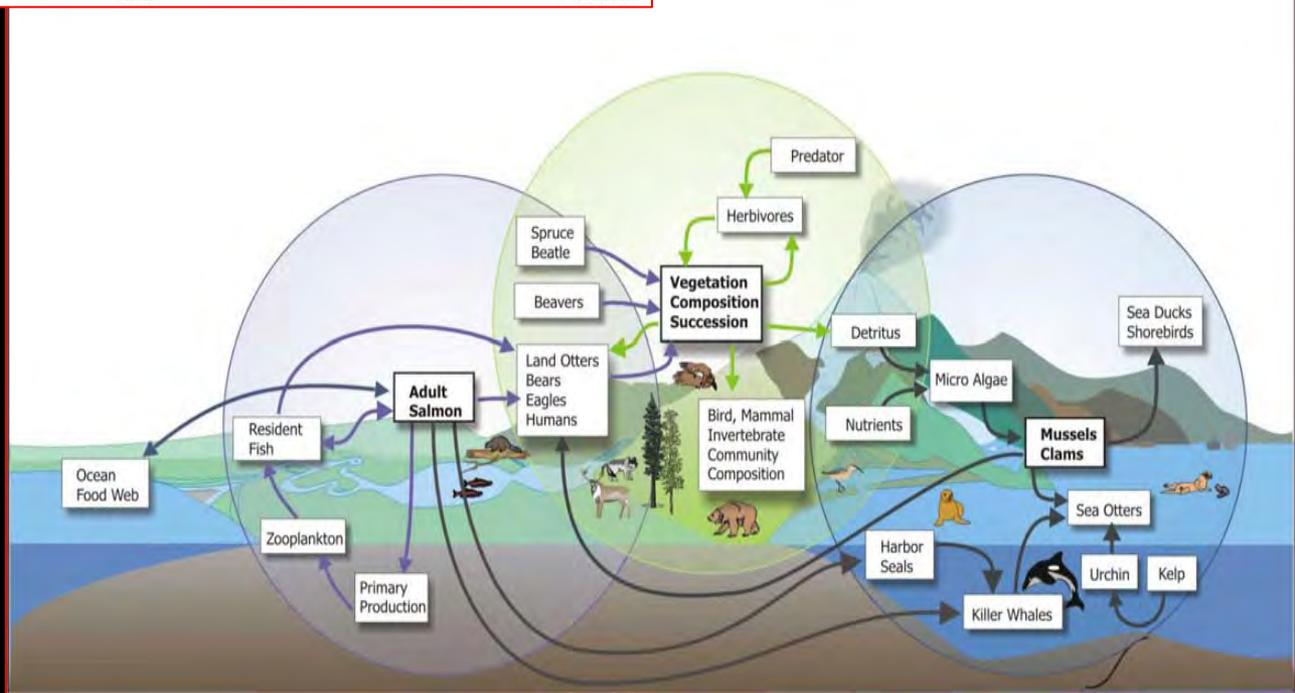
Kenai Fjords

Lake Clark



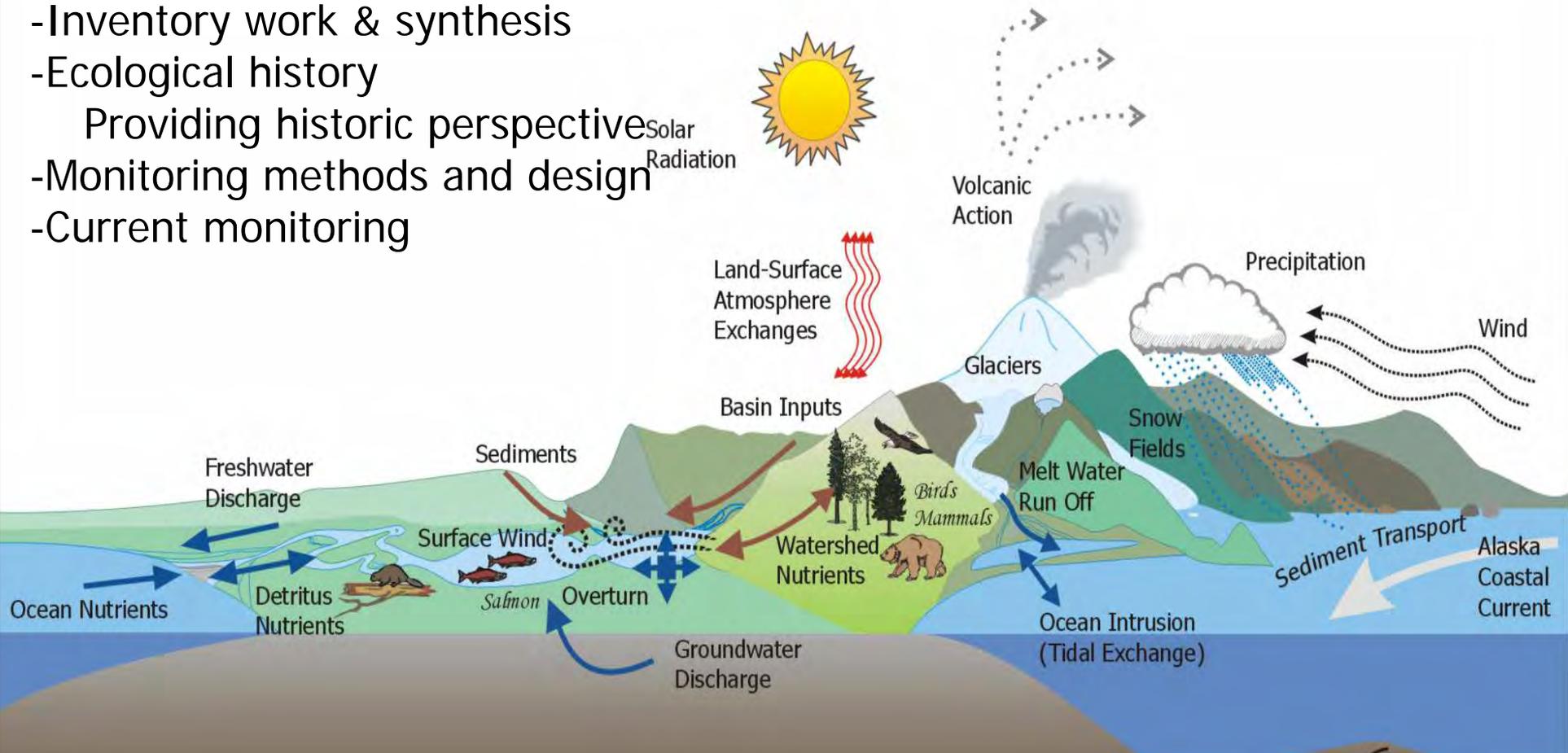
# Landscape Disturbance Model

# Biotic Interactions Model



# Presentations of 4 types

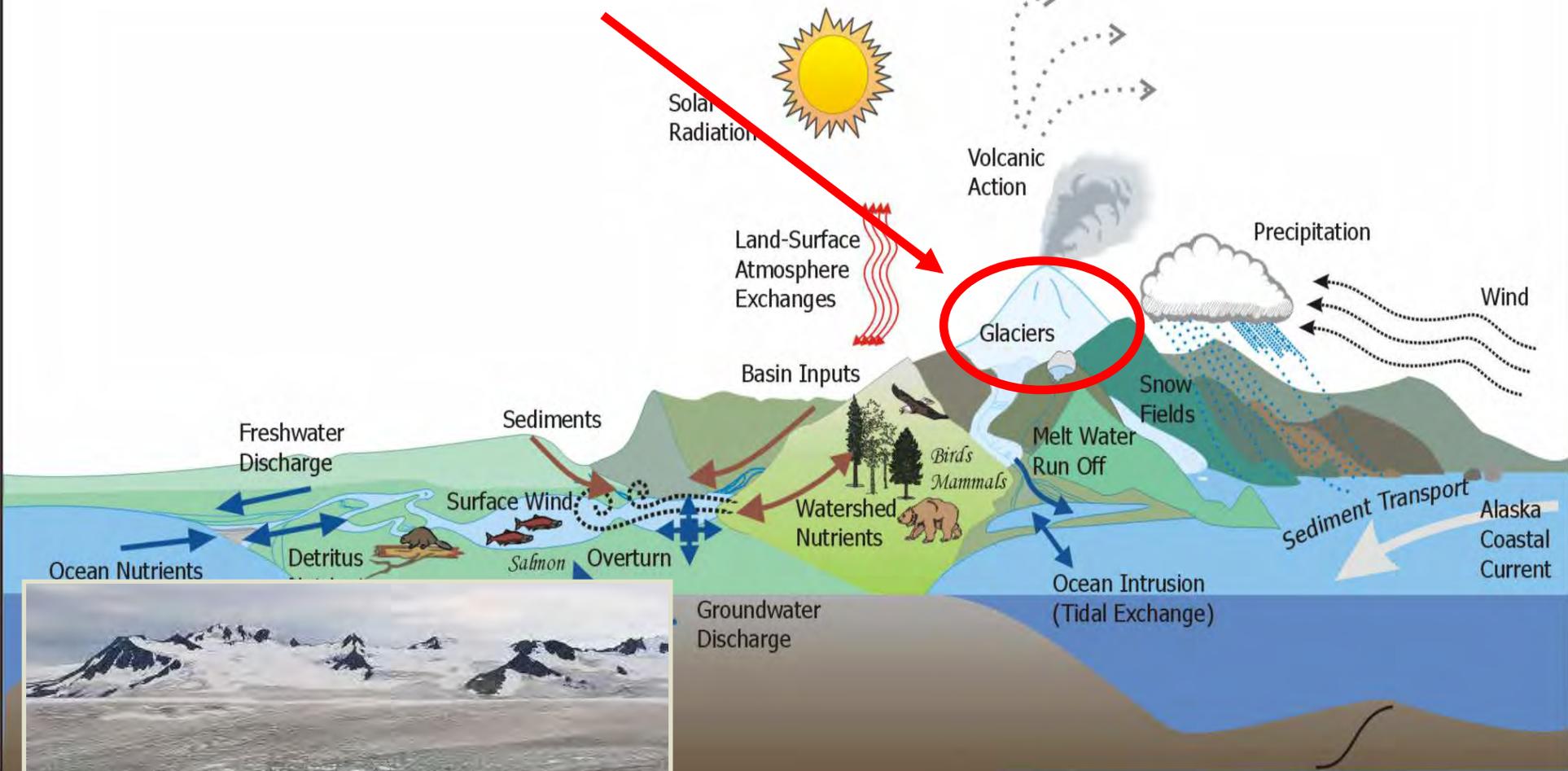
- Inventory work & synthesis
- Ecological history
  - Providing historic perspective
- Monitoring methods and design
- Current monitoring



Ecosystems Interaction Model. Key linkages and interactions between the atmosphere, ocean, and land in SWAN.

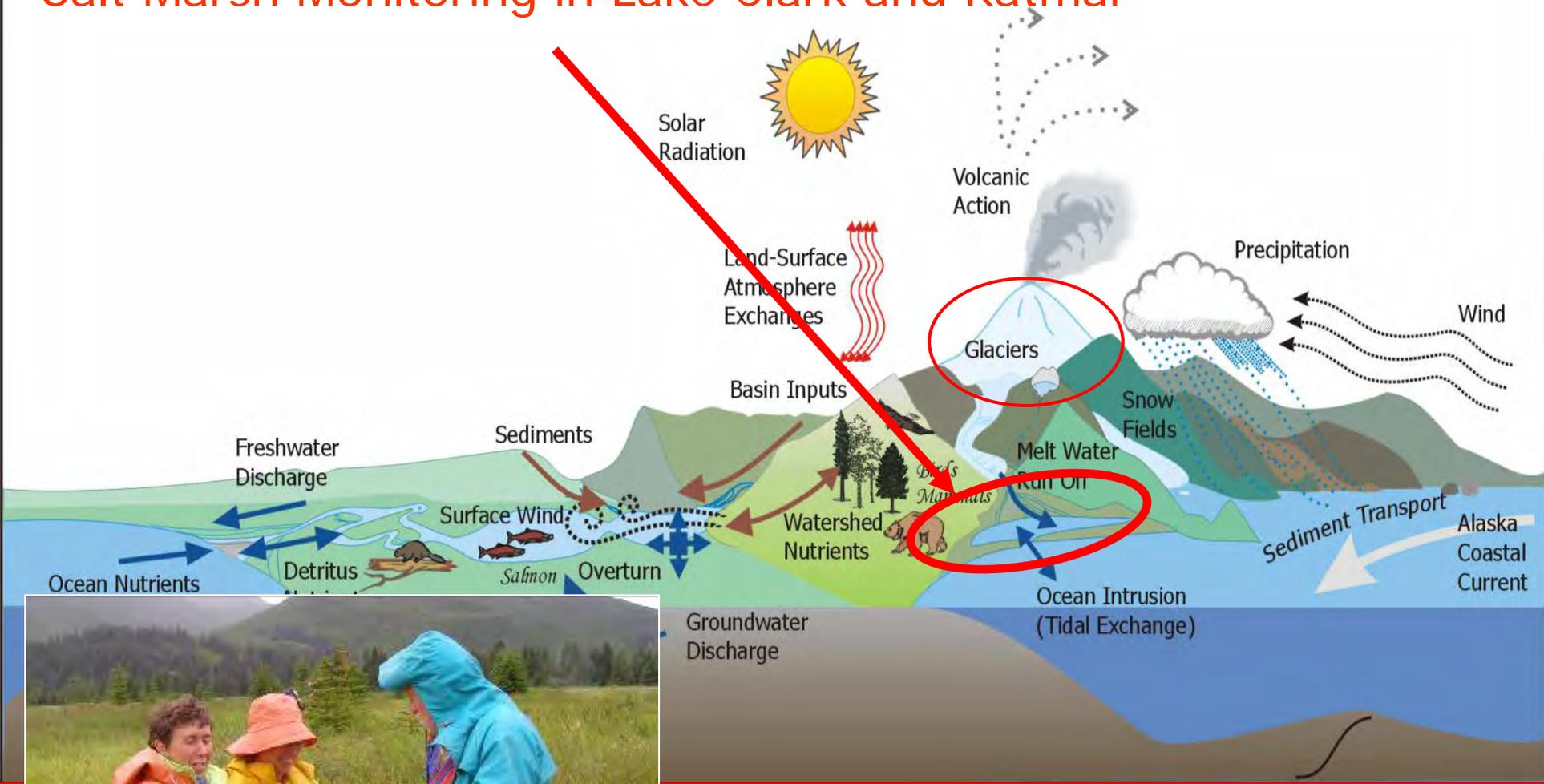
Other Conceptual Diagrams for far and near-field human stressors, and climate warming.

# Glaciers in Kenai Fjords NP in the Context of Global Glacier Changes



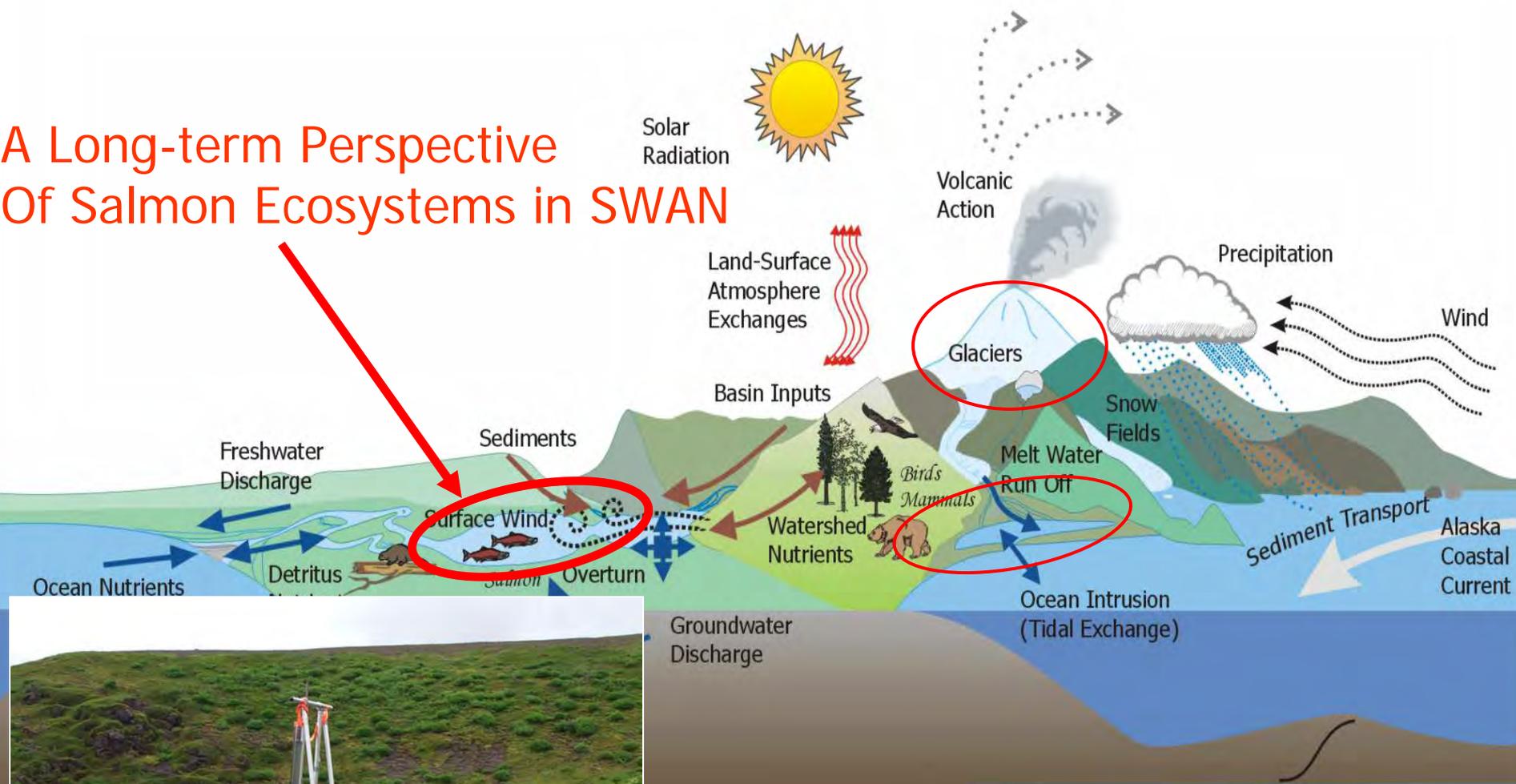
Dorothy Hall, NASA Goddard Space Flight Center, Greenbelt MD

# Salt Marsh Monitoring in Lake Clark and Katmai



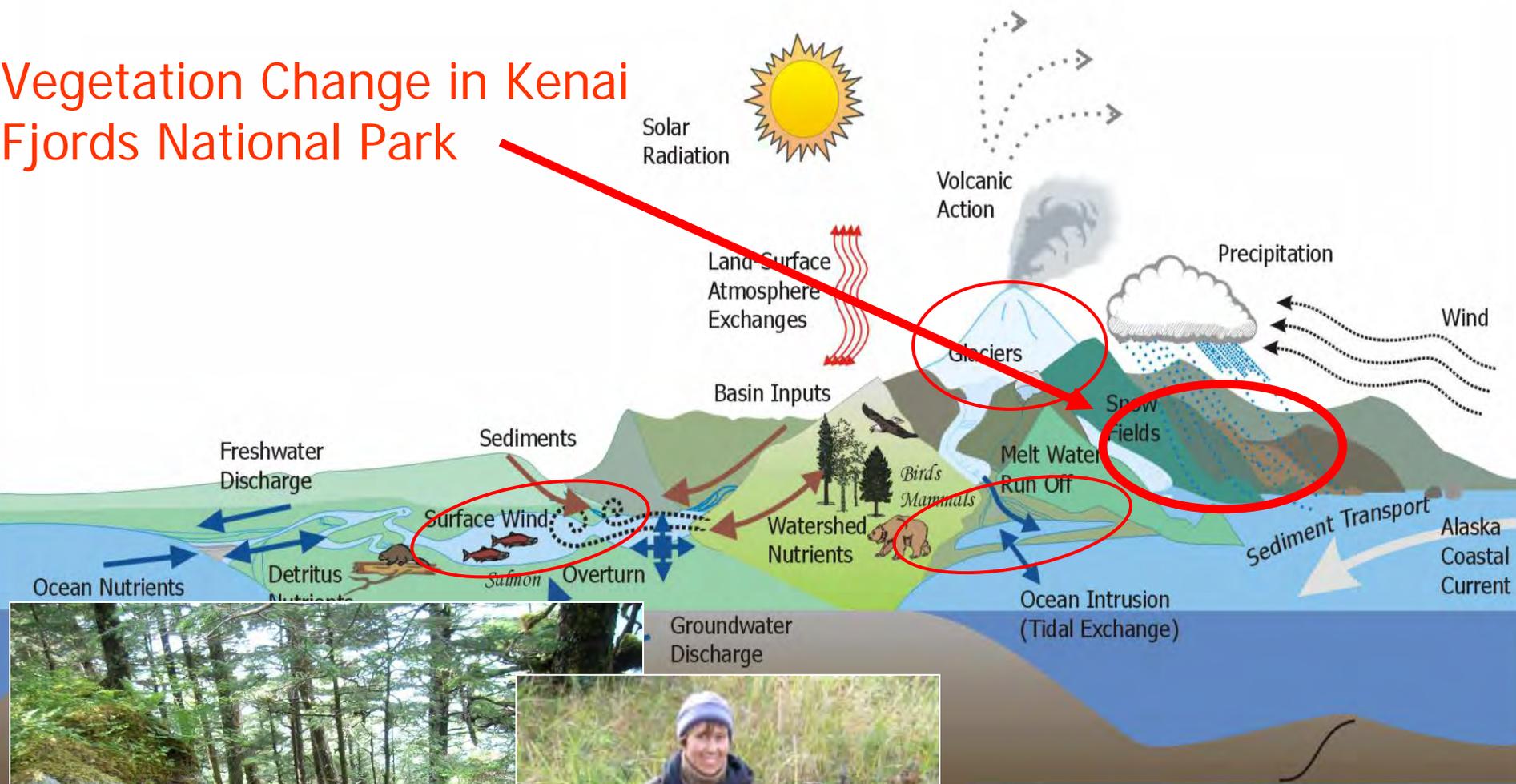
Torre Jorgenson,  
ABR inc, Fairbanks AK

# A Long-term Perspective Of Salmon Ecosystems in SWAN



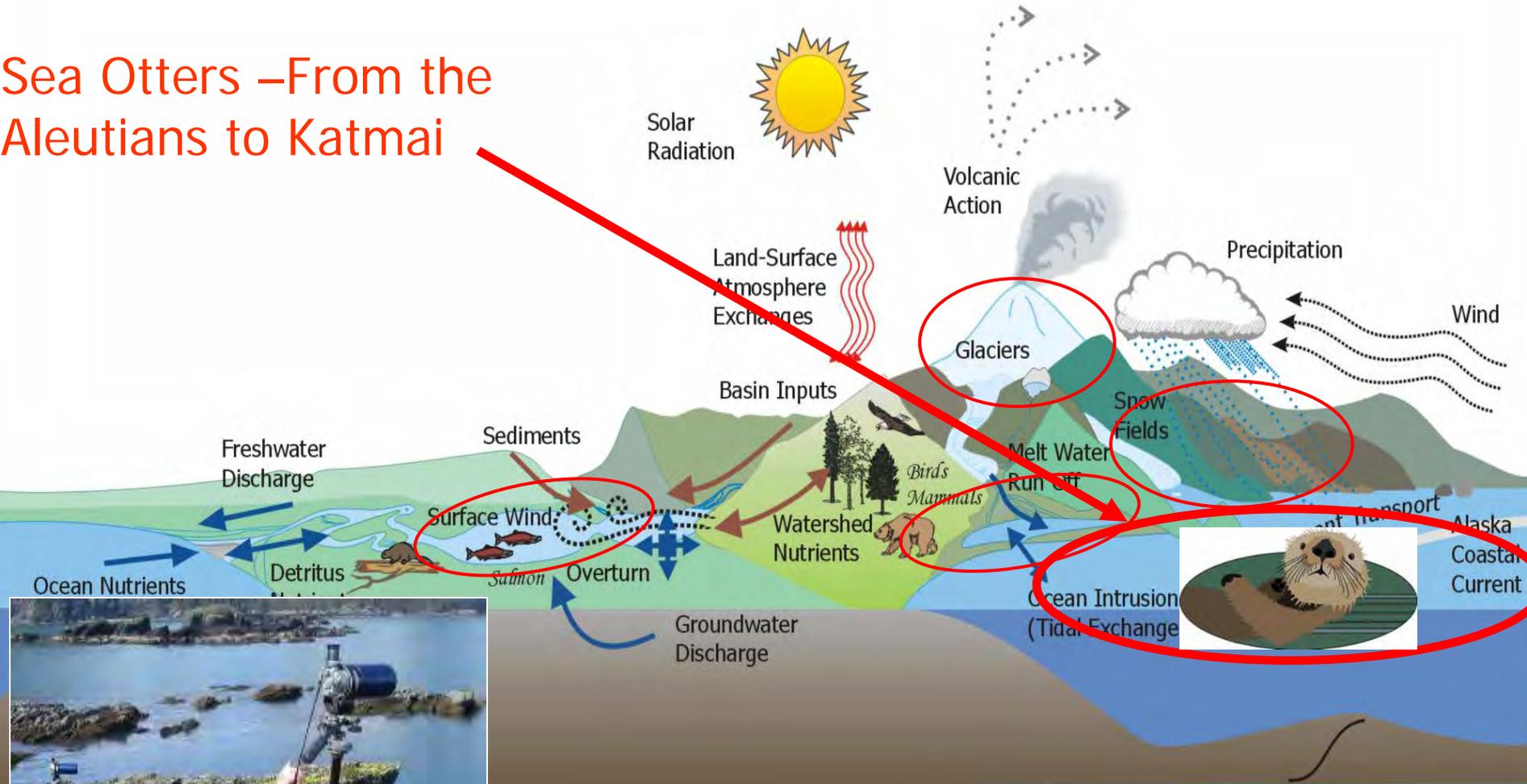
Bruce Finney, Idaho State University, formerly of UAF

# Vegetation Change in Kenai Fjords National Park



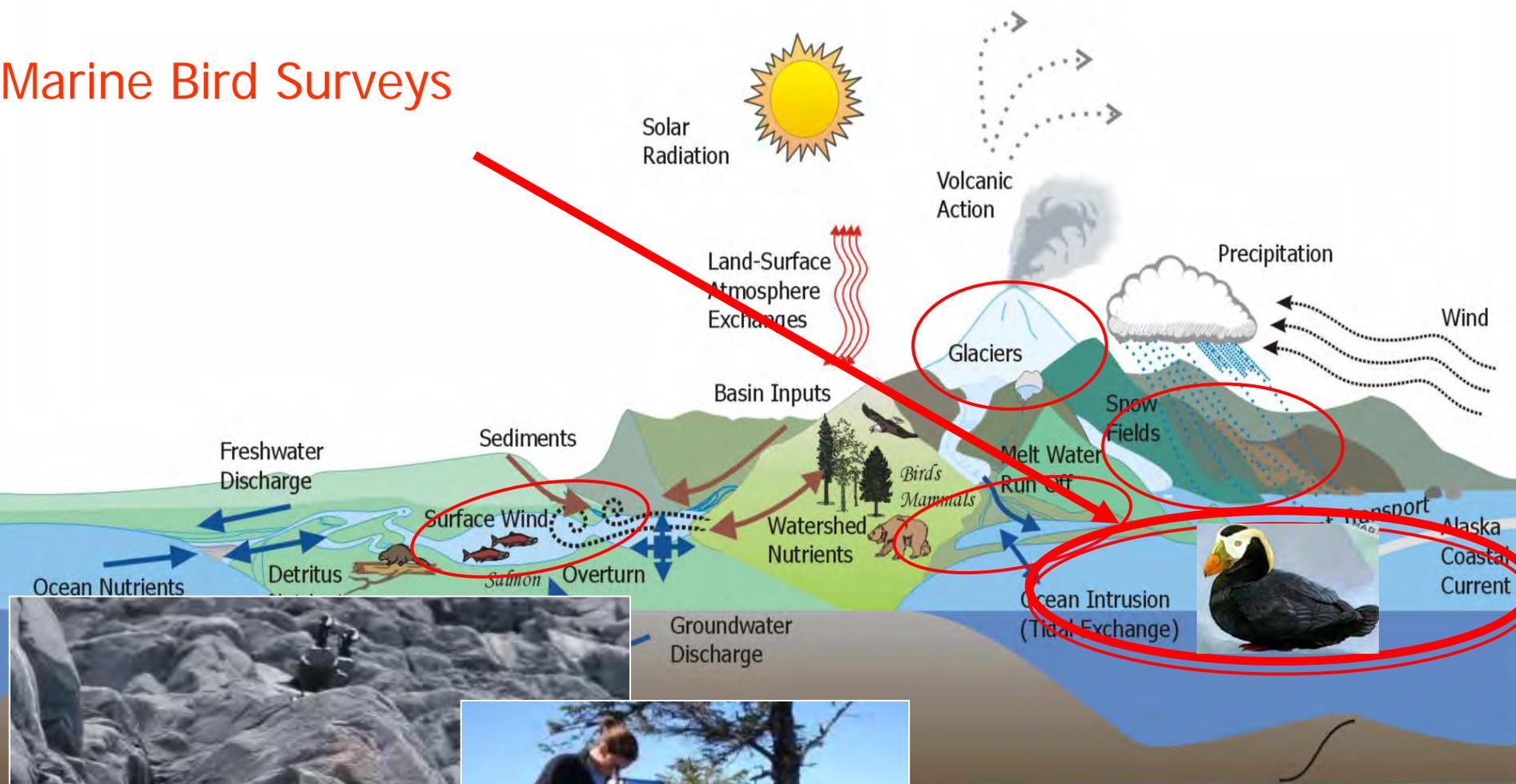
Amy Miller, SWAN National Park Service

# Sea Otters –From the Aleutians to Katmai



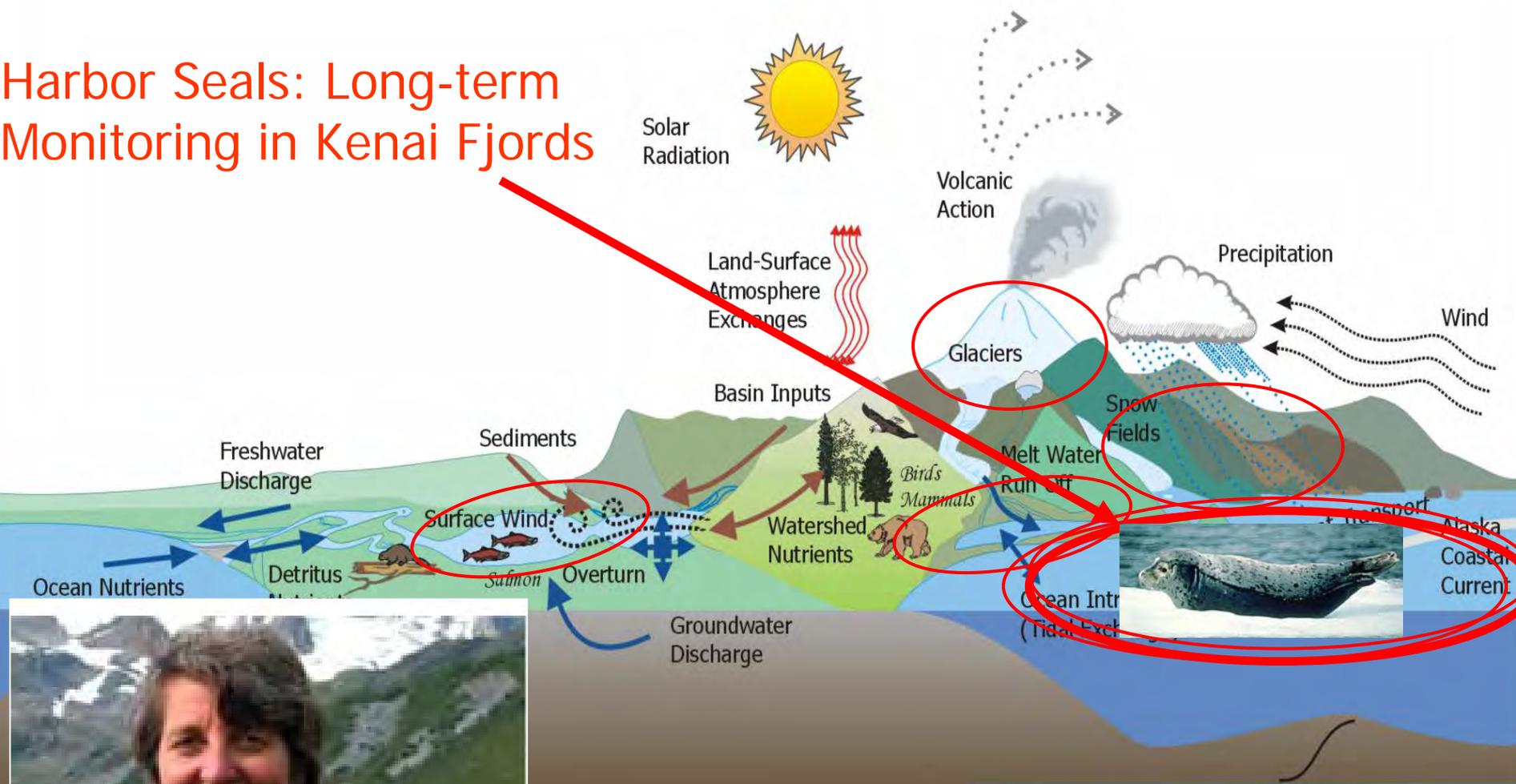
Jim Bodkin, Alaska Science Center  
USGS, Anchorage

# Marine Bird Surveys



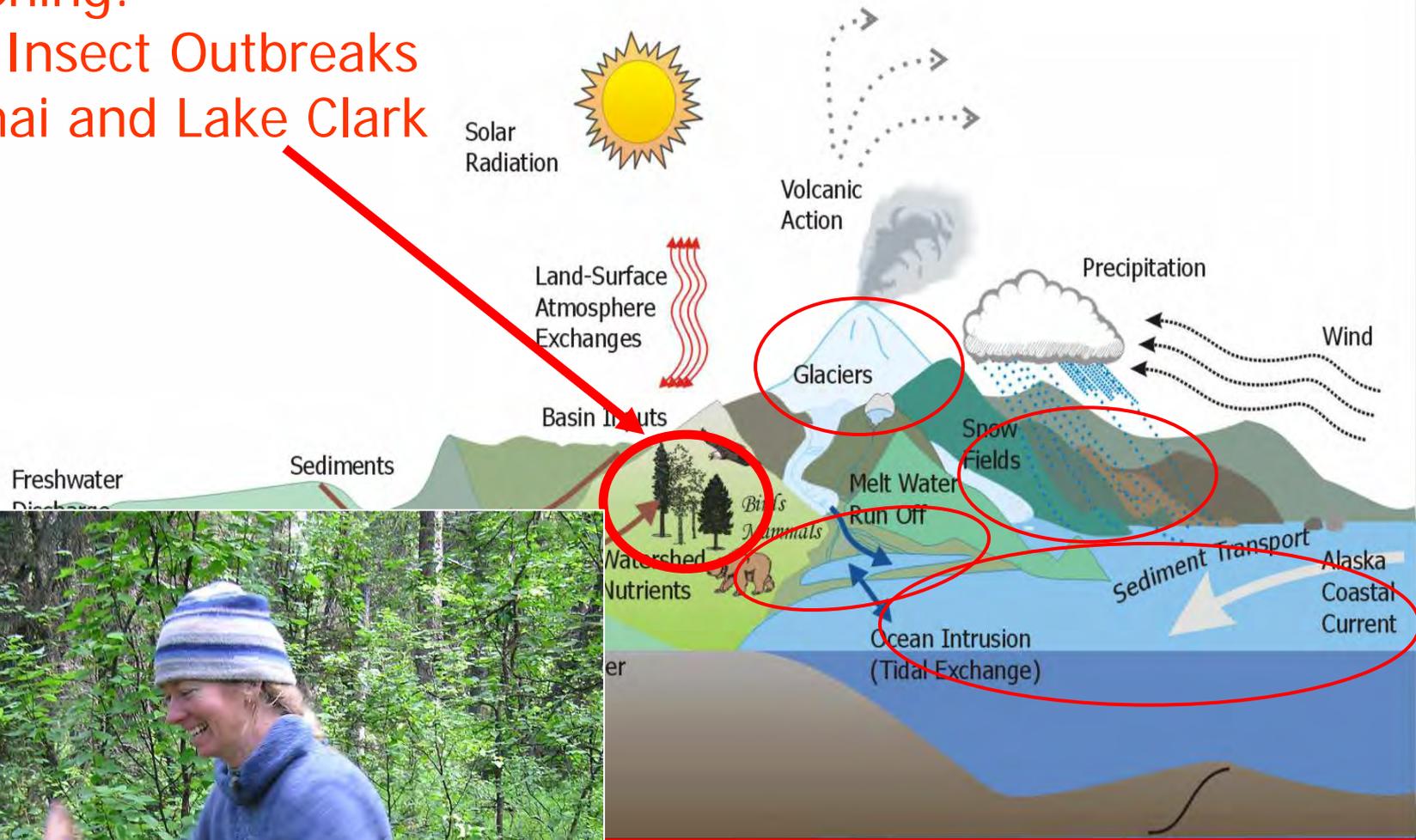
Heather Coletti, SWAN  
National Park Service,

# Harbor Seals: Long-term Monitoring in Kenai Fjords



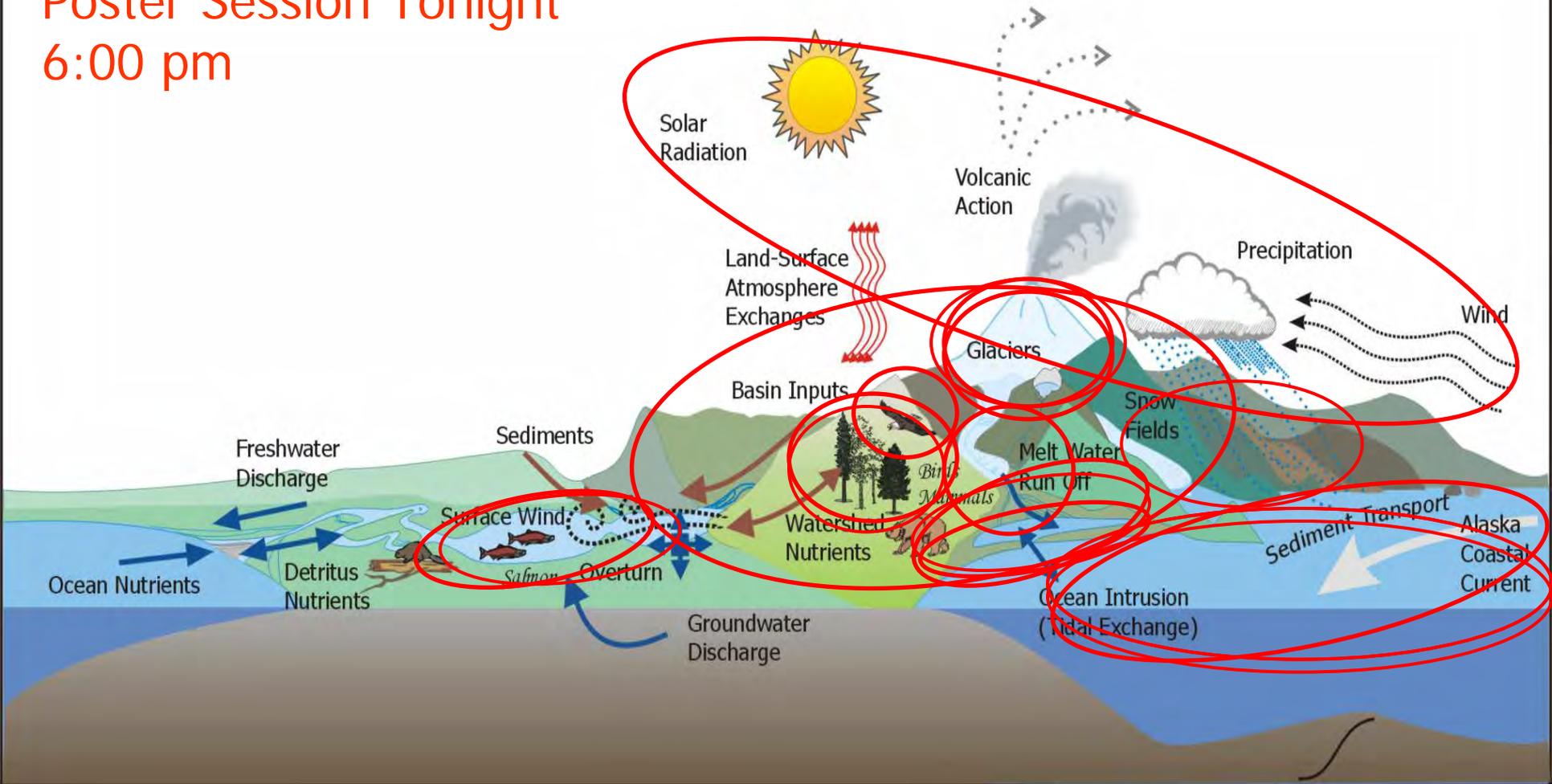
Anne Hoover-Miller, Alaska SeaLife Center, Seward, AK

# This evening: Historic Insect Outbreaks in Katmai and Lake Clark



Rosemary Sherriff, U. Kentucky  
Soon to be at Humboldt State  
University

# Poster Session Tonight 6:00 pm

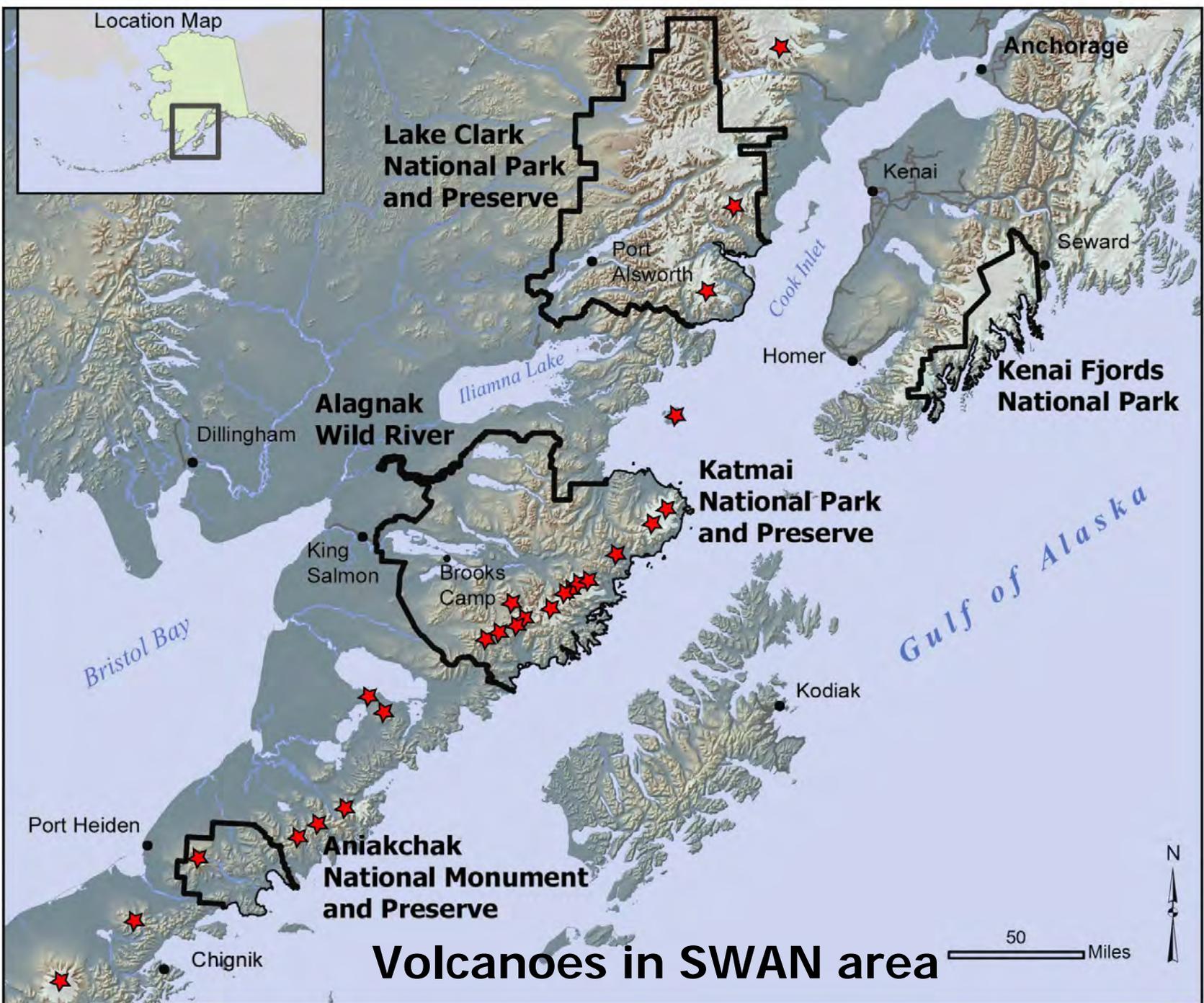


Long-term Vital Signs Monitoring in the Southwest Alaska Network  
Alagnak      Aniakchak      Katmai      Kenai Fjords      Lake Clark

# Poster Session -6:00 pm

- Long-term Ecological Monitoring in the Southwest Alaska Network
- Developing Effective Sampling Designs for Monitoring Natural Resources
- Marine Nearshore Monitoring in the Southwest Alaska Network
- Developing a Predictive Model for Describing the Breeding Habitat of Black Oystercatchers in Kenai Fjords
- Breeding Bird Survey in Aniakchak National Monument and Preserve
- Water Quality Monitoring in Glacial Systems
- Simulations and Field Data guide Development of Vegetation Monitoring in the Southwest Alaska Network
- Salt Marsh Monitoring in Lake Clark and Katmai
- New Satellite-based Methods to Document Landscape-scale Changes in Western National Parks
- Historic Mercury Occurrence in Lake Sediments from Anadromous and Nonandromous Systems in Southwest Alaska
- Modeling the Distribution of Rare Plants in Southwest Alaska to Identify Rarity Hotspots and Guide Future Floristic Inventory Efforts
- Alder Mortality in Katmai National Park and Preserve
- Kenai Fjords National Park Landcover Classification
- Using Satellite Imagery to Monitor Change in Glacial Extent in Kenai Fjords NP and Katmai NPP
- Lost? Geotagging and Organizing Oblique Aerial Digital Photographs in a GIS
- How's the Weather? Remote Automated Weather Station in the Southwest AK Network





Location Map

**Lake Clark  
National Park  
and Preserve**

**Alagnak  
Wild River**

**Katmai  
National Park  
and Preserve**

**Aniakchak  
National Monument  
and Preserve**

Anchorage

Kenai

Seward

Homer

Dillingham

King  
Salmon

Brooks  
Camp

Kodiak

Port Heiden

Chignik

*Gulf of Alaska*

**Volcanoes in SWAN area**

50 Miles

