

Unit 2: Presentation 6

Adaptive Capacity

Session Goals

- Review the concept of adaptive capacity
- Introduce roots of concept and its applications
- Understand factors affecting adaptive capacity
- Recognizing adaptive capacity and its limits

Definitions

- “...the ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages, to take advantage of opportunities, or to cope with the consequences.”

» IPCC 2007

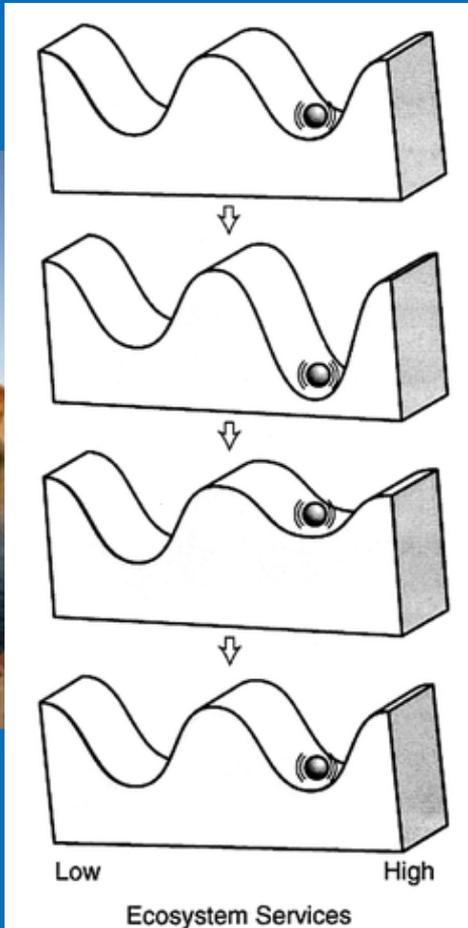
- “Coping range” or “coping capacity”
 - Ability for a system to reconfigure without significant declines in crucial functions

But what kind of “systems” are we talking about???

Social System Applications

- Rooted in biological/ecological concept of “adaptability”
- Embraced in assessing vulnerability and adaptation of social/human systems
- Key adaptive capacity attributes in social systems include:
 - Health
 - Literacy
 - Governance
 - Economic wealth

Adaptive capacity, resilience, and thresholds



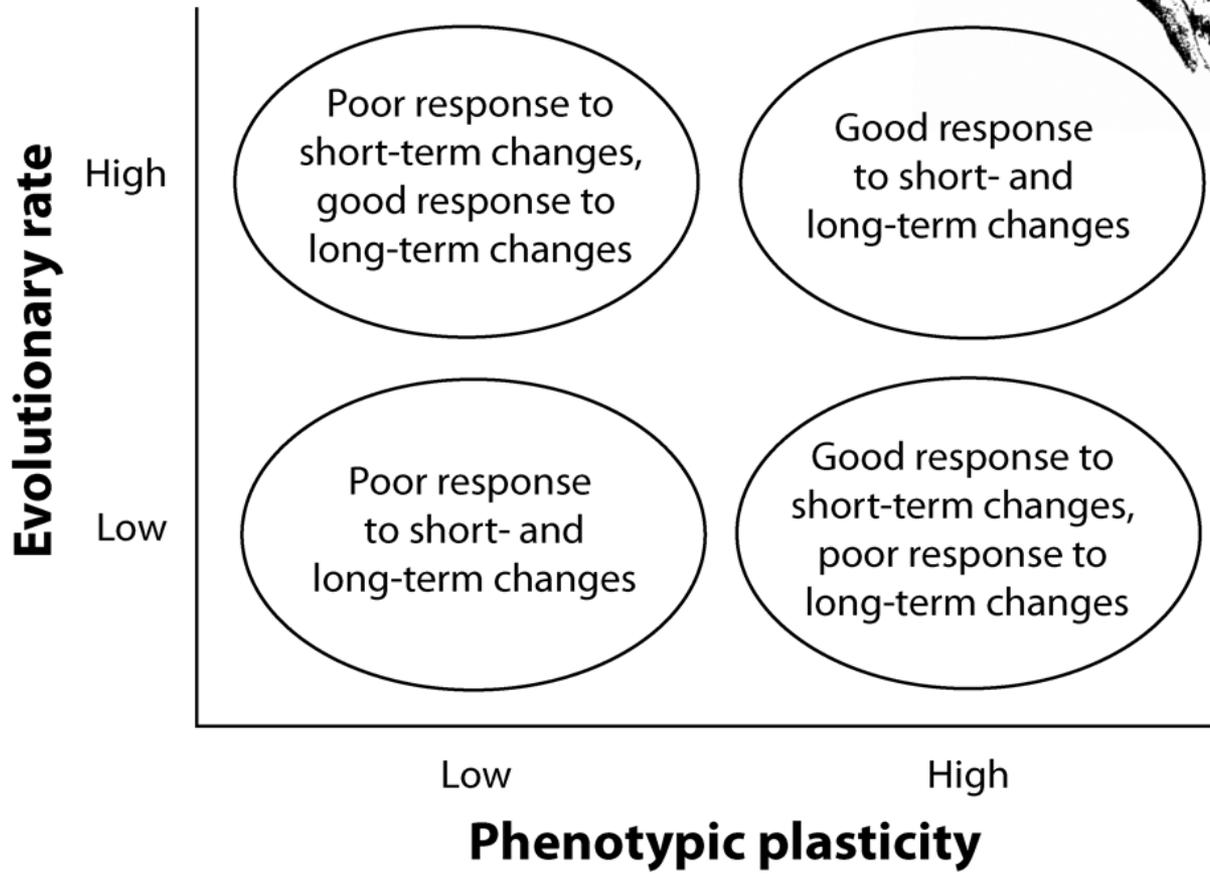


“the capacity for self-renewal”
-- Aldo Leopold

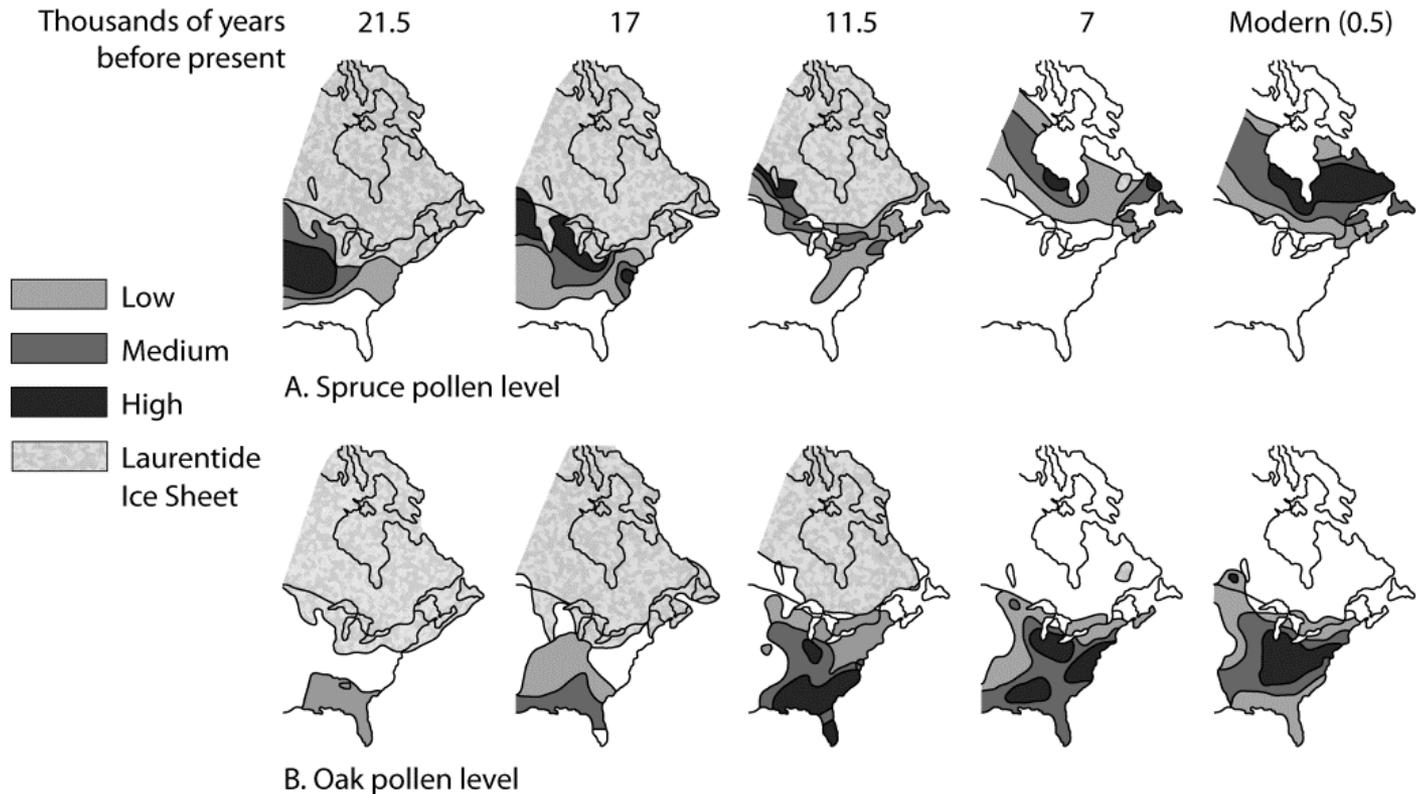
Factors Affecting Adaptive Capacity

- Genetic diversity
- Phenotypic plasticity
- Behavioral plasticity
- Dispersal ability
- Landscape permeability
- Management potential

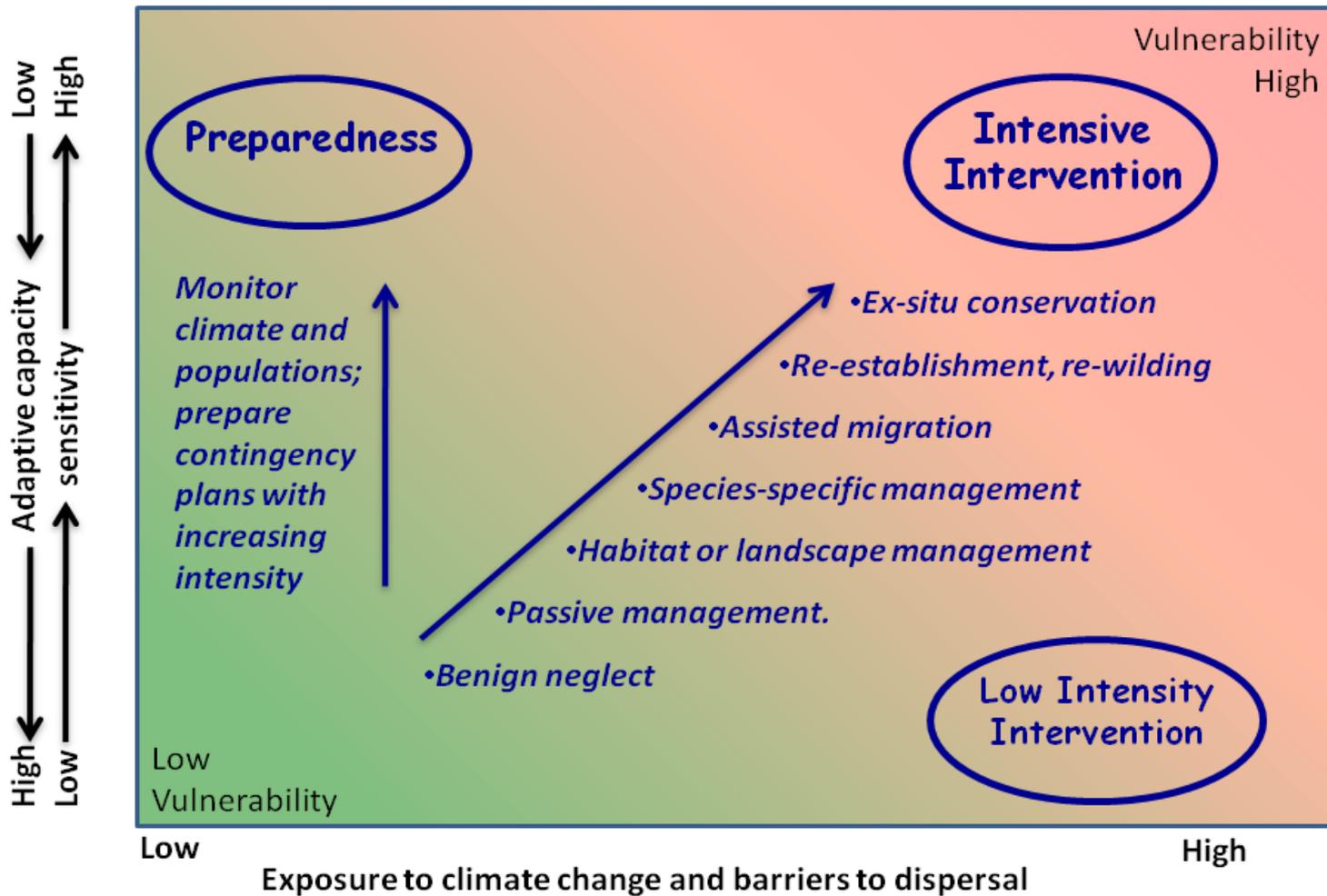




Lessons from the past and present: species respond idiosyncratically

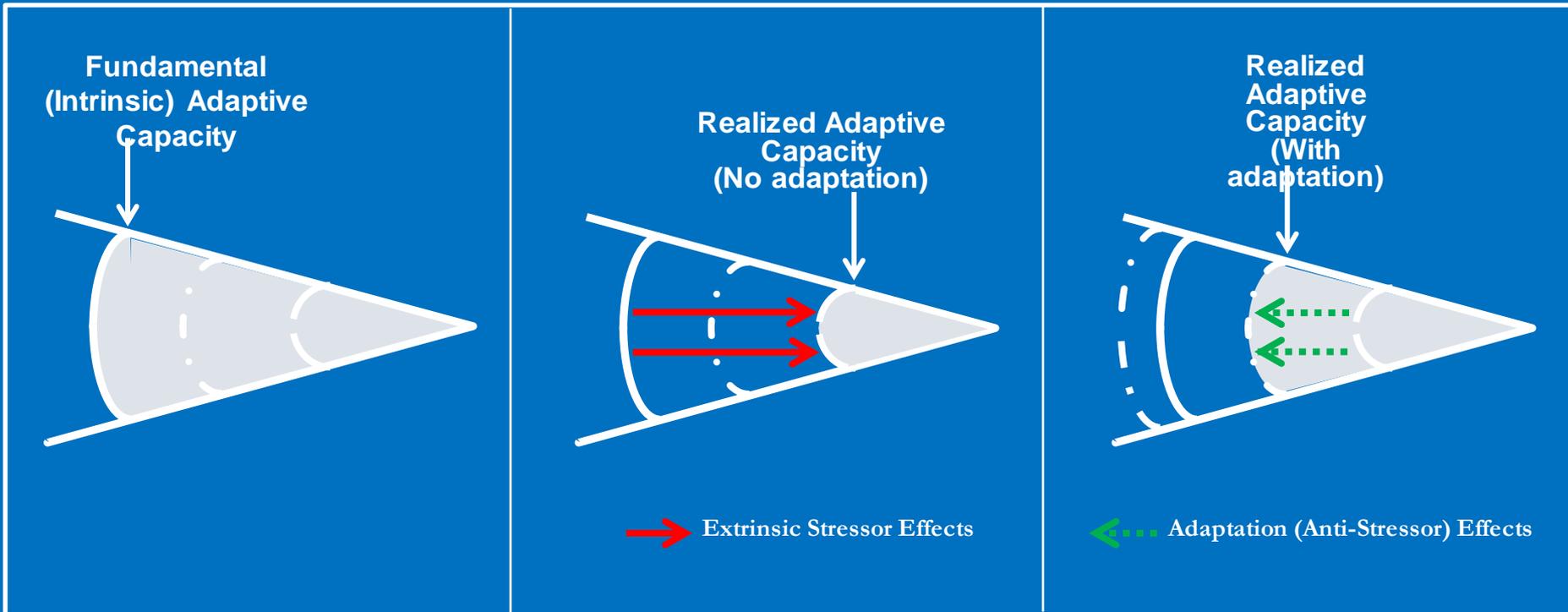


Putting all this theory to use



Source: Dawson et al. 2011

Fundamental vs. Realized Adaptive Capacity



Courtesy Jordan West & Susan Julius

Sea turtle nesting beaches

(or eelgrass beds, oyster beds, you name it!)



Measure:

- Slope
- Land use behind beach
- Habitat type behind beach



WIDECAST

Wider Conditions Sea Turtle Conservation Network

The Nature Conservancy



Protecting nature. Preserving life.

Critical Habitat Rules

Future habitat



Quino butterfly Critical Habitat Ruling includes current, future, and transitional habitat !

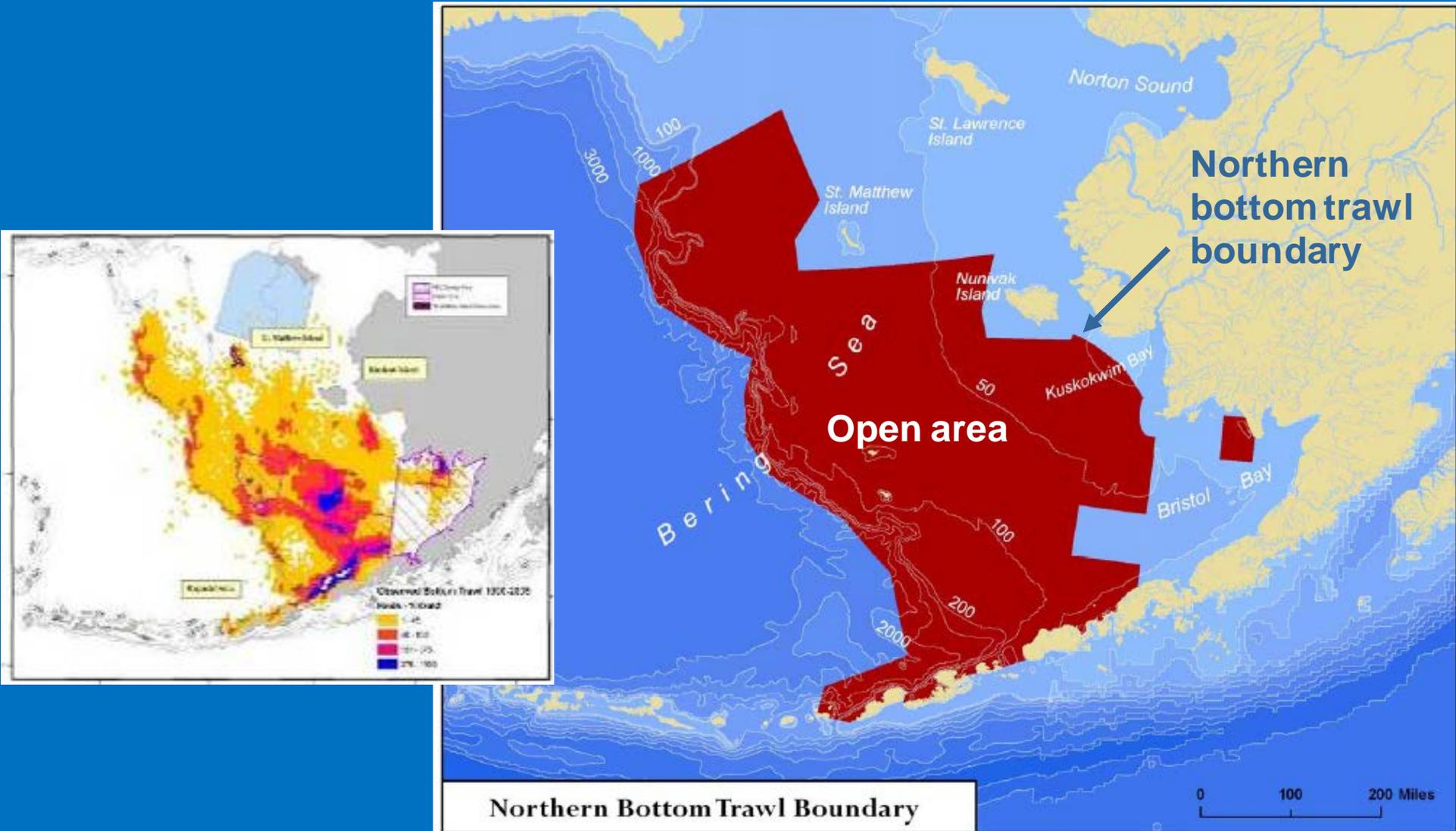
Current habitat



Solid evidence for range change, novel host plant use

Northern Bottom Trawl Boundary:

If you don't know, don't go





Tue Aug 12 13:43:43 2003



Fri Oct 28 13:25:44 2005

Institutional Aspects of Adaptive Capacity

What is the ability of our institutions to adjust to and respond to change?