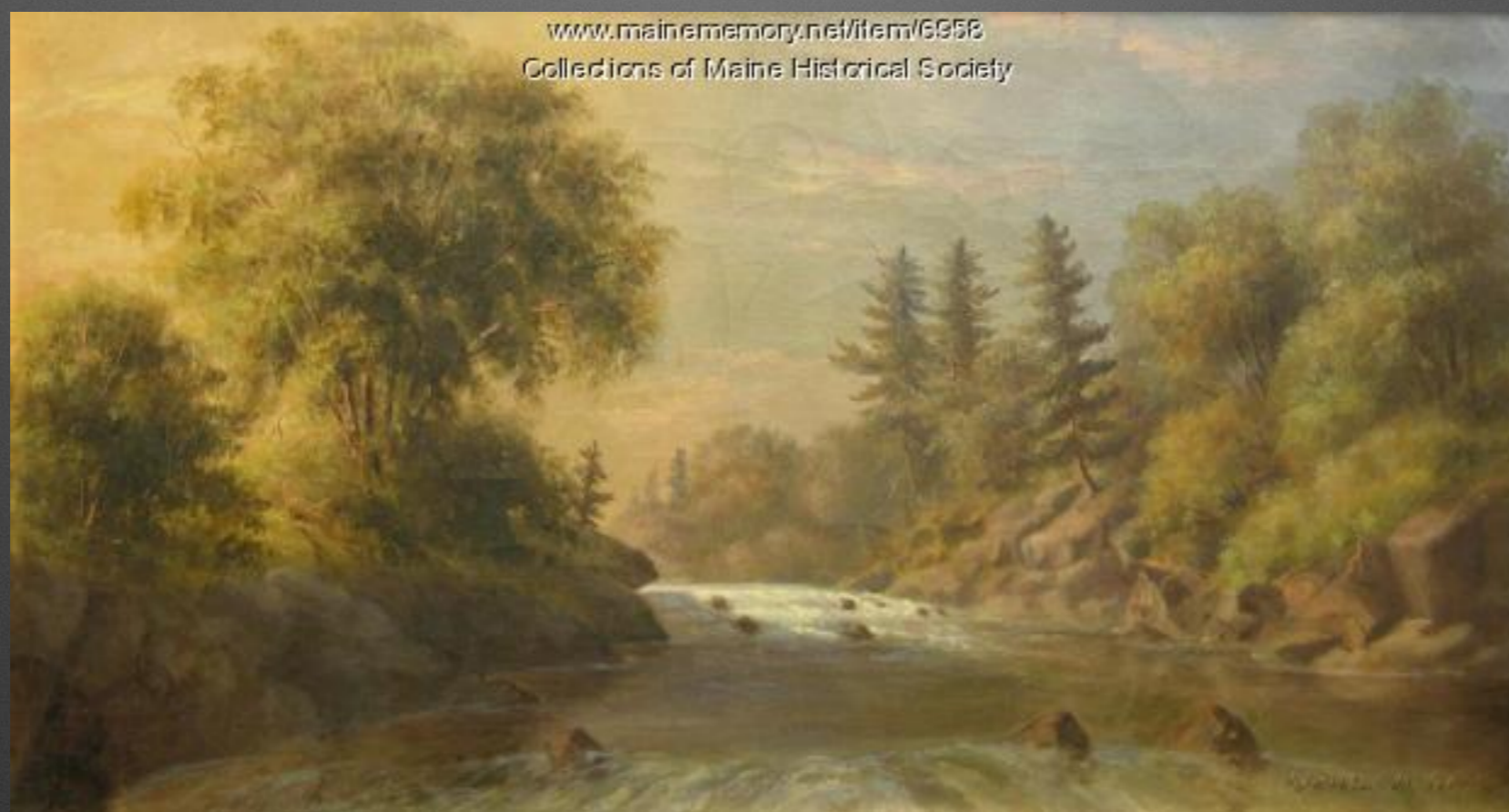


2015

**Building Resilience: connecting systems and communities (2015  
State of the Bay Presentation)**Jed Wright  
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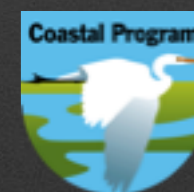
# Building Resilience: connecting systems and communities



State of the Bay Conference 2015

Jed Wright, Gulf of Maine Coastal Program, USFWS

Madeline Kinsey, University of California Davis



# Resilience

The capacity of a system to absorb disturbance and reorganize while undergoing change so as to retain essentially the same function, structure, identity, and feedbacks

# Regime shifts

Semi-arid rangelands that are overgrazed suddenly flip from a grass dominated regime to one with shrubs-  
undergrazed become deserts

# Restoration

“returning an ecosystem to a close approximation of its condition prior to disturbance”

National Research Council 1992

# Developing strengths, acquire skills to cope, recover from hardships, and be prepared for future challenges

- Connectivity
- Social Capital
- Modularity
- Feedback
- Institutions



# Nine Resilience Properties

- Diversity
- Ecological variability
- Modularity
- Acknowledgement of slow variables
- Tight feedbacks
- Social capital
- Innovation
- Overlap in governance
- Ecosystem services

## Social

- Social Capital
- Innovation
- Overlap in Governance
- Ecosystem Services

## Ecological




- Diversity
- Modularity
- Tight Feedbacks

- Ecological Variability
- Acknowledging Slow Variables



# Casco Bay - Historic Fish Passage



Historic Habitats		Presumpscot	Royal	Total
	Alewife (acres)	31,597	460	32,313
	Blueback Herring & American Shad (miles)	27.5	62.3	89.8
	Sea-Run Rainbow Smelt (sites)	2	2	41

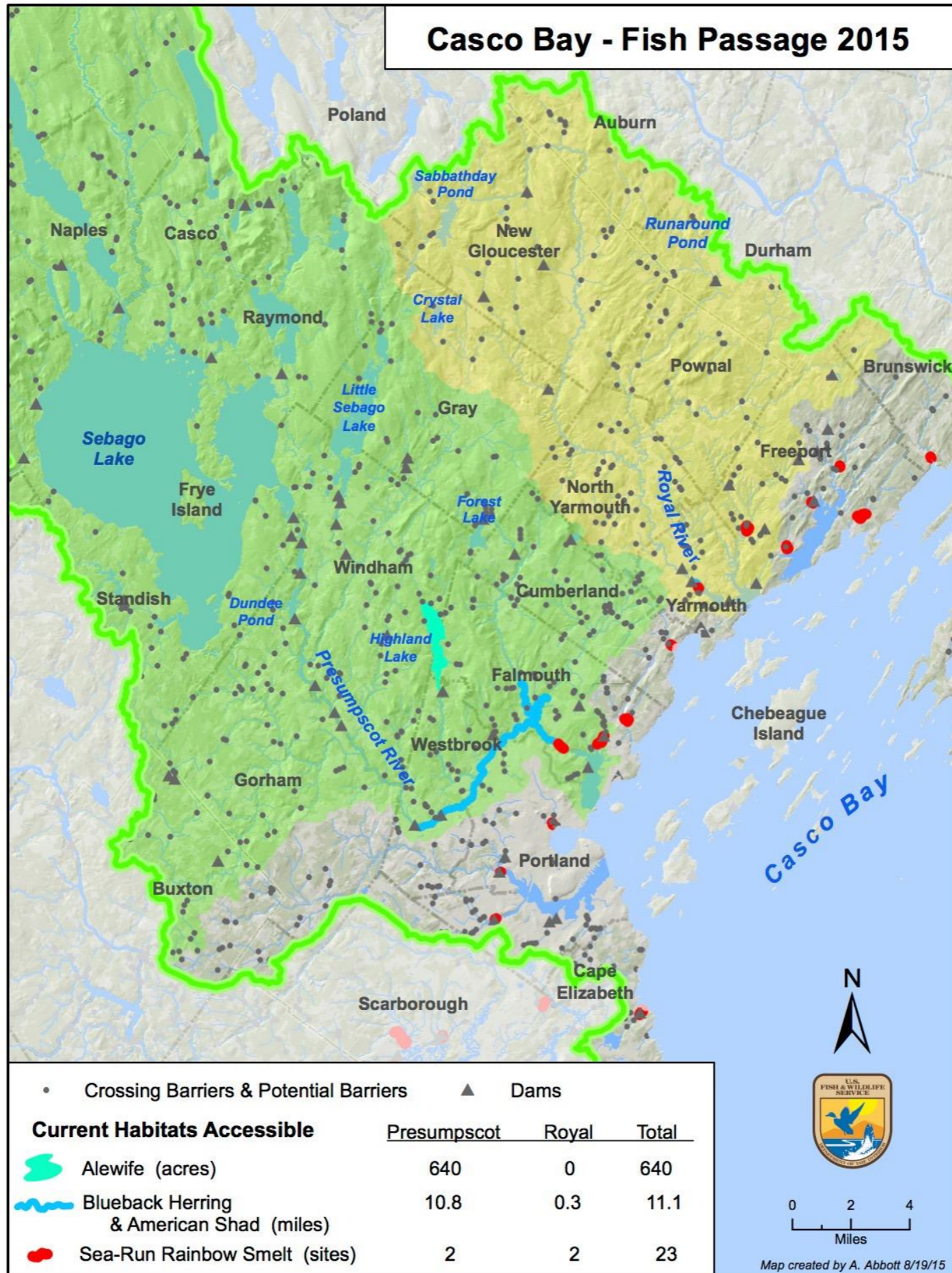
N



0 2 4  
Miles

Map created by A. Abbott 8/18/15

# Casco Bay - Fish Passage 2015





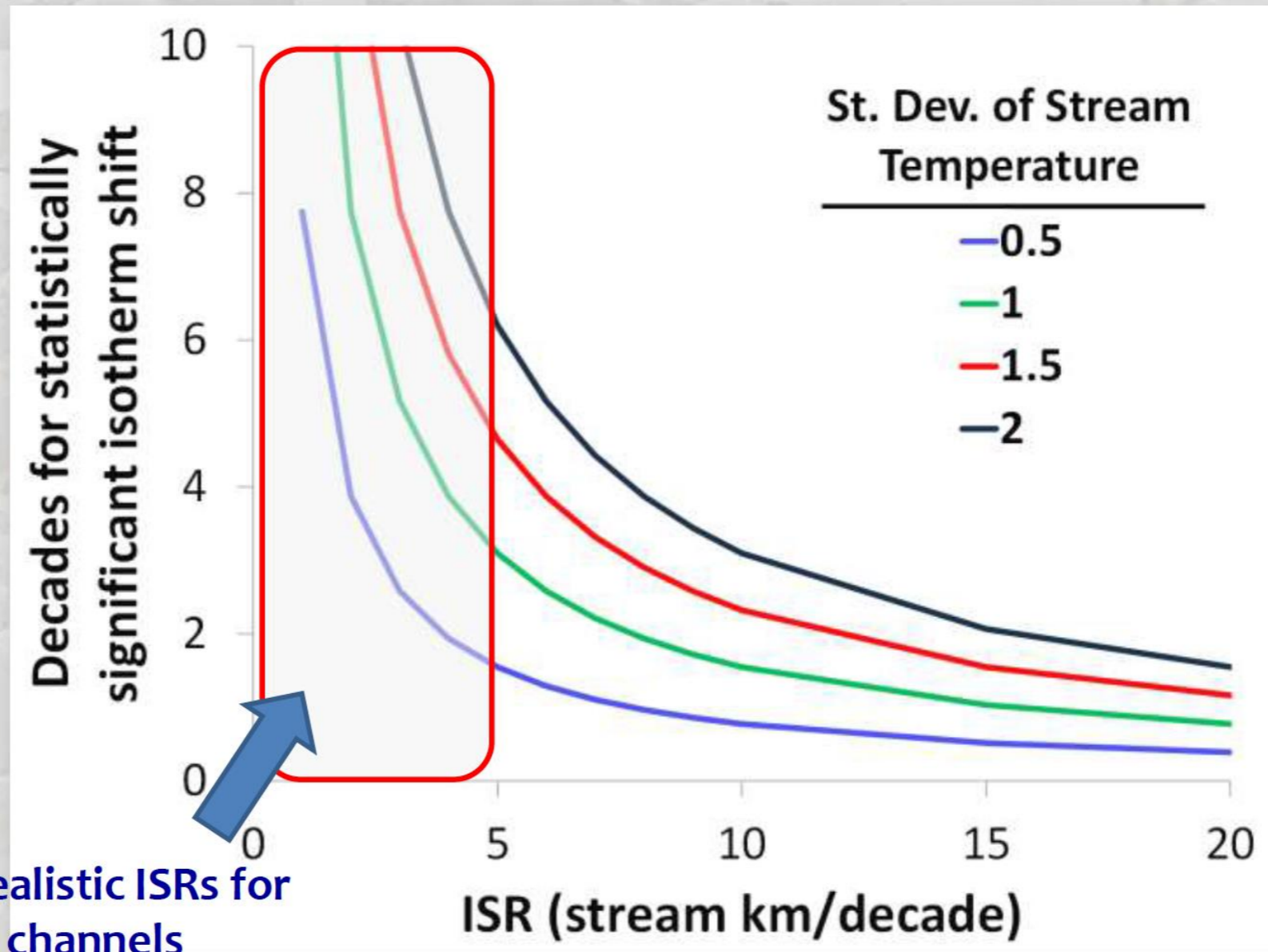
**Diversity**



**Ecological variability**

# Changes Will Happen Slowly

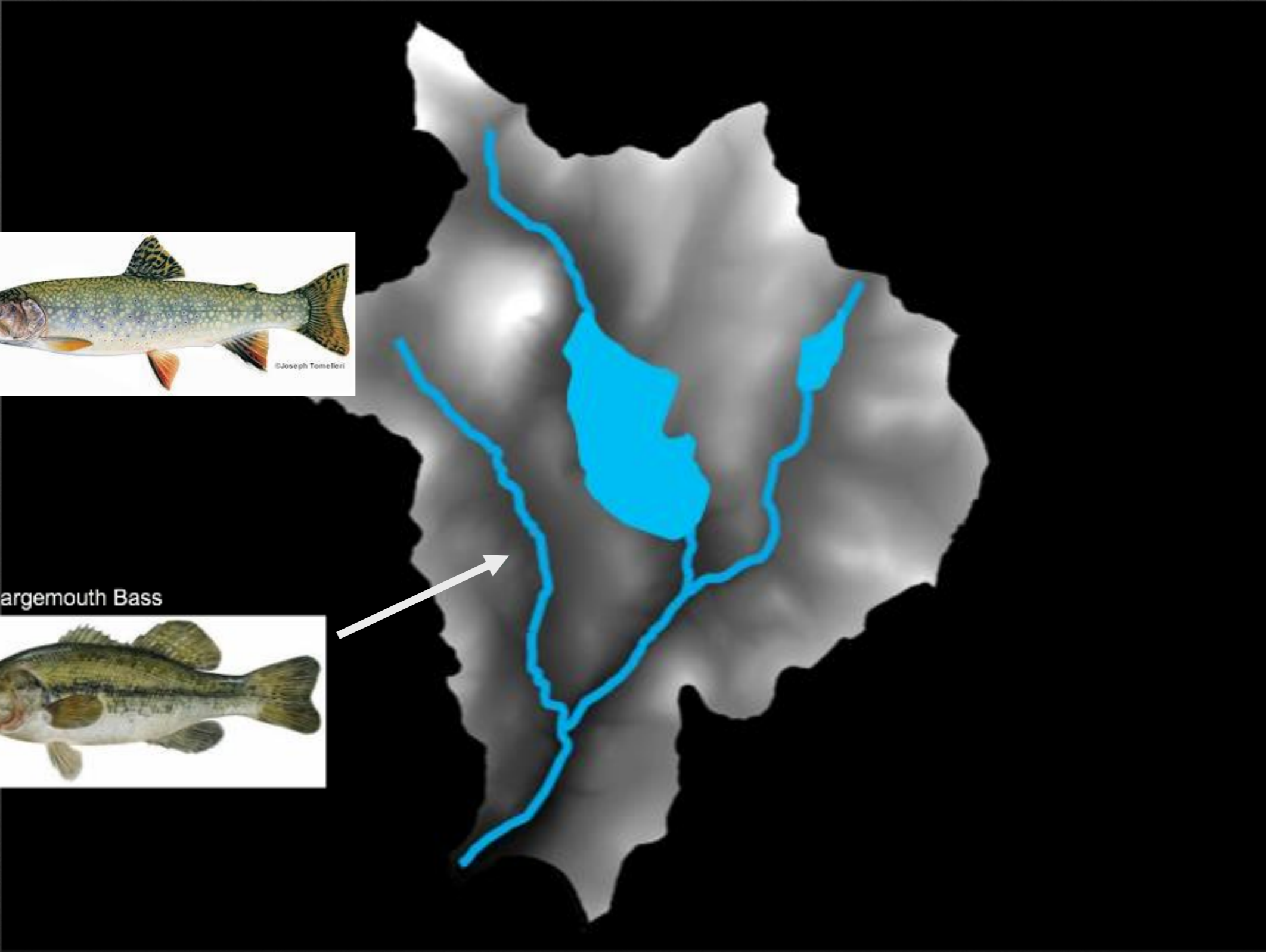
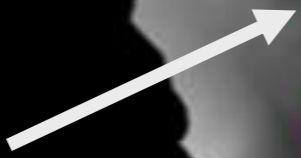
20 – 60 years for significant isotherm shifts



Realistic ISRs for 1% channels

Isaak & Rieman. 2013. *Global Change Biology* 19:742-751.

# Slow variables



# Modularity



MAINE RIVERS

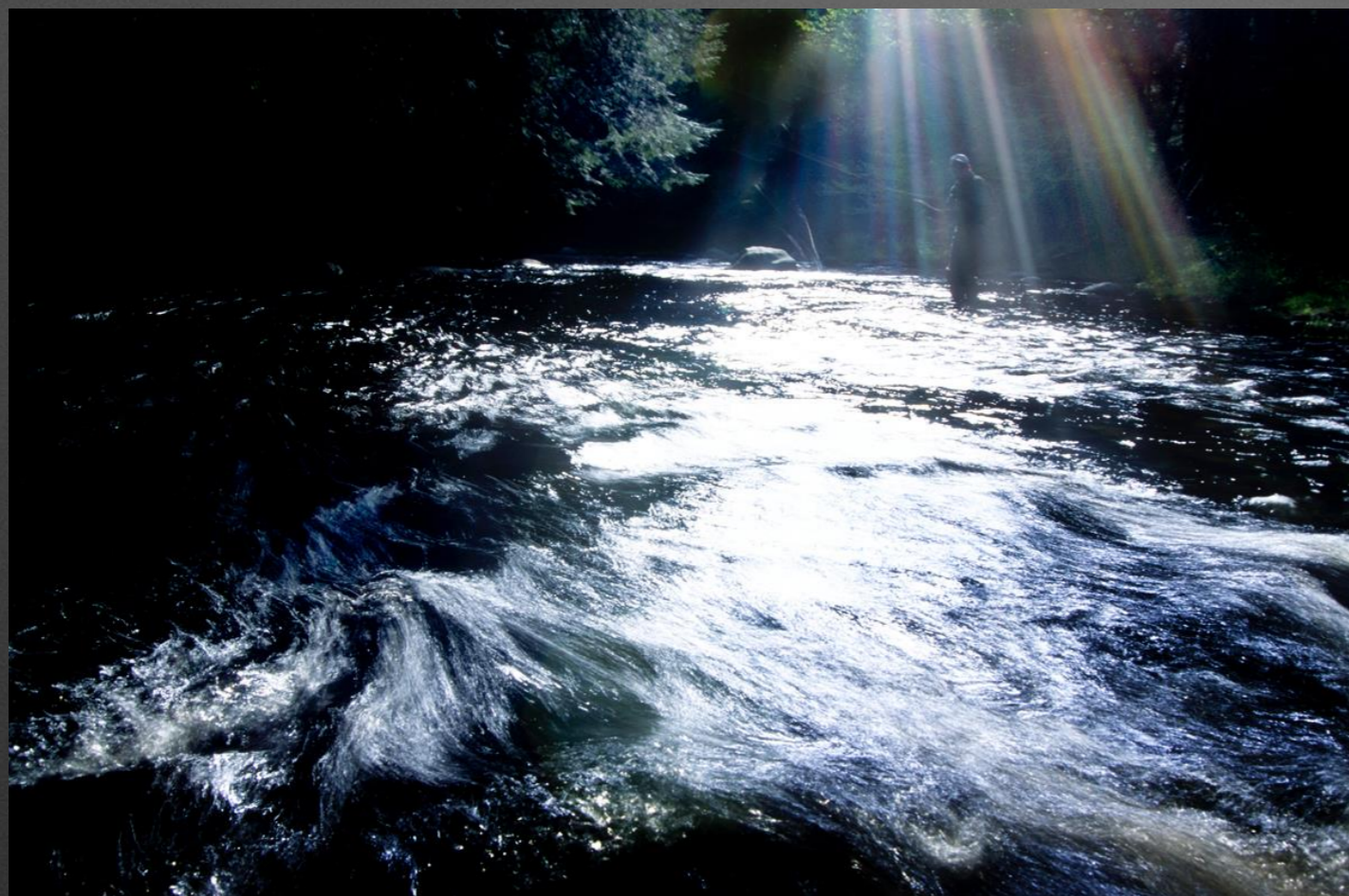


Overlap in governance



**Social capital**





# Ecosystem Services



**Innovation**

# River corridor management

- Identify, protect and restore, river processes that promote long term river equilibrium (stability) and sustain quality habitat
- Stream geomorphic assessments



**How do you building resiliency in a landscape where linkages between social and ecological systems are weak?**