Climate Change and Fisheries Challenges

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Knightia

✳ State fossil from Eocene, 40-50 million years ago, warm tropical climate

Bonneville Cutthroat Trout

* State fish, historic Lake Bonneville dried approximately 8,000 years ago, inhabits remnant tributaries

La Gory

Fisheries Management Setting: Past, Present & Future

- Stability over entire span of modern fisheries management
- Now changing environment, accelerating rate of change and uncertainty
- Requires different approaches
  - Historic use of past to predict the future
  - New predictive models needed
  - Adaptive management approach
    - Data & monitoring intensive

Climate Change Models

- Predictions at global and hemisphere level
- Lacking at level needed to manage fisheries resources
  - Regional & local models needed
    - Two types: climate change predictions & system/species responses
    - Data lacking
    - Adaptive
    - Beyond any single entity
    - High level of coordination & communication

Fisheries Concerns

✴ Arid systems, high latitudes, high elevations highly vulnerable

✴ Change in species – winners & losers, species shift north, mountaintop islands

✴ Persistence of native and favored sport fish

✴ Connectivity – vulnerability of isolated, fragmented populations

✴ Asynchrony in aquatic systems

What can we do?

✳ Healthy systems more resilient – maintain

✳ Stressors impair resiliency – minimize stressors & recognize that aquatic systems have been highly altered

✳ Reduce/eliminate stressors and improve habitats

 ◆ Strategic habitat approach – limiting factors & scale

✳ Current species conservation approaches

 ◆ More intensive, strategic, adaptive management

Climate Change and Resource Management

✳ Mitigation – focuses on *causes* – emissions, carbon footprint

✳ Adaptation – focuses on *coping* with effects of climate change

✳ Adaptive management

  ◆ Data and monitoring intensive