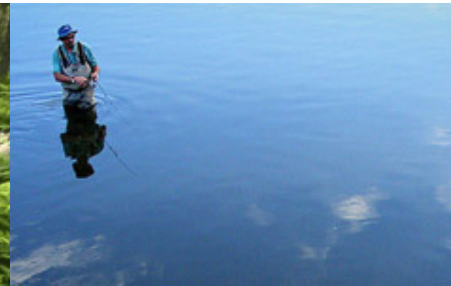




NATIONAL *fish, wildlife & plants*
CLIMATE ADAPTATION STRATEGY

*Shared solutions to
protect shared values*



Photos: Chase Fountain, James Jordan, George Andrejko

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CLIMATE ADAPTATION STRATEGY

*A joint effort among Federal, State and Tribal governments
to safeguard living resources in a changing climate*

www.wildlifeadaptationstrategy.gov



- Congress called for development of “a national, government-wide strategy to address climate impacts on fish, wildlife, plants and associated ecological processes”
- **Administration** made this a key deliverable under the ICCATF.
- **FWS, NOAA and State of New York** co-chair the intergovernmental Steering Committee (16 Federal agencies, 5 States, 2 Tribal associations). NOAA co-leads management team.
- **Purpose:** Inspire and enable natural resource professionals and other decision-makers to take action to safeguard fish, wildlife and plant resources and the human uses, values and benefits they provide in a changing climate.



What is Adaptation to Climate Change?

- “Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.” (IPCC 4AR)
- Anticipatory or Reactionary
- Resistance, Resilience, Transformation





What is the NFWPCA Strategy?

A BLUE-PRINT FOR COORDINATED ACTION BY MULTIPLE PARTNERS to reduce risks and impacts of climate change on U.S. natural resources:

- *Unified approaches* at multiple scales
- *Engage and empower* multiple sectors
- *Inspire and enable* decision makers
- *Effective action* to conserve the nation's fish, wildlife, plants, and ecosystem functions in a changing climate.



Why is this important?

- **First** nation-wide adaptation strategy.
- **Mandates** from congress and Admin.
- **Support** from stakeholders.
- **Unique** collaboration - Federal, State, Tribal.
- **Shape** future directions.
- **Defend** existing efforts, goals.
- **Build** new efforts, partnerships.
- **Complements** NOAA National Ocean Policy priorities (**Resiliency and Adaptation Strategic Action Plan**).
- **Shape** NOAA and other agency adaptation plans
- **Demonstrate** Leadership to safeguard natural resources in changing climate

Why is this important to NOAA?

CLIMATE CHANGE IMPACTS

- **Ocean warming:** impacts on physical features, productivity, species distribution & phenology.
- **Loss of sea ice:** impacts on living marine resources at both poles.
- **Sea level rise:** direct and indirect impacts on coastal habitats.
- **Ocean acidification:** impacts on marine biota
- **Precipitation Changes:** impacts on freshwater supply & nat resources
- **Attribution of signals:** long term change vs. natural variability

IMPLICATIONS

- Changes in **food chains**
- Changes in **habitats**
- Changes in **fish stocks**
- Changes in **fisheries**
- Impacts on **communities and economies**
- Changes in **protected species**
- Threats to **vulnerable species**
- Increased **invasive species** threats

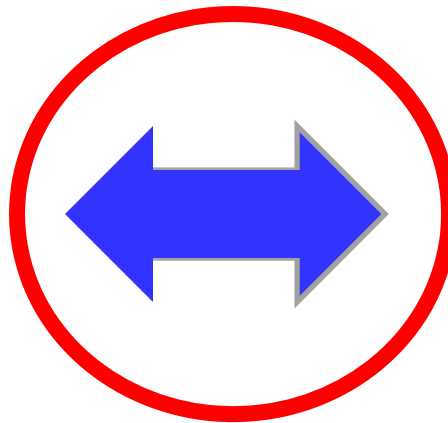
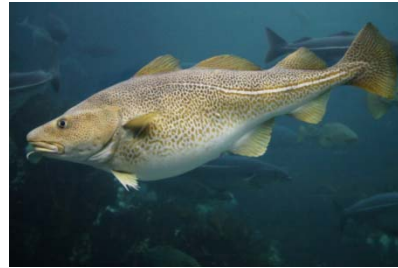
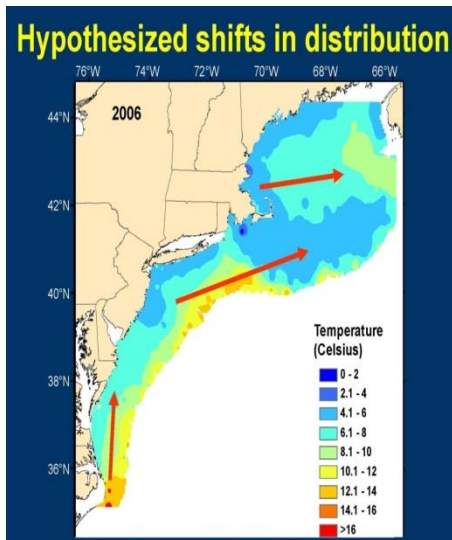
Many Unknowns...

(Direction, pace, magnitude of change?

Interactions? Responses?)



Climate Ready Fisheries Management?



Ecosystem/environment
Sub-regional scales
Decadal scales



Stock Assessment Models

Fish and fishing
Regional spatial scale
Short temporal scales

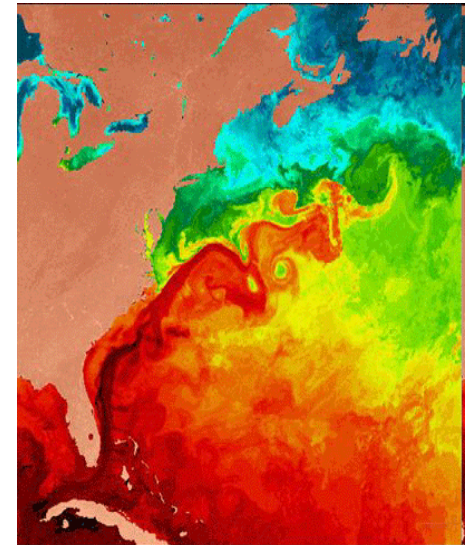


General Climate Circulation Models

Physical environment
Large spatial scale
Long temporal scales



Chemistry and biology
Regional scales
Decadal scales





Progress and Schedule

2010 (extensive input)

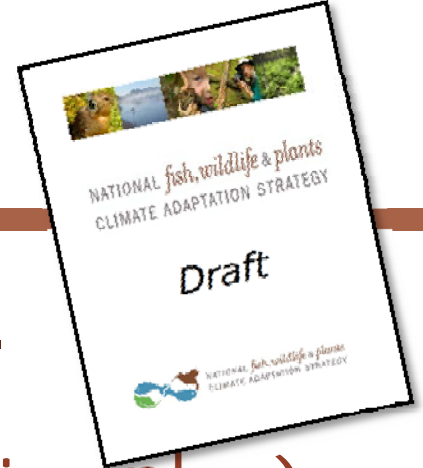
- Expert and public input sessions

2011 (drafting)

- Establish Steering Committee, Mngmt Team
- Establish ecosystem-based drafting teams
- Draft chapters
- Draft Strategy (Sept)
- **Interagency review (Nov)**

2012 (public input, complete Strategy)

- Public review (Jan-Feb)
- Final Strategy (June)



Strategy Contents

1. Introduction (purpose, goal, principles)
2. Impacts of Climate Change on FWPs
3. Adaptation Strategies and Actions
 - Goals 1-7
 - Strategies & Actions
4. Crosscutting Strategies
5. Implementation
6. Ecosystem-specific appendices

7 Goals
21 strategies
151 actions
20 Case studies
8 Ecosystem apps



7 Goals

1. ***Conserve adequate habitat*** to support healthy fish, wildlife and plant populations and ecosystem functions in a changing climate.
2. ***Manage species and habitats*** to protect ecosystem function and provide sustainable cultural, subsistence, recreational, and commercial use
3. ***Enhance capacity for effective management***
4. ***Build coordinated observation, information management, and decision-support systems that facilitate adaptive management....***
5. ***Increase knowledge and information on impacts and responses*** of fish, wildlife and plants to a changing climate.
6. ***Increase awareness and motivate action*** to safeguard fish, wildlife and plants in a changing climate.
7. ***Reduce impacts of non-climate stressors to reduce vulnerability***



Timeline and Opportunity

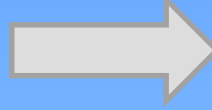
- Intergovernmental review (Nov 2011)
- Public review period (Jan - Feb 2012)
- Final intergovt review (April 2012)
- Final Strategy (June 2012)

Growing National Adaptation Framework

Ocean Acidif.

- research & monitoring
- federal agencies
- partners

2011

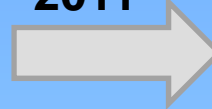


**Federal Research and
Monitoring on Ocean
Acidification**

Fresh Water

- science to mgmt
- federal agencies
- partners

2011



**Priorities for Managing
Freshwater Resources in a
Changing Climate**

Growing National Adaptation Framework

Ocean Acidific. Strategy

- research & monitoring
- federal agencies
- partners

2011



Federal Research and Monitoring on Ocean Acidification

Freshwater Adaptation Plan

- science to mgmt
- federal agencies
- partners

2011



Priorities for Managing Freshwater Resources in a Changing Climate

National Ocean Policy Strategies

- science to mgmt
- federal agencies
- partners

2012

Resiliency and Adaptation to Climate Change and Ocean Acidification

Fish Wildlife Plant Adapt Strategy

- science to mgmt
- federal, state, tribal
- partners

2012



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<http://www.wildlifeadaptationstrategy.gov/>

NOAA Adaptation Plan

- science to mgmt
- agency specific

2012



National Climate Assessmt

- assess impacts & needs
- multi-sector (marine)
- intergovernmental

2013

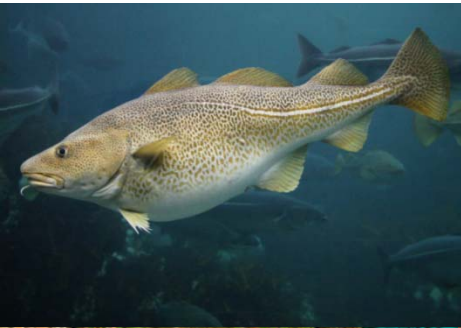


United States Global Change Research Program
National Climate Assessment

<http://www.globalchange.gov/>



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Photos: Chuck Olsen, Tom Woodward, Jane Pellicciotto, Lynette Schimming

Common solutions to protect
common values

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