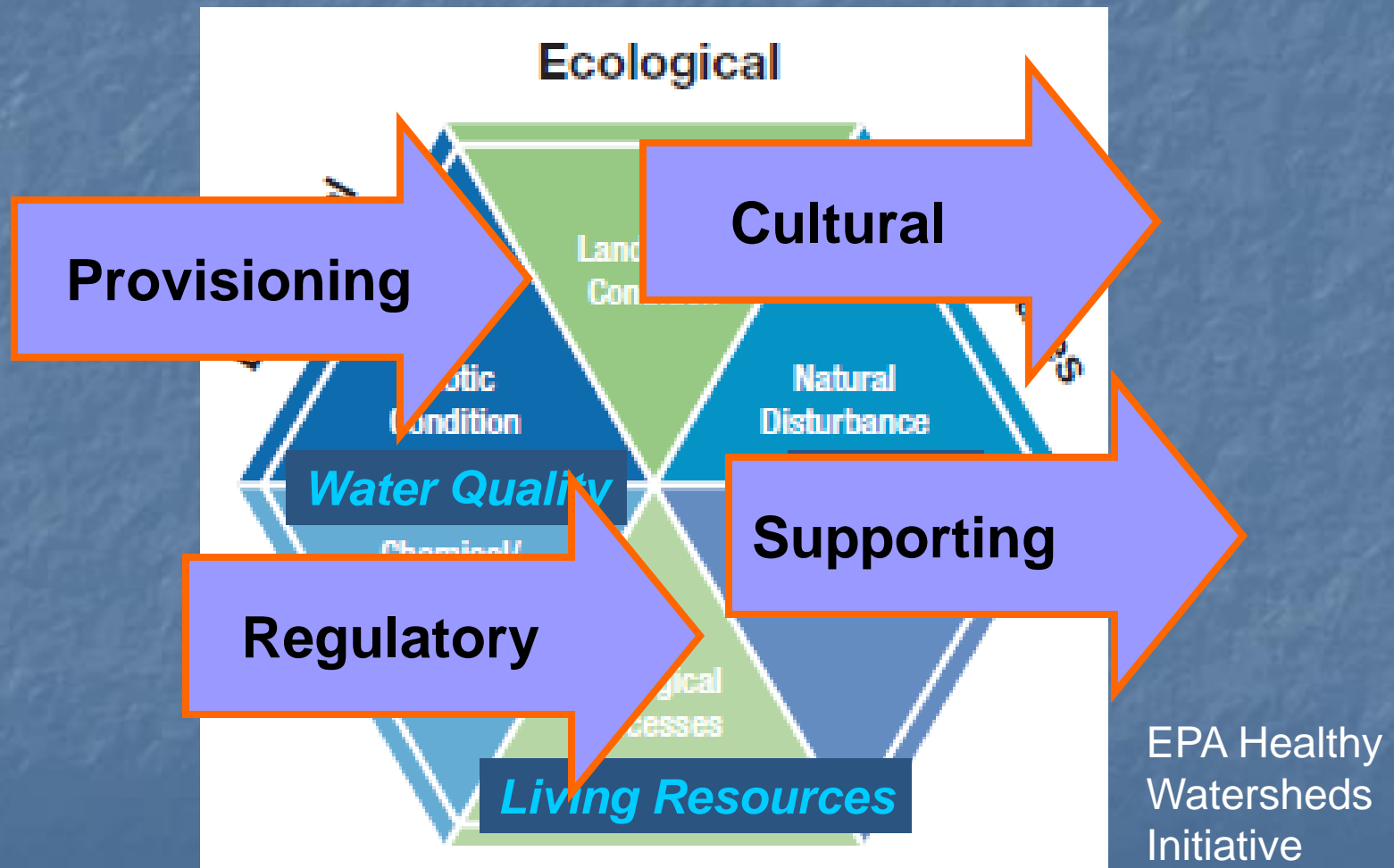


PANEL: Ecosystems and Resources at Risk from a Changing Climate

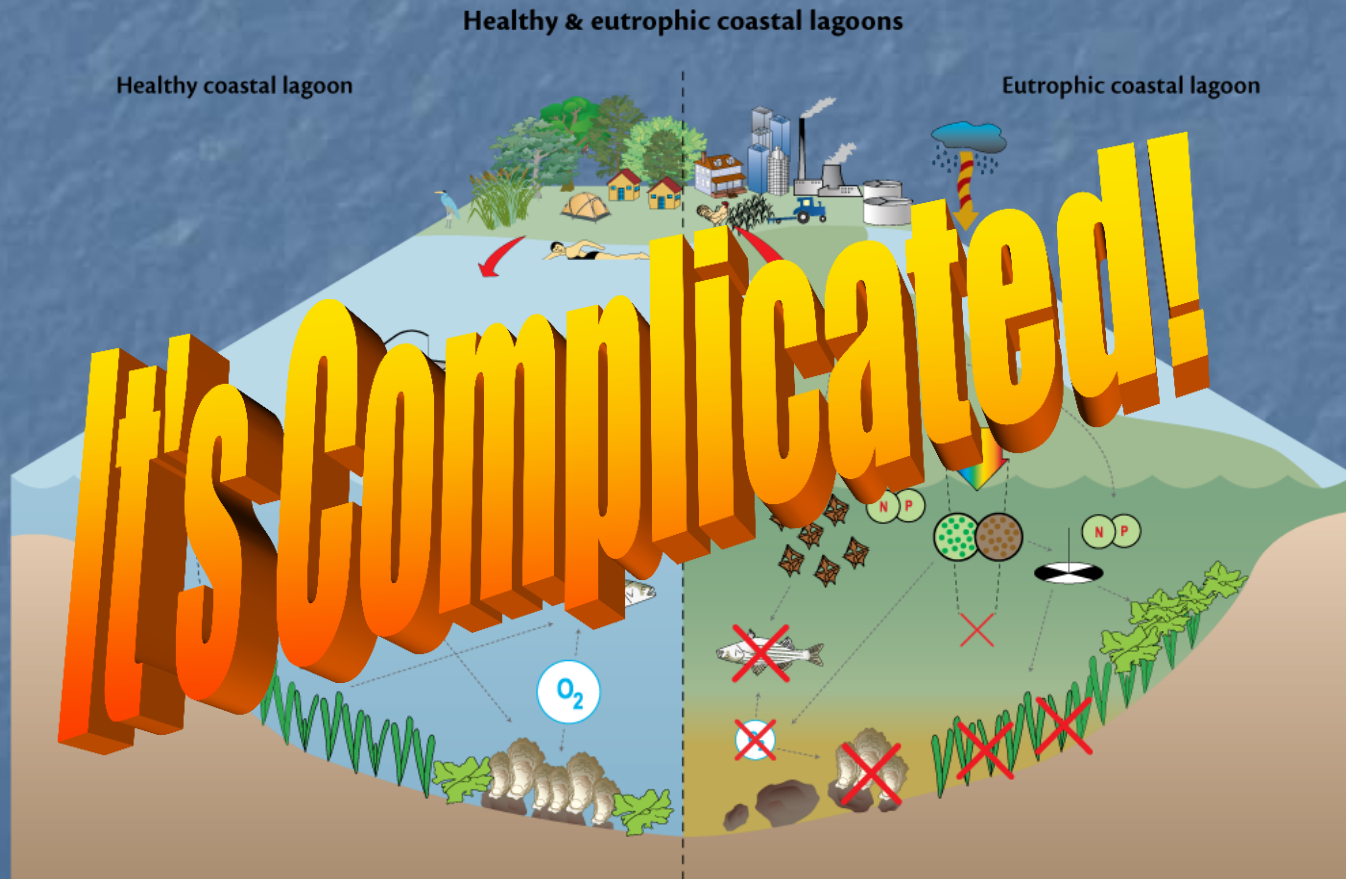


Natural Resources: Risks and Priorities for Great Bay



Resource Management Challenge:

- Balancing Ecosystem Integrity with Human Demands for Ecosystem Services



It's all about the Watershed

- GOAL: Preserve and Restore Natural Watershed Features and Functions to Build **RESILIENCE**
- Universal Benefits:
 - Water Quantity
 - Water Quality
 - Essential Habitat
 - Fish and Wildlife
 - Sustainable Ecosystem Services

Same Management Actions – A Matter of “Degree”

- Climate Change Effects on Ecosystems are not Unfamiliar to Resource Managers
- Degree of Impact Increases
- Climate Change is Managed from the Same Toolbox
- Climate Change Stressors Further Consume Ecosystem Services & Watershed Resilience
- Needs:
 - Improved Predictive Skills
 - Improved Management Skills
 - Rethinking of Goals and Outcomes for Ecosystems

The Panelists

- Brandon Kernen, NH DES – Drinking Water
- Emily Brunkhurst, NH F&G – Fish & Wildlife
- Rachel Stevens, GBNERR – Invasive Species

Providing Safe Drinking Water in a Changing Climate

Brandon Kernen

Drinking Water and Groundwater Bureau
NH Department of Environmental Services

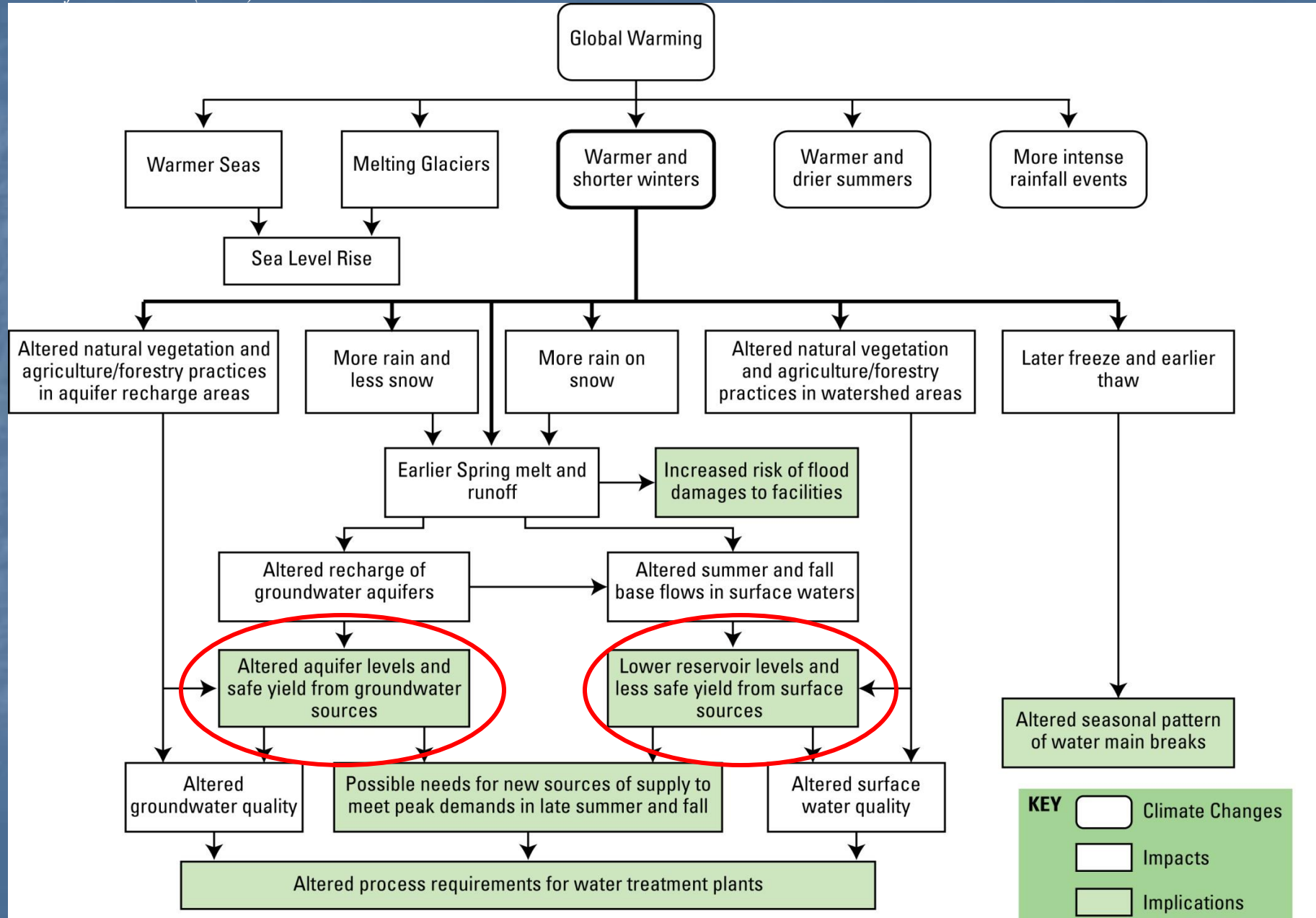
Areas of Concern for Drinking Water Safety



- Increased Treatment Requirements
 - Declining water quality: microbial, disinfection by-products, turbidity, algal blooms, etc
 - New Contamination...GWUDI, washed out septs, stored hazards, etc
- Increased Energy Use
- Reduced Source Availability
 - Less recharge, earlier runoff, longer growing season, sedimentation of reservoirs, salt water intrusion, etc
 - Competition for in-stream flow
- Impacts to Infrastructure - Flooding and Erosion
 - More service disruptions, emergency response and recovery
 - Boil Water Advisories

Impacts and Implications of Warmer and Shorter Winters for Water Supply

Derived from: AMWA (2008)



**\$300-600
Billion by 2050**

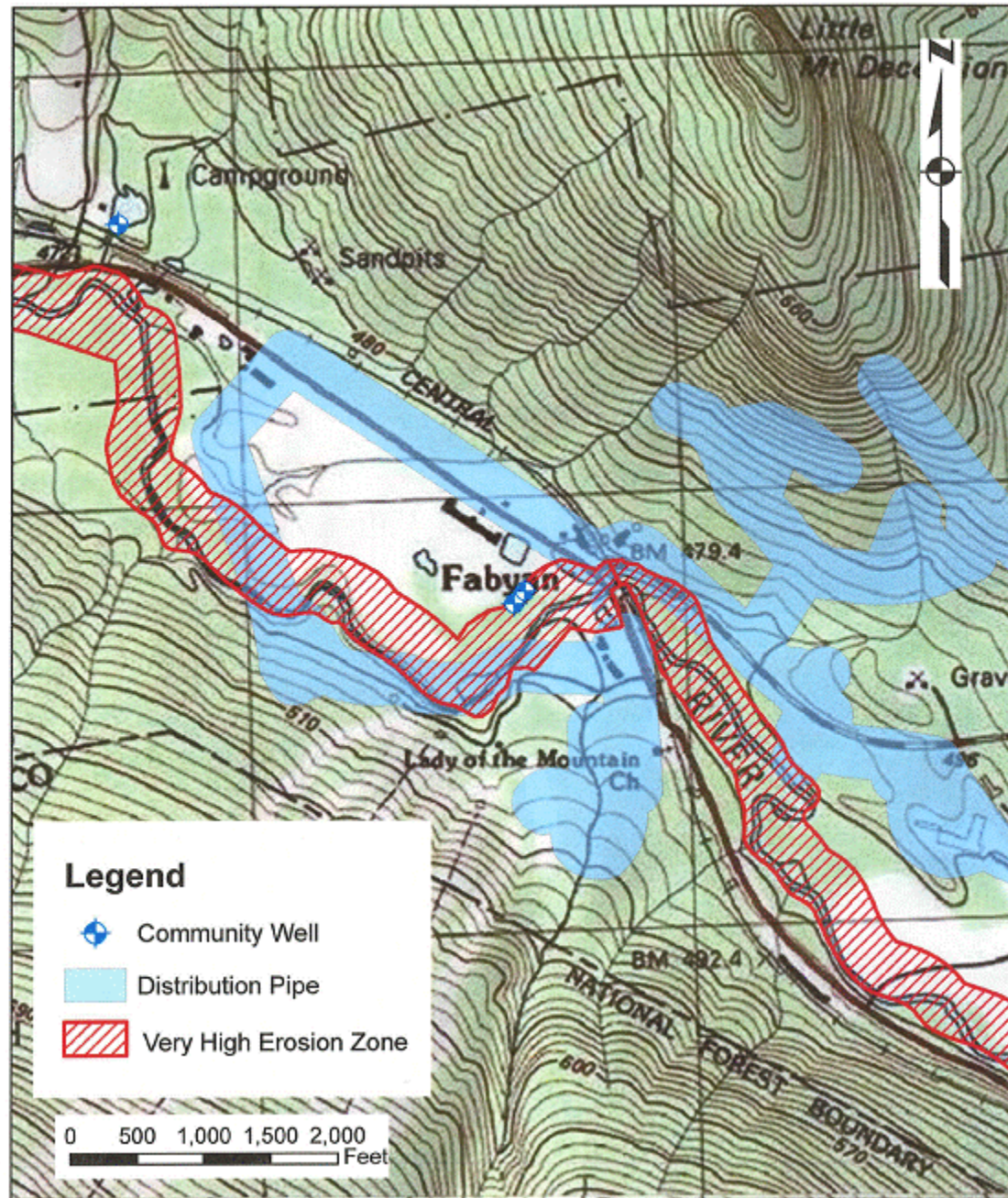


2011 Coastal New Hampshire Climate Summit

DES Roles and Actions

- **Promote water sector preparedness**
- **Anticipated impact and actions matrix**
- **Link water suppliers with \$**
 - preparedness and response
- **Communicate needs to FEMA, etc**
- **Support monitoring networks**
- **Water sector energy efficiency guidance**
- **Drought Plan update**
- **Flood survey and grant assistance outreach**
- **Lamprey River Watershed – PWS facility accurate GPS location and flood map update**
- **Geofluvial erosion hazard analysis**

Rosebrook Water

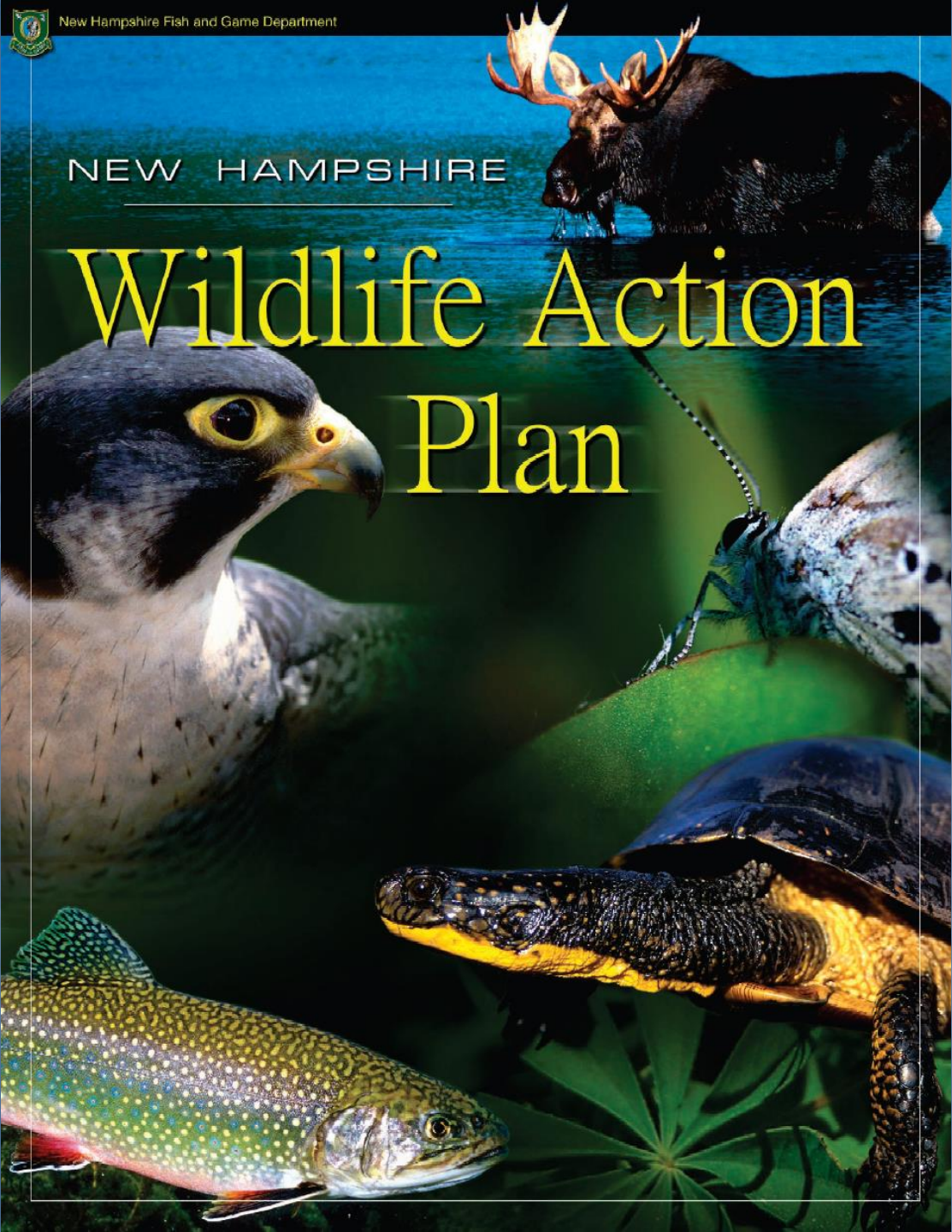


Ecosystems and Wildlife Climate Adaptation Plan



**And many conservation
partners!**

**Emily Brunkhurst
Wildlife Biologist**





Wildlife Action Plan

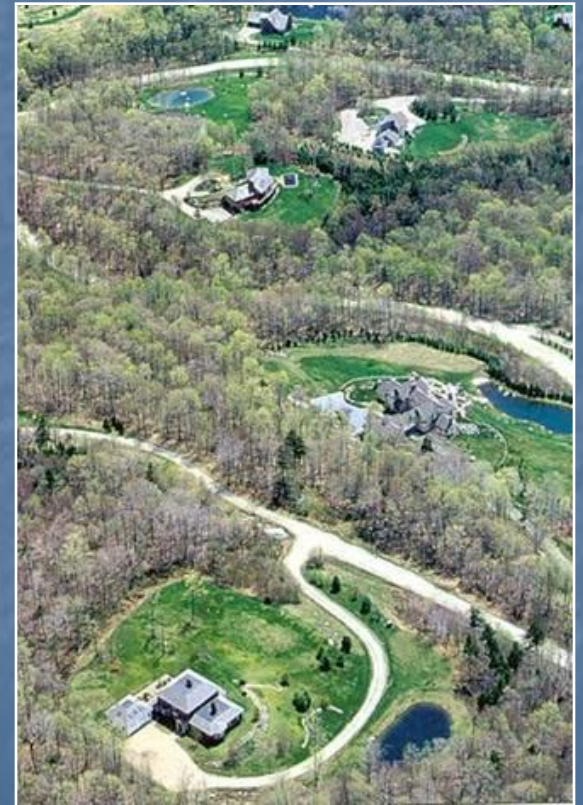


1. Identifies species and habitats at risk.
2. Assesses threats to their continued existence.
3. Offers strategies to address those needs statewide.



Threats: The Big Five

- Habitat loss (degradation, conversion & fragmentation)
- Impacts of roads
- Invasive exotic species
- Pollution and sedimentation
- **Climate change**



Ecosystems and Wildlife Climate Adaptation Plan

Amendment to NH
Wildlife Action Plan



Adaptation Plan as
part of NH Climate
Action Plan

Vulnerability Assessments

- Experts meet to discuss vulnerability of habitats to Climate stressors.
- Species incorporated into habitat assessments.
- Identifies the issues.



Next Meeting: January on Coastal Habitats

Strategy Compilation

- Develop strategies to assist habitats to address those vulnerabilities.
- Need scientists, policy makers, decision makers, planners, and others to provide input.



Meetings in January and February
(Coastal in February)

Using This Information

- Since intact ecosystems will help mitigate effects of climate change, we need to consider wildlife and ecosystems as well as human impacts to climate change.
- Specific strategies will include ways we can help and ways we can avoid making things worse.

