Climate Change and the National Water Program: Tribal Consultation

Part 3

U.S. Environmental Protection Agency
Region IX

November, 2010

Part 3

Consultation

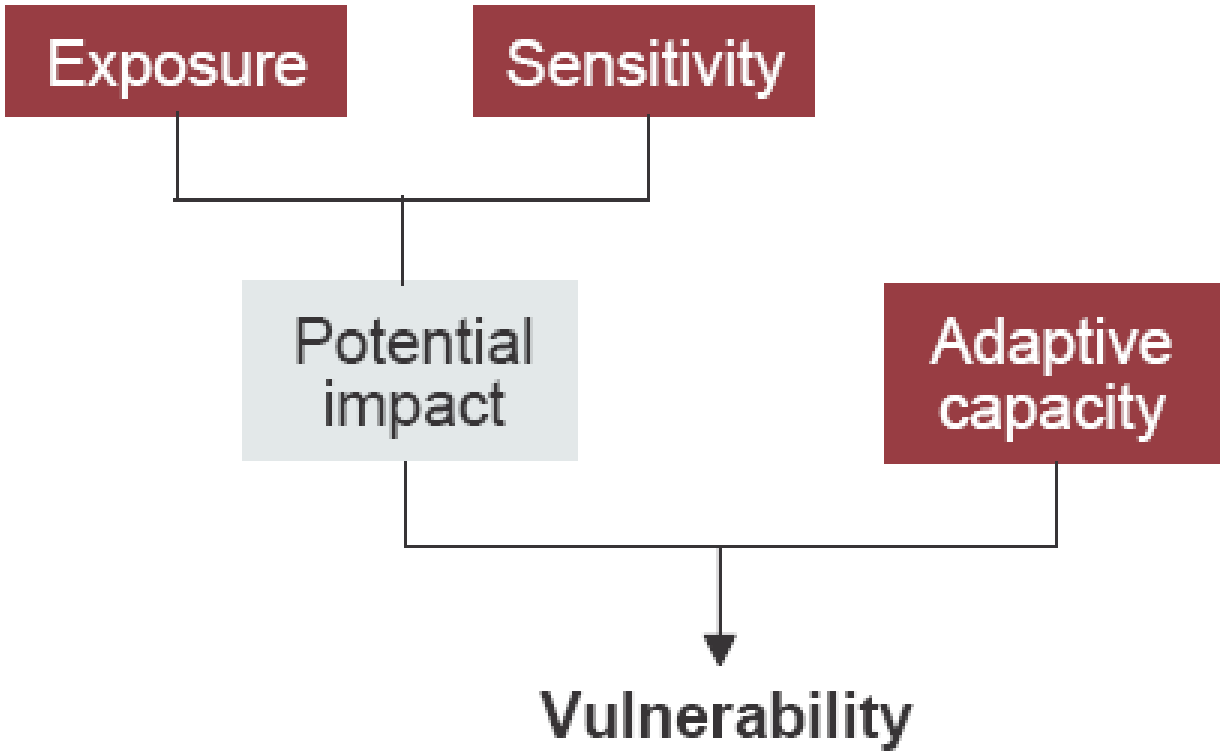
Overview

- Summary of potential climate impacts for Tribes
- Revising the National Water Program Climate Strategy
- Discussion

Components of Vulnerability

Figure 1.1

VULNERABILITY AND ITS COMPONENTS



Source: Adapted from D. Schroter and the ATEAM consortium 2004, *Global change vulnerability — assessing the European human–environment system*, Potsdam Institute for Climate Impact Research.

The Need for Adaptation and Resilience

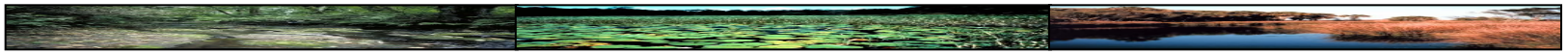
- Adaptation: the adjustment in natural or human systems to a new or changing environment that exploits beneficial opportunities or moderates negative effects.

- Resilience: a capability to anticipate, prepare for, respond to, and recover from significant multi-hazard threats with minimum damage to social well-being, the economy, and the environment.

- *"Even the most stringent mitigation efforts cannot avoid further impacts of climate change in the next few decades, making adaptation unavoidable."*

IPCC, Working Group II, 2007

Selected Impacts Relevant to Tribes



The most vulnerable industries, settlements and societies are:

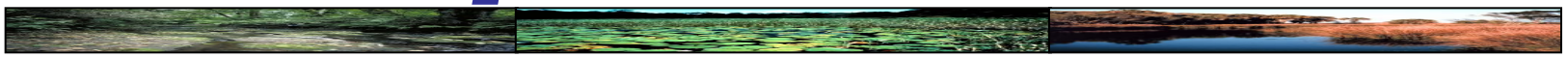
- in coastal and river flood plains
- with economies closely linked to climate sensitive resources
- in areas prone to extreme weather events.

IPCC WG2 SPM, 2007, http://www.ipcc-wg2.org/

- Climate change poses threats to traditional knowledge and culture due to shifts and disruptions to the habitat of culturally important species.

Climate Change and Pacific Rim Indigenous Nations, 2006 from the Northwest Indian Applied Research Institute

Selected Impacts Relevant to Tribes



- Ecosystem structure and function

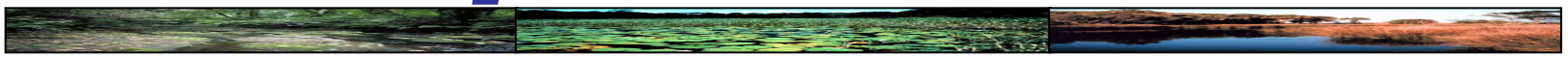
  – Ecosystem processes, such as those that control growth and decomposition, have already been affected

  – Large-scale shifts have occurred in the ranges of species and the timing of the seasons and animal migration, and are very likely to continue.

  – Fires, insect pests, disease pathogens, and invasive weed species have increased, and these trends are likely to continue.

  – Deserts and dry lands are likely to become hotter and drier, feeding a self-reinforcing cycle of invasive plants, fire, and erosion.

Selected Impacts Relevant to Tribes



- Ecosystem structure and function (continued)

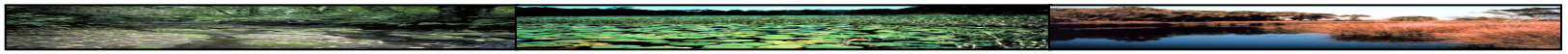
  – Coastal and near-shore ecosystems are already under multiple stresses. Climate change and ocean acidification will exacerbate these stresses.

  – Arctic sea ice ecosystems are already being adversely affected by the loss of summer sea ice and further changes are expected.

  – The habitats of some mountain species and coldwater fish, such as salmon and trout, are very likely to contract in response to warming.

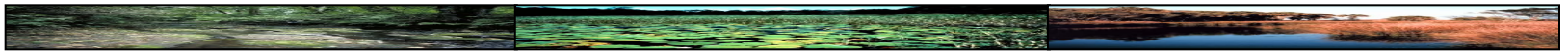
  – Some of the benefits ecosystems provide will be threatened, while others will be enhanced.

Selected Impacts Relevant to Tribes



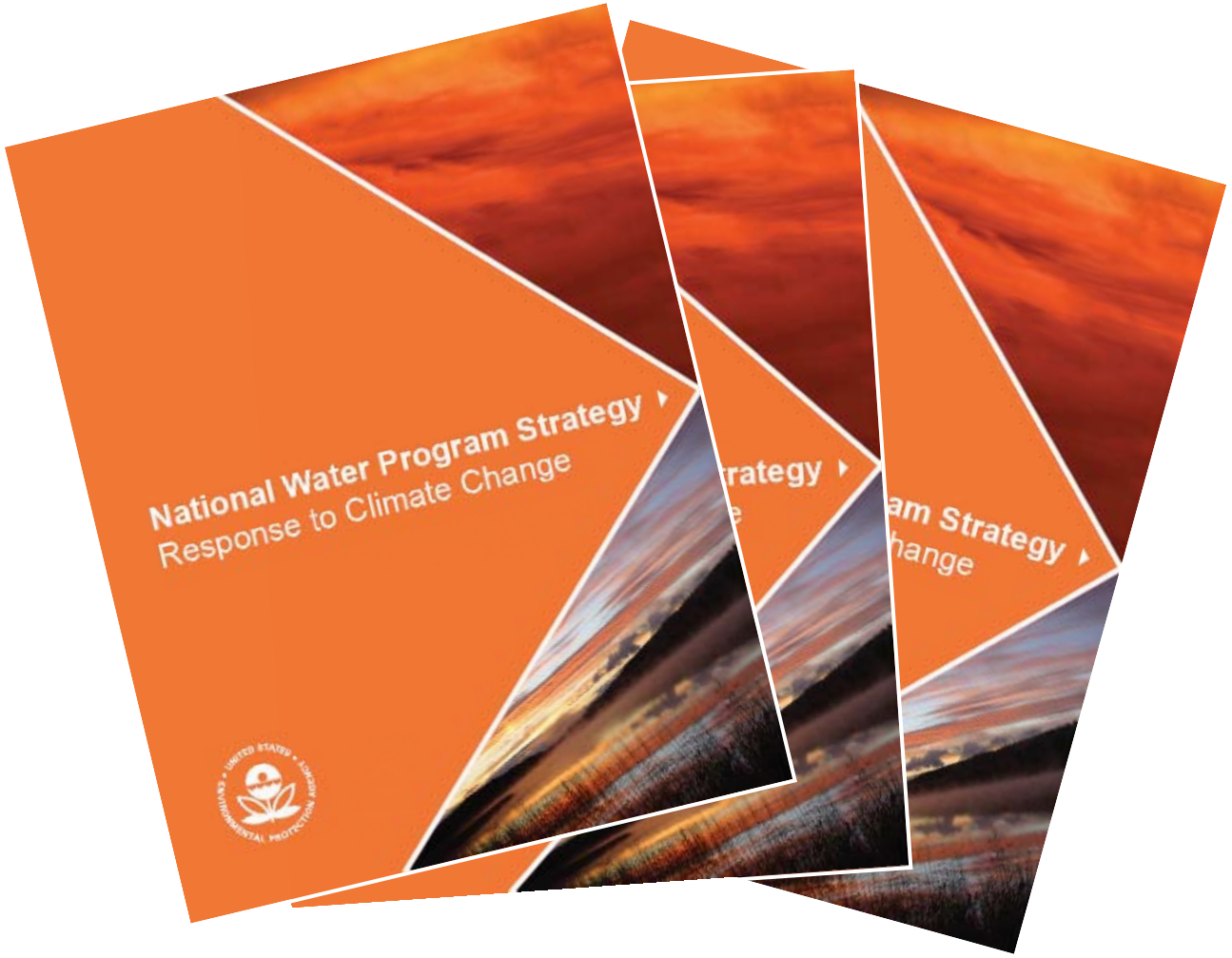
- Traditional ways of collecting and sharing food
  - Tribes face losing their current livelihoods, their communities, and in some cases, their culture.
- Southwestern cultures
  - particularly vulnerable to impacts on water quality and availability
- Alaska
  - Over 100 villages on the coast and in low-lying areas along rivers are subject to increased flooding and erosion
- Native Americans on established reservations
  - have limited relocation options

Selected Impacts Relevant to Tribes



- Arctic indigenous communities
  - Despite their historical resilience, some traditional ways of life are being threatened
  - Substantial investments are needed to adapt or re-locate physical structures and communities. ***
- Warming in western mountains
  - projected to cause decreased snowpack, more winter flooding, and reduced summer flows, exacerbating competition for over-allocated water resources. ***
- Health
  - . . . will be affected due to Extreme events, higher concentrations of ground level ozone, and altered spatial distribution of some infectious disease vectors. **

National Water Program Strategy: Response to Climate Change



http://water.epa.gov/scitech/climatechange/

NWP Climate Strategy: 2012 and beyond

- Goals of the Revised Strategy
  - Adopt a long-term vision of where the NWP needs to be in order to remain effective in light of a changing hydrology
  - Identify the large 'building blocks' we need to put in place in the next 3-8 years to achieve the long term goals.
  - Set the NWP Strategy in a broader context within EPA-wide efforts, and federal government-wide efforts
  - Incorporate climate change considerations in base programs
  - Place more emphasis on Regional strategies ('impacts are local, adaptation is local')
  - Build in flexibility; ensure transparency, accountability and results

Climate Strategy: 2012 and beyond

- Engagement and Dialogue
  - Formed State-Tribal Climate Change Council - members from associations of co-regulators:
    - ASIWPCA (water quality)
    - ASDWA (drinking water)
    - ASWM (wetlands)
    - GWPC (groundwater)
    - NTWC (tribal)
  - Discussions with broad range of stakeholders
    - Utility Associations (AWWA, AMWA, etc.)
    - Enviro Groups (Clean Water Network)
    - Other EPA Offices
    - Federal Agencies (USGS, ACoE, NOAA, DOE, USDA, CDC, etc)
  - Tribal Outreach and Consultation

Climate Strategy: 2012 and beyond

- Process
  - April 2010 - Workgroup Retreat #1
  - Fall 2010 - Interviews and consultations with stakeholders and partners
  - January 2010 - Workgroup Retreat #2
  - Spring 2011 - Internal Review Draft
  - Summer 2011 - Public Comment Draft
  - **Oct. 2011 - Final**

Discussion

- What changes have you observed?
- How might these changes affect your tribe, specifically?
- What might resilience or adaption look like for your tribe?
- What should EPA in general and OW in particular seek to accomplish to help your tribe, and tribes in general, build resilience and adapt?
  - Considering EPA's and the Office of Water's responsibilities and statutory mission
- What building blocks need to be put in place in the next 3-8 years in order to achieve this?

Discussion

- How might EPA work with TEK? (Tribal Ecological Knowledge?)
- What information, analysis, evaluation or outreach is needed?
- What EPA or Federal government partnerships are particularly important to address climate change adaptation and mitigation?
- Summary:
  - What are the main points to include in the NWP climate strategy?
  - Are there any topics that were not covered that we should consider?

For More Information

EPA Office of Water
http://water.epa.gov/scitech/climatechange

EPA Climate Change Program
http://www.epa.gov/climatechange/

U.S. Global Change Research Program
http://www.globalchange.gov/

NOAA Climate Service
http://www.climate.gov

Thank you!