

Focus On:

Preparing for Impacts

Overview of the Initial Report from the Preparation and Adaptation Working Groups

Washington's climate is changing, and the impacts of the expected changes could be profound. Although our state is working to significantly reduce its contributions to climate change, some changes can't (or won't) be prevented. That's why Governor Gregoire committed the state to preparing for and adapting to the impacts of climate change, as part of Washington's Climate Change Challenge (Executive Order 07-02).

The Governor tasked the directors of the Departments of Ecology and Community, Trade and Economic Development with determining specific steps the state should take to get ready for climate change impacts to five sectors of Washington life: public health, agriculture, coastline and infrastructure, forestry, and water supply and management.

To assist with this charge, five Preparation and Adaptation Working Groups were formed, one for each sector. The groups included representatives from state and local governments, tribal, business, academic, and various public and private organizations. The Climate Impacts Group, associated with the University of Washington, provided the working groups with scientific expertise regarding the likely impacts of climate change over the next 50 years and implications for adaptation.

Expected Impacts of Climate Change in Washington

According to the Climate Impacts Group, the most serious impacts that are expected include:

- Increased temperature, changes in volume and timing of precipitation, and reduced snowpack will have major implications on the state's water resources, ecosystems, forests, fish and wildlife resources, and agriculture. Rise in sea level and likely increase in coastal erosion, landslides, inundation and flooding.
- Likely increase in frequency and intensity of heat waves,

PREPARATION AND ADAPTATION WORKING GROUPS

Agriculture

Lead – Kirk Cook, WA Dept. of Agriculture

WA State University
WA Tree Fruit Research Commission
WA Water Resources Association
WA Rivers Conservancy
NW Food Processors Association
Wallin & Associates

Forestry

Lead – Craig Partridge, WA Dept. of Natural Resources

UW College of Forest Resources
Hillis Clark Martin & Peterson
WA Forest Protection Association
Olympic Resource Management
UW College of Forest Resources
Weyerhaeuser
Quinault Management Center
Olympic National Forest
Audubon Washington
Pacific NW Experiment Station
The Nature Conservancy
WA Farm Forestry Association
WA Dept. of Fish & Wildlife

Human Health

Lead - Gregg Grunenfelder, WA Dept. of Health

Air Quality Consultant
University of Washington
King County

degradation of air quality, and spread of infectious diseases, with resulting devastating effects on plants, animals and human health and well-being.

The impacts of climate change will also be compounded by increasing urban and suburban populations that will continue to stress our water resources and ecosystems.

A 2006 economic study, sponsored by the Departments of Ecology and Community, Trade and Economic Development, documented impacts to Washington's economy from climate change already occurring, and warned that without focused efforts to reduce greenhouse gas emissions and to prepare for impacts, the negative economic effects are likely to increase.

Identifying and Selecting Strategies

The Preparation and Adaptation Working Groups deliberated on issues and vulnerabilities in each sector, and identified and selected a set of limited, but fundamental, strategies to help Washington get ready for and deal with the effects of a changing climate (see below). These strategies reflect the following:

- Adaptation and mitigation are necessary complementary strategies for responding to the climate change challenge.
- The past is no longer a guide to the future.
- Early actions are needed while we continue to improve our scientific knowledge.
- Impacts of climate change on water resources have broad economic, biological and social implications across all sectors.
- A healthy ecosystem has significant capacity to store carbon, and reduce the severity of the impacts from climate change.
- Ability to cope and prepare varies across economic sectors and regions within the state. Some human populations will be affected disproportionately.
- Preparation and adaptation is costly but costs of inaction would likely dwarf the costs of action.
- Implementing on-the-ground actions requires long-term commitment at all levels of government and greater awareness and engagement by the public.

Human Health, cont'd.

Clark County Public Health
Advisory Council
WA State Board of Health

Water Resources & Quality

*Lead - Tom Laurie, WA
Department of Ecology*
Washington Environmental
Council
WA Conservation
Commission
WA Department of Health
Seattle Public Utilities
American Rivers
McGregor Company
King County
WA State Water Resources
Association
The Lands Council
Yakama Nation Water
Program
WA Department of Fish &
Wildlife
WA Assoc. of Sewer & Water
District
National Wildlife Federation
Washington Farm Bureau

Coastal & Infrastructure

*Lead – Tom Clingman, WA
Department of Ecology*
WA Department of
Transportation
WA Department of Fish &
Wildlife
Pacific Shellfish Institute
EDAW
People for Puget Sound
Clallam County Commissioner
City of Bellingham
U.S. Geological Survey
City of Olympia
WA Public Ports Association

Specific Initial Preparation and Adaptation Strategies

Preparation and adaptation can take many forms. Although these specific initial strategies were developed by different Preparation and Adaptation Working Groups, many of them reflect larger overarching concerns. These are grouped together below. Future strategies may address other concerns.

Coastal & Infrastructure, cont'd.

WA Dept. of Natural Resources
 WA State Parks and Recreation Commission
 Puget Sound Partnership
 Tulalip Natural Resources Dept.

Enhance emergency preparedness and response.

- A Heat Emergency Task Force should be convened to review emergency management planning requirements and guidelines for heat waves and emergency preparedness exercises. The Emergency Management Division should coordinate improvements to the state’s ability to respond to such emergencies.
- Collaboration across multiple jurisdictions, landowners, and stakeholders is needed to promote agreement on forest health and fire hazard response approaches.
- Appropriate statewide drought management strategies that account for evolving drought risks in a drier climate should be developed. Accounts for drought preparedness and emergency water supply projects should be funded and criteria for using funds should be modified.

Incorporate climate change and its impacts into planning and decision-making processes.

- Revise state land use, shoreline, and flood control planning statutes and regulations, and clarify the State Environmental Policy Act (SEPA) to effectively address sea level rise and other climate change impacts.
- Incorporate climate change considerations into emergency planning.
- Incorporate best available sea level rise and other climate change data and information into state and local government planning to promote resiliency of ecological systems and communities.
- Incorporate future sea level rise concerns and other climate change impacts in prioritization for funding, design, and post-project operation and maintenance.

Restore and protect natural systems and natural resources.

- Complete a vulnerability assessment to identify specific species, habitats, landscapes, ecosystem functions, and cultural resources that may be most sensitive to climate change.
- Develop a better understanding of likely impacts on tree species, evaluate strategies and begin to implement risk management strategies to ensure perpetuation of tree genetic resources.
- Identify and maintain protected forest areas that may be capable of sustaining at-risk species.

- Improve and protect stream flows for environmental and resources values.
- Develop strategies to respond to potential increases in undesirable exotic and invasive species.
- Develop guidelines to address climate impacts in habitat restoration and protection projects, and direct state and local governments to use them.

Develop and improve water supply and management.

- Identify and change existing water resource policies, agreements and laws that limit the ability to manage water resource problems caused by climate change.
- Continue to investigate and invest in the development of large and small scale water storage, including ground water storage to replace snowpack losses.
- Evaluate options (reclaimed water, storage, water conservation and efficiency, desalinization) to meet water demand, considering climate change impacts.
- Fund additional research and monitoring programs to improve understanding of available water supplies, water use, and linkages to climate change.

Build institutional capacity and knowledge to address impacts associated with climate change.

- Create scientific advisory committees to assist decision-makers in responding to extreme forest health and fire hazard problems.
- Improve coordination of regulatory requirements to remove unneeded barriers to preparation and adaptation.
- Engage the private sector as a partner through market and investment opportunities.
- Create programs and incentives to encourage the consolidation or cooperative management of natural resources (e.g., water, forests, fish and wildlife).
- Improve mapping and characterization of sea level rise vulnerability for all of Washington's coasts.
- Departments of Health, Agriculture, Fish and Wildlife, and Ecology collaborate on monitoring and surveillance to better understand changing environmental, ecologic and health conditions due to climate change.

More effectively manage and share best available data.

- Institutionalize ready access to best available science from regional to site-specific scales, relating science to climate change impacts on stream hydrology and aquatic resources.
- Develop rapid technology transfer mechanisms to facilitate the use of modeling information in plans and prioritization.
- Develop a clearinghouse for scientifically credible field-level best practices to address natural system responses to climate change.

Educate, inform and engage landowners, public officials, citizens and others.

- Create incentives and programs to transfer knowledge and technologies to assist farmers with new production methods, drought tolerant species, etc.
- Inform property purchasers and investors regarding risk of sea level rise that may affect coastal property.
- Provide comprehensive data and information to landowners, policy-makers, and the public about existing and developing forest health and fire hazard conditions.
- Provide educational outreach on water use and water conservation and efficiency.
- Provide outreach to the public and others to plan and prepare for climate change.

MORE INFORMATION

Visit the State's Climate Change web site:

www.ecy.wa.gov/climatechange/index.htm

LEAD AGENCY CONTACTS

Department of Agriculture

Kirk Cook
(360) 902-1936
kcook@agr.wa.gov

Department of Ecology

Tom Clingman
(360) 407-7448
tcli461@ecy.wa.gov

Tom Laurie
(360) 407-7017

tlau461@ecy.wa.gov

Department of Health

Gregg Grunenfelder
(360) 236- 3050
gregg.grunenfelder@doh.wa.gov

Department of Natural Resources

Craig Partridge
(360) 902-1028
craig.partridge@dnr.wa.gov

Workgroup Coordinator

Hedia Adelsman
Department of Ecology
(360) 407-6222
hade461@ecy.wa.gov

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