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CLIMATE CHANGE IMPACTS AND ADAPTATION IN WASHINGTON STATE

Toward a Well Adapted Future in Puget Sound:
A Symposium on Climate Change Adaptation and the Law
January 21, 2011
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DEPARTMENT OF ECOLOGY
State of Washington

Foundation For Adaptation

EO 07-02
2008 PAWG reports

UW/Climate Impacts Group (CIG) Feb. 2009 Assessment

Leading the Way:
Preparing for the Impacts of Climate Change in Washington

Recommendations of the Preparation and Adaptation Working Groups

Climate Change Challenge

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State Agency Climate Leadership Act, 2009 (SB 5560)

- Requires the development of an "*integrated climate change response strategy…" and requires state agencies "… to incorporate adaptation plans of action as priority activities when planning or designing policies and programs. ..and funding infrastructure projects…"* The Response Strategy is due December 2011.
- Strategy must address "regional capacity to take action, existing ecosystem and resource management concerns, and health and economic risks."
- EO 09-05: focus on sea level rise and water resources

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Climate Risks more Likely to Occur

- Increase in average air temp. and likelihood of extreme heat events
- Changes in hydrology and water supply: reduced snowpack, changes in timing of water availability in some basins; and changes in water quality
- Increase in frequency of drought events
- Increase in frequency of extreme precipitation events and magnitude of damaging floods
- Increase in wildfire frequency and intensity
- Increased in coastal erosion and risk of inundation from increasing sea levels , wave heights and storm surges
- Increase in diseases, invasive species, and pest
- Loss of habitat, and wetlands ecosystems and services
- Increase in ocean acidification

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Potential Economic Costs in Washington If no additional actions are taken to reduce greenhouse gas emissions *(million dollars per year)*		
	2020	2040
Continued use of less efficient energy technologies	$1,400	$1,600
Increased health-related costs (increased ground-level ozone, increased heat waves)	**$1,300**	**$2,200**
Reduced salmon populations	**$531**	**$1,400**
Increased energy costs (reduced hydro supply, higher energy demand)	$222	$623
Increased wildland fire costs	**$102**	**$208**
Lost recreation opportunities	$75	$210
Increased coastal and storm damage	**$72**	**$150**
Reduced food production	$35	$64
Health related spillover costs from continued use of coal-fired electricity	**$19**	**$23**
Total increased costs	**$3,800**	**$6,500**

By 2020 total cost expected to reach $1,250 per household each year

Source: University of Oregon, Climate Leadership Initiative

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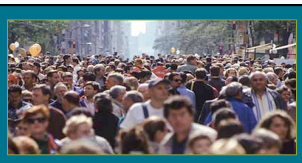
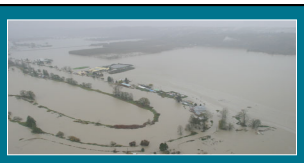
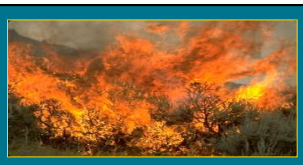
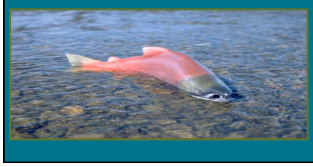
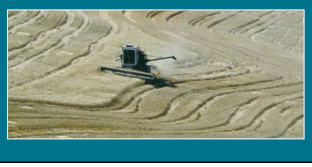
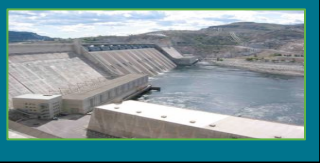




TOPIC ADVISORY GROUPS

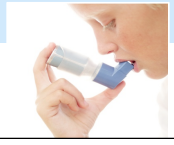
- Built Environment, Infrastructure and Communities
- Human Health and Security
- Ecosystems, Species, Habitats
- Natural Resources (working lands and waters)

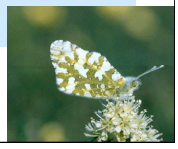




Topics Addressed

- Water supply; water quality; floodplain management; sea level rise; energy; land use; transportation; and commerce and ports
- Heat related health outcomes; respiratory and cardiovascular disease; infectious disease; injury; and mental health
- Major ecological systems: marine and coastal; freshwater and riparian; forests, alpine, western prairies; and aridlands and shrubsteppe
- Fire prevention and suppression; pests and diseases; water availability; and genetic preservation and development

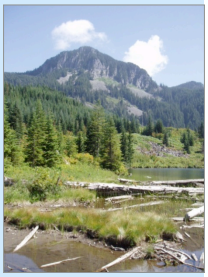






Guiding Principles

- Adopt Integrated Approaches
- Use best-available science, and embrace uncertainty
- Prioritize the most vulnerable
- Apply risk-management methods and tools
- Apply ecosystem-based approaches
- Recognize regional differences
- Include adaptive management approaches to adjust and refine strategies
- Build partnerships and foster cross-jurisdictional decisions
- Raise awareness and support local community actions



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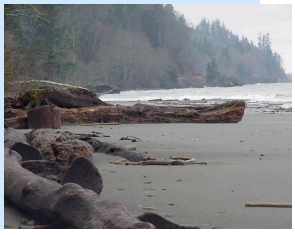
Overarching Strategies

- Integrate adaptation and GHG mitigation strategies
- Incorporate climate adaptation strategies and actions into agency programs, regulation and infrastructure funding
- Bolster adaptation and resilience capacities by enhancing existing systems and developing appropriate tools
- Coordinate among and partner with federal and tribal governments, scientific community, NGOs, businesses and individuals
- Build necessary scientific and institutional readiness
- Increase communication and outreach with the public about preparing for climate change



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Examples of Strategies

- Improve water resources management – strengthen data and information, develop integrated water management plan increase water-use efficiency
- Build resilience to climate change in communities and their underlying infrastructure
- Reduce the vulnerability and increase the resilience of ecosystems through adoption of strategies that focus on provision of essential ecosystem services such as water supply, and coastal protection
- Protect the most vulnerable segments of the population by improving capabilities of public health agencies
- Build integrated surveillance and early warming systems to improve detection of health, agricultural and forest risks
- Leverage existing regulatory programs and processes to adapt to climate change
- Consider the impacts of climate change in planning and designing projects funded by the state
- Maintain and enhance existing state and local capacity to respond to emergency events like floods, fires
- Enhance and expand monitoring, and mapping capabilities

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Additional Projects

- Sea Level Rise Survey and Guidebook for Local Governments
- National Academy of Sciences Sea Level Rise Study
- Puget Sound Action Agenda
- Vulnerability Assessment of Transportation Infrastructure (Dept. of Transportation with FHWA)
- Economic Analysis
- British Columbia-Washington Partnership
- Ocean Acidification Study

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