



Protecting Maine's Communities, Economy and Environment from Global Warming

Global warming is already affecting Maine and will continue to do so for decades to come. A successful comprehensive climate and energy bill will invest significant new revenue in protecting communities and local economies across America by creating jobs that protect wildlife and landscapes from the effects of global warming. The American Clean Energy and Security Act takes a critical first step; however, given the scale and duration of the threat, more funding will be needed.

Critical Issues for Maine:

- Rising sea level
- Damage to the local economy
- Increasing temperatures
- Decreasing forest health

Is Global Warming Affecting Natural Resources in Maine?

Yes. Maine is warming. Since mid-century, temperatures across the state have **risen approximately .5°F**,¹ and are expected to rise **an additional 6°F by 2060**.² Rainfall in Maine is also likely to increase by as much as 70% in the next 50 years alone.³ These changes are significant, and the impacts are already being felt.

Across the U.S., more than 80% of plant and animal species studied are shifting their ranges in reaction to less than 1°F of average nationwide warming in the last century.⁴ The Intergovernmental Panel on Climate Change predicts additional warming could result in **up to 30% of known species becoming extinct**, and the disappearance of more than one-fifth of the world's ecosystems.⁵

In addition to warming temperatures and wetter climates, an expected **2 feet of sea level rise** within the next century is likely to affect Maine's coastal communities, beaches, wetlands, and natural habitats.⁶ Maine is the most heavily forested state in the nation, and global warming presents a **significant danger to 17.6 million acres** of both inland and coastal forests—89% of the entire state.⁷ Warmer temperatures and increased rainfall are also speeding up spring snowmelts, worsening the potential for floods, and will present new challenges for drinking water management.⁸

Natural Resources Adaptation Funding Will:

- Create and protect jobs
- Preserve treasured landscapes
- Revive the rural economy
- Provide clean air and water for future generations



Natural resource adaptation funding will create jobs to help protect wildlands like those along Maine's Appalachian Trail, from the effects of global warming.

What is at Stake?

Changes brought on by global warming are disrupting the balance of natural resources and having significant impacts on communities and businesses across the state.

- **The Gulf of Maine:** The effects of sea level rise will likely be exacerbated by both increasing frequency and intensity of storms hitting the coast combined with more violent weather patterns.⁹ Nine towns along Maine's coast—including Old Orchard Beach and Kennebunkport—are at risk of significant flooding, affecting more than 265 businesses that provide \$41.6 million in annual wages.¹⁰ In addition, the valuable \$300 million lobster industry, which supports more than 26,000 jobs, is at risk as warming waters increase the spread of temperature-sensitive shell disease.¹¹



Increased funding to help protect Maine's coastal resources will safeguard lobster and fishing jobs that may be in jeopardy due to climate change.

- **Forests:** Maine's forests are a source of pride across the state and contribute innumerable economic benefits, recreation opportunities, and valuable resources. Increasing temperatures threaten to shift Maine's 18,000 square miles of hardwood forests at least 300 miles northward in this century, and at the same time, boreal forests of spruce and fir are likely to lose their diversity and be reduced to isolated pockets.¹² Shifting hardwood forests, largely due to warmer and shorter winters, will likely significantly impact both Maine's \$7.5 million maple syrup¹³ and Maine's forest-goods industries. One of the largest business sectors in Maine, the production of goods and services from forests generates up to \$2.5 billion in annual revenue and maintains over 16,000 jobs.¹⁴

- **Tourism and Outdoor Recreation:** Loss of wildlife and natural areas could significantly affect the tourism and outdoor recreation economies. Outdoor recreational activities alone, such as hunting, trout fishing, white-water rafting, kayaking, and various winter sports, generate almost \$3 billion in revenue for Maine each year and supports 48,000 jobs across the state.¹⁵

Economy at Risk:
\$10 billion
140,000 jobs
*Annual contribution of tourism
to the state's economy*

- **Agriculture:** Rising temperatures and increasing flood risk will likely place the state's \$1.2 billion agriculture industry in jeopardy as well, especially as soil erosion and aridity worsens and weed and pest populations increase.¹⁶ Potato crops may see up to a 35% decrease in crop yield and Maine's delicate summer blueberry crops may suffer from both a lack of irrigation and increased vulnerability to pests, such as the New Jersey blueberry gall midge.¹⁷

Protecting Natural Resources, Creating Jobs

Restoring ecosystem health helps ensure species have the best possible chance to adapt to the effects of global warming. Human communities rely on maintaining the viability of these natural systems of water and air filtration. Ecosystem adaptation projects, such as establishing wildlife corridors for animals migrating in search of needed habitat, are critical to the survival of many species and will create long-term American jobs. **Investing now in natural resources is the most cost-effective way to protect our treasured landscapes and the clean water, clean air and jobs they provide.**

Of the total allowance value generated from an energy and climate bill, at least 5% should be invested in protecting communities and local economies across America by protecting natural resources from the effects of global warming. This funding will allow Maine's wildlife and land management agencies, as well as the Land and Water Conservation Fund and the Forest Legacy Program, to ramp up important conservation projects.

This dedicated funding will allow scientists, engineers, construction crews, and others to be employed across Maine:

- Repairing damaged watersheds to ensure clean water for communities by removing impediments and deteriorating structures, restoring eroding river banks, and repairing in-stream habitat.
- Acquiring land and establishing migration corridors to increase species' survival as climates change.
- Monitoring wildlife, habitats, and local climate, and developing appropriate adaptation responses.
- Restoring native landscapes to increase resiliency in a warming world by removing unnecessary roads and barriers, constructing buffer strips along river corridors, and removing invasive species.

This work will protect and create American jobs—providing new skills and income to workers and their families across the state and revitalize rural economies.



Restoring river habitats protects ecosystems, jobs, and drinking water.

Investing in Solutions for Families, Businesses and the Planet

The risks to Maine and the nation from global warming are significant—and require an extensive and sustained commitment to reducing heat-trapping pollution, and to protecting our natural resources and the communities that rely on them. A cap-and-invest system that reduces pollution and auctions emission allowances will provide billions of dollars for combating the climate crisis.

Revenues from a cap-and-invest system must be directed to three primary solutions:

- **Invest at least 5% of the total allowance value generated in annual dedicated funding for natural resource protection** in order to create jobs while increasing resiliency across landscapes, protecting important natural services and safeguarding communities.
- **Offset increased energy costs for at-risk consumers** by allocating a percentage of allowance auction revenues to consumers through existing mechanisms.¹⁸
- **Invest in areas such as clean energy choices, job training, and business assistance**, which will aid businesses and communities in transitioning to a clean energy economy, while creating jobs and reducing heat-trapping pollution.

Maine and the nation need your support for reducing carbon pollution and protecting communities by safeguarding our natural resources.

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Photo Credits: Thanks to The Wilderness Society for the picture of the Appalachian Trail, to the state of Maine for the picture of Maine fisheries, and to the State of Massachusetts for the picture of river restoration.

¹ NOAA National Climatic Data Center. 2009. "U.S. Climate at a Glance – Statewide." Available from: <http://www.ncdc.noaa.gov/oa/climate/research/cag3/state.html>. Date of access: July 23, 2009.

² The University of Washington and The Nature Conservancy. 2009. Climate Wizard. Available from: <http://www.climatewizard.org/index.html>. Date of access: July 23, 2009.

³ The University of Washington and The Nature Conservancy. 2009. Climate Wizard. Available from: <http://www.climatewizard.org/index.html>. Date of access: July 23, 2009.

⁴ Sagarin, Raphael. 2002. "Historical Studies of Species' Responses to Climate Change." In: *Wildlife Responses to Climate Change: North American Case Studies*. Ed: Terry L. Root and Stephen H. Schneider. Island Press. Washington, DC.

⁵ Intergovernmental Panel on Climate Change. 2007. "Summary for Policy Makers." In: *Climate Change 2007: Impacts, Adaptation and Vulnerability: Working Group II Contribution to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Pg 792.

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⁷ North East State Foresters Association. 2007. "The Economic Importance and Wood Flows from Maine's Forests." Pg. 1. Available from: <http://74.125.95.132/search?q=cache:ELe-RqI7RVOJ:www.nefainfo.org/publications/2007%2520Publications/NEFAEconomicImportME.pdf+maine+outdoor+recreation+economy&cd=12&hl=en&ct=clnk&gl=us>. Date of access: July 23, 2009.

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¹⁰ Wages from Maine Department of Labor. Available from: University of Maine, Maine Policy Center. http://mcpolicycenter.umaine.edu/files/pdf_mpr/colganMerrill_V17N2.pdf. Date of access: July 23, 2009.

¹¹ Gulf of Maine Lobster Foundation. 2009. "The Bottom Line Project: Maine Poly Groundline Exchange Program." Available from: <http://www.gomlf.org/groundline.htm>. Date of access: July 23, 2009; Glenn, R.P. and T.L. Pugh. 2006. "Epizootic shell disease in American lobster (*Homarus americanus*) in Massachusetts coastal waters: interactions of temperature, maturity, and intermolt duration." *Journal of Crustacean Biology*. 26(4):639-645.

¹² Malcolm, Jay, and Adam Markham. 2000. "Global Warming and Terrestrial Biodiversity Decline." World Wildlife Fund. Page 21. Available from: <http://www.worldwildlife.org/who/media/press/2000/WWFBinaryitem10676.pdf>. Date of access: July 24, 2009. Values calculated from charts on pages 24-25, and converted from meters to miles.

¹³ Huntington, Thomas G., Andrew D. Richardson, Kevin J McGuire, and Katharine Hayhoe. 2009. "Climate and hydrological changes in the northeastern United States: recent trends and implications for forested and aquatic ecosystems." *Canadian Journal of Forest Research*. 39(2): 199-212.; and Economic Research Service. 2008. "ERS/USDA Briefing Room – Sugar and Sweeteners: Recommended Data." Table 44: "U.S. Maple syrup production and value, by state, calendar years." USDA. Available from: <http://www.ers.usda.gov/Briefing/Sugar/Data.htm>

¹⁴ Values calculated from Maine Forest Service's "2005 Analysis of Maine Industry Sectors." Available from: <http://www.maine.gov/doc/mfs/fpm/ffe/>. Date of access: July 23, 2009; Rahman, Mahmud, and Wilson, Mary J. No date. "Maine Portfolio of the Forest-Products Industry: A Comparative Analysis of Performance Prospects." University of Maine. Available from: <http://usm.maine.edu/cber/mbi/winter99/rahman.htm>. Date of access: July 23, 2009.

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¹⁶ Maine Development Foundation. 2004. "Maine's Natural Resource-based Industries: Indicators of Health." Available from: http://www.maine.gov/spo/specialprojects/docs/2004nrbi_indicatorsofhealth.pdf. Date of access: July 23, 2009; Jacobson, G.L., I.J. Fernandez, P.A. Mayewski, and C.V. Schmitt (editors). 2009.

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