



# Addressing Climate Change on the Tongass

## Key Message

The effects of climate change are being felt first hand in Alaska, from receding glaciers and melting permafrost to higher annual temperatures and changing forest communities. In Southeast Alaska, there is a vital need to better understand the potential impacts on such economically and culturally important resources as wild Pacific salmon and yellow cedar forests. The Tongass National Forest has a range of activities in place to address climate change, and is working on more. As we continue in this effort, the forest will collaborate with communities, agencies, and scientists to develop appropriate, place-based actions that reduce the forest's carbon footprint and lessen the impacts of climate change on the landscape.

## Background

The Tongass National Forest is a matrix of forests, wetlands, alpine meadows, ice, and rocks. Climate change will impact these landscapes in different and potentially unanticipated ways. Building resiliency in these various environments will bolster their ability to endure significant precipitation and temperature changes. Further, the forest's role in the global carbon cycle is thought to be significant, representing 8% of the carbon stored in all forests in the Lower 48. Finally, the Tongass is a major employer in Southeast Alaska and as such, has a role to play in modeling and demonstrating efforts to reduce carbon emissions in everyday business operations.

## Current Situation

The Tongass is aligned with the recently released (1/2011) national Climate Change Performance Scorecard, a guidance document to help forests and regions rate their efforts in four distinct response "dimensions," further broken into 10 measured elements. The Forest has a growing "Climate Change Portfolio" of efforts dealing with both mitigation and adaptation. These efforts are grouped under the 10 elements associated with the Climate Change Scorecard:

- **Employee Education (E1):** The forest established educational materials that inform interpretive and conservation education programs reaching close to half million people a year. We are developing a communication plan and also working with the regional office to start a comprehensive evaluation of educational needs for all employees.
- **Designated Climate Change Coordinator (E2), & Guidance, Training, and Plans of Work (E3):** Along with a designated coordinator, a small collateral duty Tongass team is in place to help lead the effort to incorporate climate change consideration into our everyday work. The Tongass Strategic Plan and the Sustainable Operations Program provide additional guidance.
- **Integrate Science and Management (E4) and External Partnerships (E5):** The forest is currently engaged with Pacific Northwest Research Station (PNW) scientists on a review of Tongass knowledge gaps and needs that precluded inclusion of in-depth climate change considerations in the forest plan decision. We are working with the Alaska Coastal Rainforest Center and others to identify future climate change-related priority needs and actions.
- **Vulnerability Assessment (E6):** Planning projects and making decisions require a means for contending with potential climate change effects on resources. Building scenarios, informed by

a climate model specific to Southeast Alaska, will provide a basis for estimating a range of potential effects, indicate monitoring needs, and allow for out-year planning that assumes dynamic climate-ecosystem interactions. We are currently engaged with the Alaska Coastal Rainforest Center, the Regional Office, and a University of Fairbanks associated group to assess potential scenario planning models for the Tongass. An existing regional vulnerability assessment is being evaluated for Tongass use.

- **Adaptation Activities (E7):** Restoration work reinstates adaptive resilience of systems with compromised integrity. This could be critical for impacted streams and areas with climate-related risks to otherwise healthy forests and populations of fish and wildlife. Byproducts of restoration work can enter a supply chain for either wood products, which will sequester the carbon, or bio-energy production, which will offset carbon from fossil fuel emissions. Commercial thinning and other harvest operations will lead to wood products, and these activities may lead to a net carbon sequestration balance as the forest grows back. These operations are also critical to providing supply to potential bio-energy operations in the region.
- **Monitoring (E8):** The forest has in place extensive monitoring programs, both long-term plots and project monitoring that will help indicate where and when changes take place on the forest. Other efforts include long-term cooperative USGS stream gauging stations, although we are just beginning to align monitoring with climate change. The adaptive management framework for the forest empowers leadership to make changes to planning and decision-making in light of monitoring results.
- **Carbon Assessments (E9):** Southeast Alaska is one of the most dynamic environments relative to the carbon cycle, with nearly nine times the amount of carbon dissolving in our streams as the Amazon River basin per unit area. We need to better understand the dynamics of carbon on the Tongass with reference to the global carbon cycle. There is a baseline regional assessment, and PNW scientists are involved with carbon assessment related research. Understanding the carbon cycle and where and how long carbon is stored on land or in deep waters after flushing out of streams will inform forest management practices.
- **Sustainable Operations (E10):** We are evaluating business practices and facilities to better quantify and decrease our carbon footprint and overall consumption patterns. The forest Green Team is actively engaging employees to adopt behavioral changes. Bigger projects include solar panels on remote housing barges. The forest is also a pilot unit for the agency's involvement in EPA Climate Leaders, a greenhouse gas emissions inventory and reduction program.

Climate change is an issue felt well beyond the boundaries of the forest. As land managers and stewards of the Tongass, we are treating it as such by engaging actively with other scientists, land managers, and partners to strategize responses.

## More Information

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