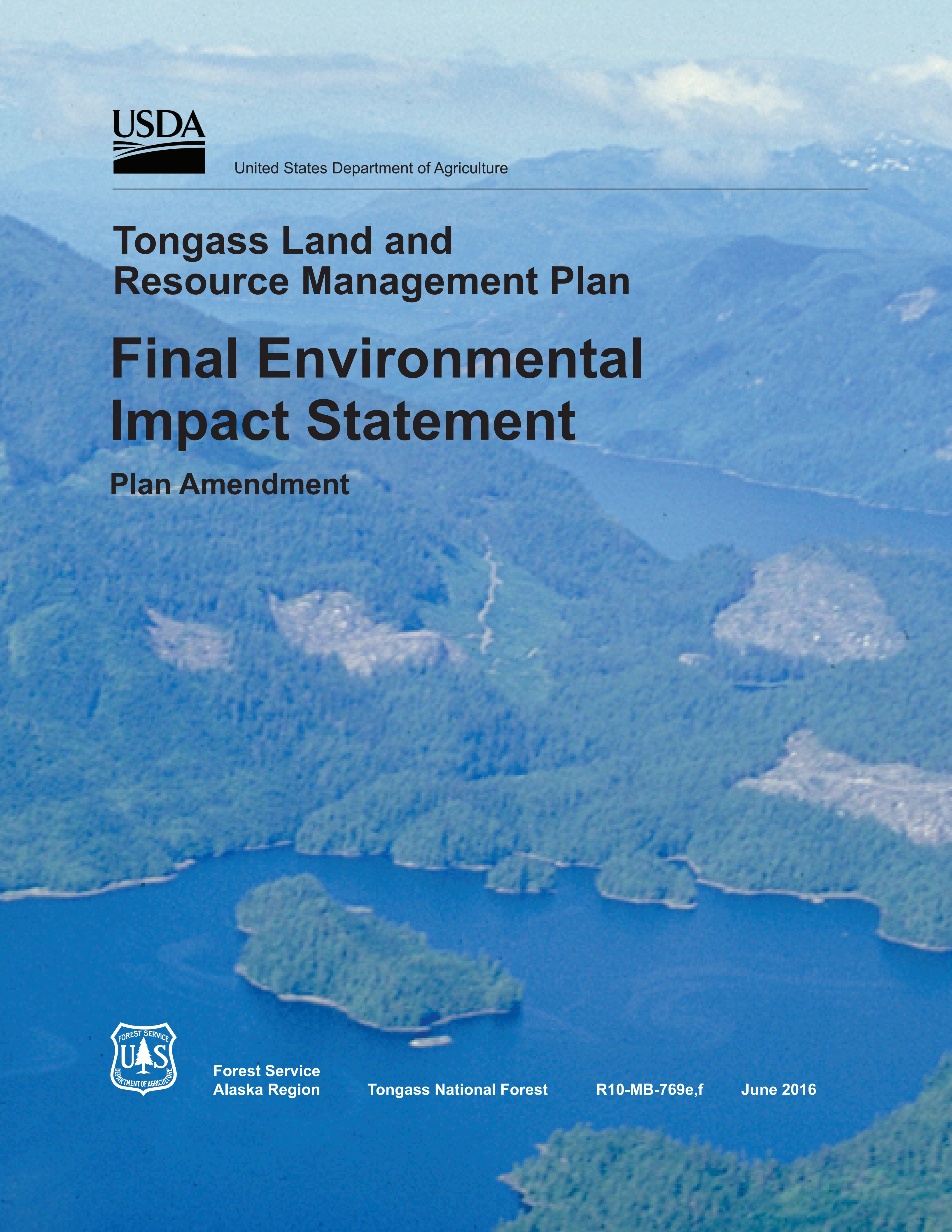

USDA

United States Department of Agriculture

Tongass Land and Resource Management Plan

Final Environmental Impact Statement

Plan Amendment

Forest Service
Alaska Region

Tongass National Forest

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Tongass Land and Resource Management Plan Amendment

Final Environmental Impact Statement

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Abstract

Secretary's Memorandum 1044-009, Addressing Sustainable Forestry in Southeast Alaska (issued July 2, 2013), and the 5-Year Forest Plan Review (completed in September 2013) indicated that conditions on the land and demands of the public require the Tongass to modify the 2008 Forest Plan. In the Memorandum, the Secretary of Agriculture, Thomas Vilsack, asked the Forest Service to "Strongly consider whether to pursue an amendment to the Tongass Forest Plan. Such an amendment would evaluate which lands will be available for timber harvest, especially young growth timber stands, which lands should be excluded, and additional opportunities to promote and speed transition to young growth management..." and to "…continue to seek input from and work with stakeholders in the region towards this transition." The Tongass Advisory Committee (TAC) was established under the Federal Advisory Committee Act and was approved by the Secretary to "…provide advice to the Forest Service on how to expedite the transition to young growth management." The 5-Year Forest Plan Review also highlighted a need to make the development of renewable energy resources more permissible.

This Final Environmental Impact Statement (FEIS) responds to the Secretary's Memo and the 5-Year Forest Plan Review by analyzing five alternatives for amending the Plan, including the No-Action alternative. A separate document, called the Land and Resource Management Plan (Forest Plan), has been published with this FEIS to represent the Forest Plan under the preferred alternative (Alternative 5). Alternative 5 is based on the Tongass Advisory Committee's underlying principles, general approach, and recommendations. Appendix F displays a side-by-side comparison of the alternatives to show how they differ from the preferred alternative. Four key issues are identified: 1) transitioning to young-growth-based timber management in 10 to 15 years in an ecologically, socially, and economically sustainable manner; 2) promoting the development of renewable energy projects where it is compatible with National Forest purposes; 3) the effects of potential timber harvest activities in roadless areas; and 4) the effects of forest management on wildlife habitat and the Conservation Strategy. The five alternatives provide a range of options for addressing the issues. Direct, indirect, and cumulative effects of the alternatives are compared and disclosed in Chapters 2 and 3, based on inventory data and modeling.

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Generally, the capacity of a forest system to sequester and store carbon depends on the location, age, and species composition of the forest (Birdsey et al. 1993; McKinley et al. 2011). In some forests found in warmer climates, the accumulation of carbon can decrease overtime as the carbon stored in soils and dead vegetative materials are released through the process of organic decay. However, the cool conditions on the Tongass National Forest slow down the rate of decomposition, which includes biomass breakdown/decay and carbon release. The dead or decaying plant matter is incorporated into the system's soil profile within the Tongass National Forest, where it accumulates and resides in various stages of decomposition for prolonged periods. As a result, mature forests within the Tongass National Forest generally store considerable amounts of carbon on the forest floor and in the soil profile. Smith et al. (2004) estimated that approximately 70 tons per acre of carbon are stored on the forest floor in the hemlock-Sitka spruce ecosystems found on the Tongass National Forest. Furthermore, some studies have indicated that trees can continue to accumulate carbon at increasing rates as they mature, thereby resulting in large amounts of carbon stored annually within mature trees (Stephenson et al. 2014). As a result, mature forests on the Tongass National Forest likely store considerably more carbon compared to younger forests in this area (within the individual trees themselves as well as within the organic soil layer found in mature forests).

Although the organic soils of the Tongass National Forest currently store considerable amounts of carbon, D'Amore and Lynn (2002) note that numerous studies have shown that carbon stored in soils may be released to the atmosphere in the form of carbon dioxide or methane, as the climate warms. Davidson and Janssens (2006) noted that many factors can affect the sensitivity of soil decomposition rates to increased temperatures (e.g., the relative mix of organic to mineral substrates, soil moisture levels, as well as other biotic and abiotic conditions) and that not all organic soil types would be equally sensitive to increased temperature; however, D'Amore has indicated that the organic layers in the soil profile of mineral soils as well as organic soils in general on the Tongass National Forest would likely experience increased decomposition rates if average temperatures were to increase (D'Amore et al. 2015; D'Amore 2016). As a result, the projected increases in average temperatures as a result of climate change could result in the release of portions of the carbon currently stored in the Tongass National Forest's soil layers. In addition, the clearing of forested areas during past and ongoing harvesting activities can increase this effect, by increasing the amount of solar energy that is allowed to reach the ground while the forest regenerates following a harvest. The projected increase in average temperatures and longer growing season could also increase the growth rates of fungi in temperate-forests (a taxa that aids in the decomposition of forest material) which would also increase the rate of carbon released to the atmosphere (e.g., currently stem-decay fungi consume approximately 31 percent of the volume of live trees; Wolken et al. 2011). Furthermore, dissolved carbon may be transported to streams and the ocean due to the increased precipitation predicted to occur over the next 50 to 100 years. Increased stream temperatures can also result in an increased rate of carbon released from aquatic systems.