

TONGASS 77 WATERSHEDS

Melanie Smith

The Tongass 77 (T77), also known as the “Salmon Forest” Proposal, designates key watersheds in Southeast Alaska for permanent protection to safeguard the most important salmonid habitat across the region that is currently open to development status. The proposal is based on a scientific assessment of Southeast Alaska’s Coastal Forests and Mountains Ecoregion (Schoen and Dovichin 2007). The assessment resulted in a habitat ranking system for six salmonid species as well as other values. Top watersheds were identified in each of the 14 biogeographic provinces in Southeast Alaska that are not in legislatively protected status, based on combined values for the six anadromous fish species, plus related habitat quality indicators such as old-growth forest, bear and deer habitat, and estuaries.

Salmon were selected as a focal species for forest management because spawning and rearing salmon are widely distributed in streams and rivers throughout Southeast Alaska and because these fish play a fundamental role in the ecology of coastal, freshwater, and terrestrial systems. Salmon are keystone species because they transfer marine-derived nutrients into the terrestrial and freshwater ecosystems, and many terrestrial and freshwater species and ecological processes are inextricably connected to salmon (Willson and Halupka 1995).

The project assessed top watersheds for each biogeographic province in order to account for the unique island biogeography of different areas of the Tongass. The Tongass 77 are therefore a dispersed network of sites identified at the whole watershed scale, employing both a “single large” and “several small” reserve design at the province or ecoregion scale, respectively. This land management strategy is analogous to preserving an ecological investment portfolio (Schindler et al. 2010). The proposal will permanently protect top watersheds in Southeast Alaska.

The Tongass 77 proposal includes all of the top-ranking (i.e. #1) watersheds within all 14 of the biogeographic provinces in Southeast Alaska not under permanent protection, based on values for all six fish species and related habitat conservation targets. Also included in the Tongass 77 are the #1 ranking watersheds for the six individual fish species assessed, as well as the highest ranking watersheds for all salmonids combined. Salmonid species included:

- King (Chinook) salmon (*Oncorhynchus tshawytscha*)
- Red (sockeye) salmon (*O. nerka*)
- Silver (coho) salmon (*O. kisutch*)
- Pink (humpy) salmon (*O. gorbuscha*)
- Chum (dog) salmon (*O. keta*)
- Steelhead trout (*O. mykiss*)

In addition to including valuable fish habitat, the proposal is supplemented with watersheds that capture other biological values in order to ensure the region will sustain a viable ecosystem. The Tongass 77 captures the #1 ranking watershed in each province for the following ecosystem components, which are highly correlated with healthy salmon habitat:

- Estuaries (highly important anadromous fish habitat)
- Riparian large-tree old growth (nutrient exchange, large woody debris, cold water refuge, erosion stability)
- Black and brown bear (*Ursus americanus* and *U. arctos*) summer habitat (correlated with salmon concentration areas)
- Sitka black-tailed deer (*Odocoileus hemionus sitkensis*) wintering habitat (indicative of healthy upland forest at the watershed scale)
- Marbled Murrelet (*Brachyramphus marmoratus*) nesting habitat (an ecological link between old-growth forest and the marine ecosystem).



John Schoen

Waterfall Bay (Dall Island) is one of the Tongass 77 watersheds.

The proposal included all identified top-ranked watersheds in Southeast Alaska, except those: already protected, in non-federal ownership, actively managed for other values (such as urban recreation, experimental forest, or active timber sale), or lacking public support (for example, the strong landowner opposition to protecting the Taku, which is the top salmon watershed in all of Southeast Alaska). In addition to the #1 watersheds, the proposal included several carefully chosen individual watersheds deemed important through additional review by scientists and fishermen. Additional watersheds met one or more of the following criteria:

- Based on all salmonid values combined, fell within the top 10% of watersheds in Southeast Alaska (without the biogeographic province filter)
- Based on all (salmonid and other) habitat correlates combined, fell within the top 10% of watersheds in Southeast Alaska (without the biogeographic province filter)
- Fell within the top five watersheds for a biogeographic province
- Identified as a Tier 1 watershed based on ecological optimization modeling as described by Albert and Schoen (2007). Tier 1 watersheds fall within the top 25% of each biogeographic province, using an evaluation of the smallest footprint to achieve the highest value for the combination of all salmonid and other habitat correlates combined
- ADFG data indicated exceptional salmon production and/or diversity.

The Tongass 77 proposal was based on several years of rigorous data collection, scientific analysis, and modeling, combined with local knowledge of the highest productivity areas. The proposal therefore captures the most important places in Southeast Alaska's Tongass National Forest for ensuring the long-term existence and health of the Southeast Alaska ecosystem and salmon fishery.

CONSERVATION ISSUES

The Tongass 77 Watersheds make up the most ecologically important but unprotected 1.89 million ac (764,855 ha) of the 17 million ac (6,879,656 ha) Tongass National Forest. Conservation of whole watersheds maintains ecological processes and local habitat diversity (Lertzman and MacKinnon 2013). Including key watersheds across

provinces ensures well-distributed, high-quality habitat that will sustain population viability and ecosystem integrity across Southeast Alaska. The Tongass 77 includes both intact and developed watersheds, in order to capture those watersheds most important to ensuring long-term viability of the region as a salmon forest.

Four of the T77 watersheds have changed status since the proposal was developed. In 2015, the National Defense Reauthorization Act included a provision for the transfer of lands to Sealaska Corporation. To the dismay of conservation groups, that land transfer included Nutkwa Inlet, one of the T77 watersheds proposed for LUD II designation. At the same time, however, three other watersheds were placed into LUD II status as part of the Sealaska deal. Those were Lovelace Creek, Lake Kushneahin, and Sarkar Lakes.

Currently Southeast Alaska has a \$1 billion fishing industry that supports 7,000 jobs, and a \$1 billion tourism and recreation industry which supports another 10,000 jobs. The same watersheds that support ecological values also contribute to Southeast Alaska's economic vitality. Trout Unlimited and Audubon Alaska recommend permanent protection for the remaining Tongass 77 watersheds to continue these opportunities for future generations.

MAPPING METHODS

The Tongass 77 watersheds are based on the collection of spatial data generated by Audubon Alaska and TNC for the Conservation Assessment and Resource Synthesis for the Coastal Forests and Mountains Ecoregion (Schoen and Dovichin 2007), as well as scientific research and local knowledge from fishermen collected by Trout Unlimited.

More specific information about mapping methods for each focal resource appears in the summaries for Estuaries, Productive Old Growth, Anadromous Fish Species Richness, King Salmon, Red Salmon, Silver Salmon, Pink Salmon, Chum Salmon, Marbled Murrelet, Sitka Black-tailed Deer, Black and Brown Bears, and Conservation Area Design.

MAP DATA SOURCES

- Tongass 77 watersheds: Trout Unlimited and Audubon Alaska (2015).





Tongass 77 Watersheds

The Tongass 77, also known as the Salmon Forest Proposal, identifies key watersheds in Southeast Alaska for permanent protection. Conservation designation for these areas would safeguard top fish watersheds plus related habitat quality indicators such as old-growth forest, bear and deer habitat, and estuaries. The proposal is based on a scientific assessment of resource values (the Audubon-TNC Conservation Area Design), as well as expert review and watershed selection by commercial fishermen. These areas are proposed for permanent protection to ensure healthy fish and wildlife populations into the future.

Code	Name
90	Katzehin River
260	Eagle/ Herbert River
570	Gilbert Bay
590	Lower Speel River
610	Whiting River
790	Port Houghton Salt Chuck
840	Sandborn Canal
900	Farragut Bay – South Arm
1960	Chicken Creek
2010	Neka Bay
2240	Upper Tenakee Inlet
2250	Little Goose Flats
2260	Goose Flats
2280	Long Bay
2290	Seal Bay
2310	Saltery Bay
2320	Crab Bay
2430	Sitkoh Bay
2440	Sitkoh Lake
2800	Deep Bay
2810	Ushk Bay
2870	Fish Bay
2920	Rodman Bay
2930	Appleton Cove
2940	Saook Bay
2950	Lake Eva
2990	Nakwasina River
3050	Sea Lion Cove
3080	Mount Edgcombe
3090	Krestof Sound
3140	Kelp Bay – South Arm
3230	Salmon Lake
3500	Redoubt Lake
3660	Situk River
3710	Ahrnklin River Estuary
3720	Ahrnklin River
4000	Security Bay
4180	Kuiu Salt Lagoon
4200	Port Camden
4210	Kadake Creek
4270	Big John Bay
4280	Rocky Pass
4290	Irish Lakes
4300	Lovelace Creek
4310	Lake Kushneahin
4320	Totem Bay
4350	Lower Castle River

Code	Name
4360	Upper Castle River
4660	Streets Lake
4670	Mosman Inlet
4680	Burnett Inlet
4790	Thoms Lake
5110	Harding River
5140	North Bradfield River
5190	Little Lake Eagle
5541	Sarkar Lakes
5730	Sweetwater Lake
6420	Sea Otter Harbor
6460	Devil Cove
6470	Welcome Cove
6480	Waterfall Bay
6590	Essowah Lake
6750	Sunny Cove
6780	Chomondeley – South Arm
6840	Moir Sound – Dickman
6850	Nutkwa Inlet
6920	Moir Sound – South Arm
7040	Nichols Bay
7090	Union Bay
7160	Helm Bay
7170	Granite Creek
7180	Upper Vixen
7190	Port Stewart
7200	Vixen Inlet
7220	Spacious Bay
7240	Yes Bay
7270	Reflection Lake

The Tongass 77 Watersheds¹

- Priority Watershed (intact area)
- Priority Watershed (developed area)
- Converted to LUD II
- Transferred to Sealaska Corporation

1. Trout Unlimited and Audubon Alaska 2015.



Map 7.10: Tongass 77 Watersheds