

TRADITIONAL ECOLOGICAL KNOWLEDGE
OF TLINGIT PEOPLE CONCERNING THE
SOCKEYE SALMON FISHERY OF THE DRY
BAY AREA

A COOPERATIVE AGREEMENT BETWEEN
DEPARTMENT OF THE INTERIOR NATIONAL PARK
SERVICE AND THE YAKUTAT TLINGIT TRIBE

FISHERIES INFORMATION SERVICE (FIS) PROJECT 01-091

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Final Report Summary Page

Title: Traditional Ecological Knowledge of Tlingit People Concerning the Sockeye Salmon Fishery of the Dry Bay Area, a Cooperative Agreement between the National Park Service and the Yakutat Tlingit Tribe.

Study Number: FIS Project 01-091

Investigators/Affiliations: Judith Ramos, Yakutat Tlingit Tribe and Rachel Mason, National Park Service.

Information Type: Traditional Ecological Knowledge

Issue: The East Alsek River in Dry Bay has undergone a drastic decline in sockeye salmon return, affecting an important subsistence resource. A four-part multidisciplinary study combining western science and TEK has been designed to understand this decline and potentially remedy. This study is the first part of the larger study design and will gather TEK from the Yakutat – Dry Bay area (northern Southeast Alaska) on traditional practices utilized the Tlingit clans of Gunaxoo (Dry Bay).

Study Cost: \$25,000.

Abstract: The Yakutat Tlingit Tribe and the National Park Service have collaborated to document Tlingit traditional ecological knowledge about salmon ecology and fisheries management in the Dry Bay/Alsek River Delta. Historically Northwest Coast Peoples including Tlingit have managed fishing and fish populations. Each Tlingit clan or house managed and controlled specific rivers or in larger river's sections of rivers in southeast Alaska. Traditional beliefs about reincarnation of animal spirits and a kinship with animals contributed to how Tlingit traditionally treated and handled salmon and animals. In recent decades, sockeye salmon have dramatically declined in the Dry Bay/Alsek area. It is hoped that this study, by showing how the Tlingits historically understood and managed sockeye habitat, population and harvest in the Dry Bay/Alsek area, will aid in developing a restoration plan.

Key Words: Traditional Knowledge, subsistence salmon fishing, Yakutat Tlingit cultural and history, Dry Bay-Alsek River, harvesting and processing techniques, Traditional management of resources.

Project Data: The Yakutat Tlingit Tribe, P.O. Box 418, Yakutat, Alaska 99689, will archive the tapes and transcripts of elders interviewed for this study.

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I. Introduction

This study is the result of a Cooperative Agreement between the National Park Service (Wrangell-St. Elias National Park) and the Yakutat Tlingit Tribe to collect, interpret, and report on Traditional Ecological Knowledge concerning the sockeye salmon fishery of the Dry Bay area southeast of Yakutat Alaska. Drastic declines in the East Alsek River (locally known as the East River) in Dry Bay affected an important subsistence and commercial fishing resource. The East Alsek River was the dominant sockeye producer in the Yakutat area during the 1982–1994 period (ADF&G 1995). The community of Yakutat is interested in assisting with developing a subsistence restorations and management program for the Dry Bay/Alsek River systems. This study is the first part of a proposed larger multidisciplinary study combining western science with Traditional Ecological Knowledge to understand the unique ecological and cultural dynamics of sockeye salmon and the sockeye salmon fishery in the Dry Bay area.

OBJECTIVES

1. To document traditional Tlingit knowledge on salmon management and utilization strategies throughout northern Southeast Alaska. The chief area of study will focus on the lower Alsek River watershed (Dry Bay).
2. To utilize this information and compare management styles of the Tlingit people to contemporary methods, and to reconstruct the role of clan affiliation in traditional determinations of resource allocation and management.
3. To present this information with the purpose of connecting traditional knowledge with western science. This tool will be used to evaluate the future management and use of these resources as salmon abundance and harvest pressures change.

METHODS

Phase I was the development of an annotated bibliography of existing literature concerning Dry Bay history, culture, and ecology, with particular focus on traditional

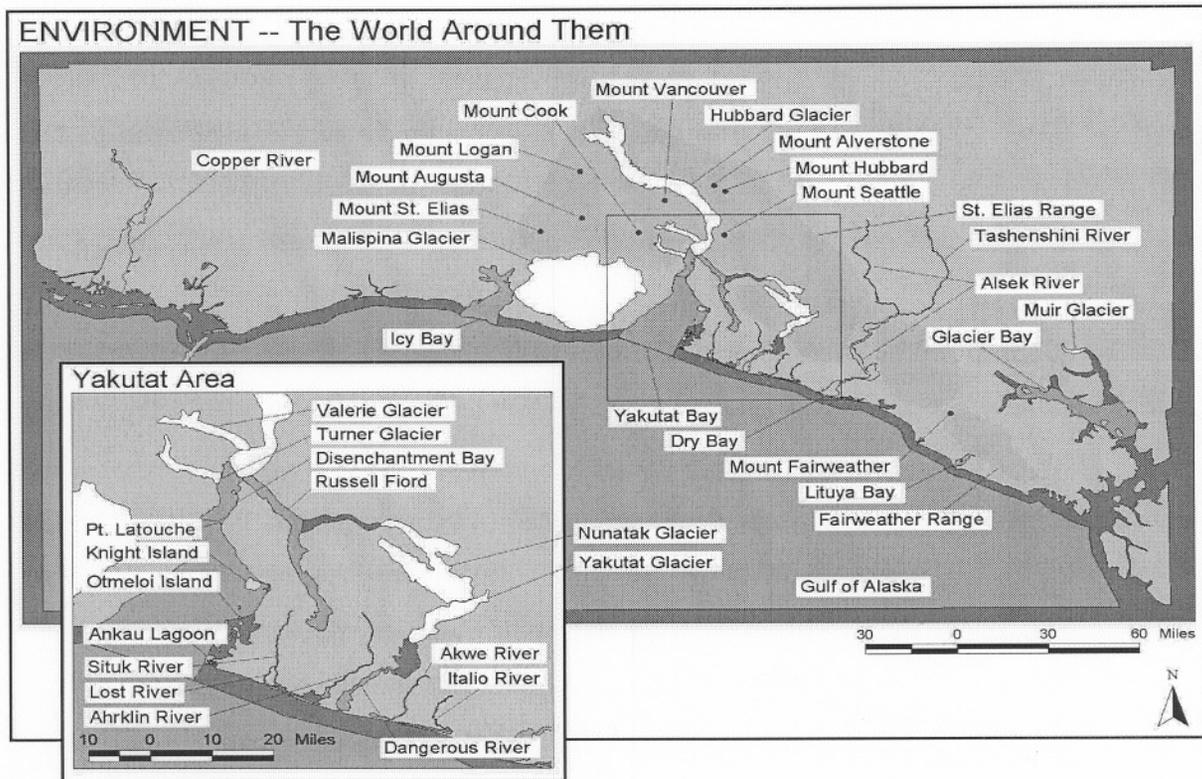
Tlingit practices, knowledge of salmon ecology, stream management strategies, general traditional knowledge about area fisheries, and the role of clan social organization in the management of access and use of resources. Bibliographic research included both published and gray literature sources. Major documents consulted for this study include Frederica de Laguna's 1964 and 1972 published works on Yakutat; John P. Harrington's notes (1939-40); Kalervo Oberg's *The Social Economy of the Tlingit Indians*, R.L. Olson's *Social Structure and Social Life of the Tlingits in Alaska*; *Haa Aani, Our Land* by Walter Goldschmidt and Theodore Haas; Francis Caldwell's *Land of the Ocean Mists* (1986), and the Yakutat Tlingit Tribe's 2002 Household Subsistence Harvest Survey. Phase II was the development of interview questions, preparation of a list of potential interviewees, and the arrangement of interview times, locations and parameters. Phase III was conducting interviews and mapping with Yakutat elders and tribal members. Eleven elders were interviewed for this study. Rachel Mason (NPS) and Catherine Moncrieff (NPS intern) helped with the interviewing and transcribing. The elders reviewed and edited transcripts of their interviews. Each elder holds the copyright to his or her interview. Phase IV was report preparation by principal investigator, report review by collaborators, and acceptance of the final draft.

The Yakutat Tlingit Tribe hired local anthropologist/project coordinator Judith Ramos as Principal Investigator to conduct the literature review, produce the annotated bibliography, develop the interview questions and interviewee list, schedule and conduct recorded interviews, and prepare the draft and final reports. This study was coordinated with Yakutat Tlingit Tribe's other Traditional Ecological Knowledge study, which was mapping the traditional subsistence territories of the Yakutat Forelands for the USDA Forest Service and the Southeast Federal Subsistence Regional Advisory Council. The National Park Service assigned Rachel Mason, Anthropologist as the Project Manager. She assisted in project design, oral history interviewing, review, editing, and report preparation, and served as a liaison to the National Park Service.

Preliminary results of the study were presented at the Society for Applied Anthropology Conference in Portland, Oregon in March 2003 and at the American Fisheries Society Meeting, Alaska Chapter, November 2003 in Fairbanks.

RESULTS

The World Around Them



Yakutat is located on one of the most isolated parts of the Alaska coast, on the lowlands of the northern coast of the Gulf of Alaska. It is the only year-round community along the 250-mile coastline from Cape Spencer to the Copper River, and has one of the only protected anchorages along this entire coast. It is 212 miles northwest of Juneau and 225 miles southeast of Cordova. Dry Bay is the delta of Asek River, southeast of Juneau along the Gulf of Alaska coast. Twelve miles across on the ocean front and extending

seven miles inland, “it is 12 miles long fronting the ocean, and extends back about 7 miles it is mostly covered at high tide, but at low tide is filled with bars and small island between which are ramifying channels all constantly changing” (Caldwell 1986). Bear Island,¹ about 200 feet high, is near the middle of Dry Bay.

The 200-mile Saint Elias Range, the highest coastal range in the world, surrounds Yakutat. Its mountains include Mount St. Elias (18,008 ft), Mount Augusta, Mount Cook (13,700 ft), Mount Vancouver (15,700 ft), Mount Alverstone and Mount Hubbard (15,000 ft). Mount Logan (19,550 ft) on the Canadian side is the second highest mountain in North America. The Fairweather Range surrounds the Dry Bay area. Mount Fairweather (15,300 ft),² the tallest mountain in the range, was called “Mount Beautemps” by La Perouse, “Gor (a)-Khor-oshy-pogoody” by the Russians and “Tanaku” by the Tlingit (Caldwell 1986). Mount Root (12,860 ft) was named after Elihu Root, Mount Watson (12,516 feet) after David Watson, and Mount Lodge (10,530 ft) after Senator Henry Lodge. Mount Hay and Mount Reaburn³ are also in the range.

The Alsek River⁴, 240 miles long, begins in the Yukon and drains in the Gulf of Alaska. The United States part of it is designated as a Scenic and Wild River by the National Park Service. The upper Alsek, the Tashenshini River, is set aside as a Canadian Heritage River. The Alsek River has had various names. It was called “Beerling’s Bay” by Captain Cook in 1778 and “Behring’s River” by La Perouse. A Russian geographer and cartographer who charted the Alsek with five outlets labeled them with their Tlingit names: Tlegan, Taaltsug, Vankshina and Kakhina. The Alaska Coast Pilot (1868) called the Alsek River’s outlets Shallow Bay; George Davidson of the Coast Survey named the same outlet Dry Bay. The New York Times expedition in 1886

¹ In Tlingit it is Gal’jinwoowu, “Clam Hand Fort” (de Laguna 1972: 84). It is the Whale’s fin from the Raven story. Many young people were flooded out to sea during the glacier flood (de Laguna 1972: 276). After the flood, those left on the island became the Xatka’ayi “people on the island” (Swanton 1908: 413).

² See web site - <http://www.peakware.com/encyclopedia/index.htm>

³ The Tlingit believe Mt. Reaburn is the slave of Mt. St. Elias and Mt. Fairweather that carries messages back and forth.

⁴ The Alsek flows from Kluane National Park through the St. Elias Mts. to Dry Bay. A rock in the middle of the Alsek, called Heen Kweiyi, measures the water. If it got over a certain mark, people would head for higher ground. This design is on Frank Dick’s regalia.

called the river the Jones River, and in 1887 the U.S. Coast and Geodetic Survey called it the Harrison River. The U.S. and Canada adopted the name Alsek in 1891⁵.

The Akwe River (Aakwe)⁶ is at the foot of the Chamberlain Glacier. It joins the Ustay (Yost'ei) River then flows westward to the sea. The Tanis (Taanis) River flows south into Dry Bay through Williams (Gines) and Clear Creek, joins with the Ustay River, then drains into Dry Bay through Muddy Creek (K'aagun Heeni, Stickleback Creek) and Cannery Creek (Stuhinuk). Tanis Lake is drained by Gines Creek, which flows into Dry Bay.

The East Alsek River (Kunaga'a), usually called the East River, was probably once a branch of the Alsek River:

Now this stream extends inland for about five miles from tidewater, gradually become smaller, divides into a series of ponds and finally disappears altogether. Thus the only connection of the clear East Fork with the glacial Alsek is through underground seepage. ... Mr. Rudy Eisler, ... stated that twice in 8-9 years the Alsek River has overflowed and carried glacial water down the East River (Yakutat Chatham Ranger District, 1963).

The Doame⁷ or Dohn River (Titl'hini "Dog Salmon River) is another branch of the Alsek River that went around Deception hills on the east.

Yakutat is in the most glaciated area of North America. The Malispina Glacier (1,500 square miles) is the largest piedmont glacier in North America. Other glaciers in the region include the Valerie Glacier, the Turner Glacier, the Hubbard Glacier (the largest tidewater glacier), the Nunatak Glacier, and the Yakutat Glacier. Dry Bay glaciers include the Grand Plateau Glacier, the Alsek Glacier, the Chamberlain Glacier, the Rodman Glacier, the Fassett Glacier, the Martin Glacier, and the Canyon Glacier.

⁵ Information compiled from Caldwell 1986.

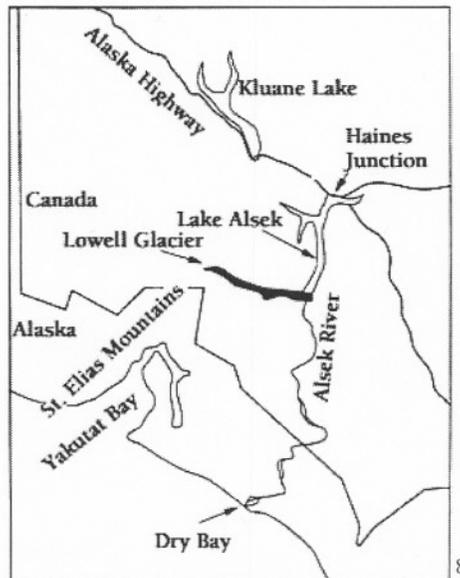
⁶ Emmons translated the name "Ah-qway" as "great water"

⁷ John William (1887-943) lived here. "Box House" was built here by Qatan. Diyaayi "People Who are Packing" is probably a rocky mountain or hill east of Alsek, where "a big rock stand up like a man." It was here that Qakexte taught the Athabaskans how to catch eulachon in a fish trap" (de Laguna 1972).



Alsek Glacier

At least twice in recent history Lowell Glacier dammed the Alsek River and formed an elongated lake. “Lake Alsek extended 25 miles up the Alsek River and an additional 27 miles up the Dezadeash River Valley” (E.D. Kindle 1953, quoted in Caldwell 1986). At its maximum, Lake Alsek was over 100 km long and about 200 m deep. It flooded “between A.D. 1848 and 1891, and between A.D. 1736 and 1832, twice between 250 and 500 years ago, and at least once between 800 and 2900 years ago” (Claque and Brampton 1982).



In 1869, Chief Kohl of the Chilkat village of Klukwan drew a map for George Davidson where he noted a “Sticks Village” at the confluence of the Tatshenshini and Alsek River. Once,

⁸ Larry Gedney, Alaska Science Forum, <http://www.gi.alaska.edu/ScienceForum/ASF7/792.html>

A large village flourished at the confluence of the Tatshenshini and Alsek rivers ... A half mile-high wall of water flushed the valley. It is said that a volume of water six times that of the Amazon was released. The village site disappeared entirely, lost forever (Rick Careless, 2000).

Oral history recorded this flood around 1850 or 1875:

That glacier broke that used to go across the Alsek. ... A great wave came along, turned over the boats, and the young people were all flooded in the ocean (de Laguna, 1972).

Yukon elder Kittie Smith told this story:

People were staying at a flat place where Champagne Creek (Alsek River) and Klukshu River (Tatshenshini River) meet, some kind of coast Indian people. All died there, people. All washed down to salt water. Just that one man saved ... All cleaned right out. They say they saw water coming half way up the mountain. That happened before my grandmother's time. But (in her time) that ice still goes, touches that mountain; that time the water was still full (Champagne-Aishihik Indian Band, 1988).

Topham learned that just above the "lagoon" at its mouth, the Alsek River "passes beneath a portion of the Pacific Glacier which descends from Mount Fairweather."

Dalton and Grave, who floated down the Alsek in 1890, also spoke of a place where the river runs under a glacier near the sea (de Laguna 1972). Oral history states that once they used to have to cross the glacier to go up the river, but going down they went under a glacier:

That water is pretty rough. Every time they come out, everybody sings⁹. They put on their new shoes (sic) and all their good clothes before they go under the glacier, for fear they will drown (de Laguna 1972).

The area between Yakutat and Glacier Bay has the most rapid uplift or isostatic rebound¹⁰ in Southeast Alaska or even the world.¹¹ Uplift rates for a hill in Dry Bay were

⁹ The song is now used as a dancing song for potlatches (de Laguna 1972).

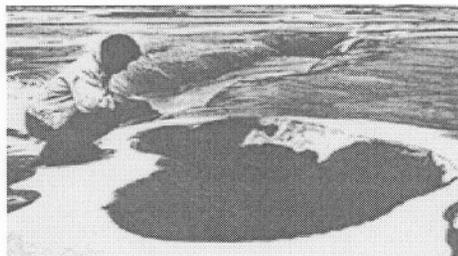
¹⁰ This term refers to the rising of land after the removal of glacial weight as the glacier retreats.

¹¹ Roman Motyka, University of Alaska Southeast and Geophysical Institute, Fairbanks. "Scientist Watch Southeast Land Rising and Try to Figure out Why", Anchorage Daily News, 9/6/2000.

calculated at 4.2 +/- 0.6 cm/yr.¹² The Fairweather Fault could also be compressing the crust and forcing it upward. De Laguna (1964) cited this evidence:

Tarr and Martin (1906:52ff) believe that there had been previous changes of sea level, and they cite raised beaches now covered with forest on Krutoi and Otmeloi Islands, and an elevated beach south of Point Latouche with trees only 75 years old in 1906...In fact, according to Don J. Miller (letter 10/9/57), there is evidence of very recent emergence of land areas, from beneath both the sea and the ice, all the way from Copper River to Icy Point other recent changes in the Yakutat Bay area have been the drying up of shallowing of the sloughs connecting the Ankau lagoons with Lost and Situk Rivers, and shifts in the sandbars ... that have resulted in some disturbances of the salmon runs.

Several huge earthquakes have hit the Dry Bay area, including the July 10, 1958 earthquake centered at Lituya Bay, which measured 8.3 M. Three people were killed when the north end of Khantaak Island slumped into the sea; two people were missing and presumed dead in Lituya Bay from a wave generated by the collapse of 300 million cubic meters of rock into Gilbert Bay (Stover and Coffman).¹³ Sand blows¹⁴ and ground fissures were observed on the low coastal plain southeast of Yakutat and Dry Bay. A cabin collapsed at Dry Bay. This earthquake was “so strong it knocked the needle off the seismograph at the University of Washington, and at the University of California registered eight on the Richter scale” (Caldwell 1986).



Donald Vent looking at sand blow¹⁵

¹² E-mail 11/2/01, forwarded from the USDA Forest Service, Roman Motyka and Chris Larsen, University of Alaska Southeast and Geophysical Institute, Fairbanks, Uplift rates for Dry Bay.

¹³ Abridged from *Seismicity of the United States, 1568-1989* (Revised), by Carl W. Stover and Jerry L. Coffman, 1993. U.S. Geological Survey Professional Paper 1527, United States Government Printing Office, Washington: http://www.neic.cr.usgs.gov/neis/eqlists/USA/1958_07_10.html

¹⁴ Sandblows are volcano-like eruptions of water and sand (T. Neil Davis, Alaska Science Forum, Article #323, 7/13/79).

¹⁵ T. Neil Davis, Alaska Science Forum, Article #323, 7/13/79, www.gi.alaska.edu

Earthquakes were also documented in the previous century. On September 10, 1899, an earthquake centered at Yakutat Bay measured 7.4 (foreshock) and 8.0 (main shock). This earthquake caused a brief revitalization of some glaciers, produced giant waves that destroyed forests up to 40 feet above sea level on the mainland by Knight Island, and resulted in changes of sea level.

A maximum uplift of 14.5 meters occurred on the west coast of Disenchantment Bay, and changes of 5 meters or more affected a large area The earthquake altered the regimen of glaciers in the area Avalanching resulted in the later advance of at least nine glaciers in Yakutat Bay and perhaps many others in more remote regions (Coffman and Stover 1993).

David Barclay (1988) found evidence of earthquakes in Yakutat Bay dating as early as 7500 years ago¹⁶.

One theory for the decline of East River sockeye is that it because of the rapid uplift in the Dry Bay area, altering the river drainages, in the 1958 earthquake. This area is also near a boundary where the North Pacific plate is sliding past the North American plate at the rate of about six centimeters a year.

Raven's Universe and Early People in Southeast Alaska



Lituya Bay women

Tlingit aani (the world or home of human beings) was created by Raven. Raven stole water from Ganuk (Petrel), obtained fire (with Hawk's help) and land. The earth was originally covered with moss but Raven obtained Kaayaani (Plants) from the sea otter

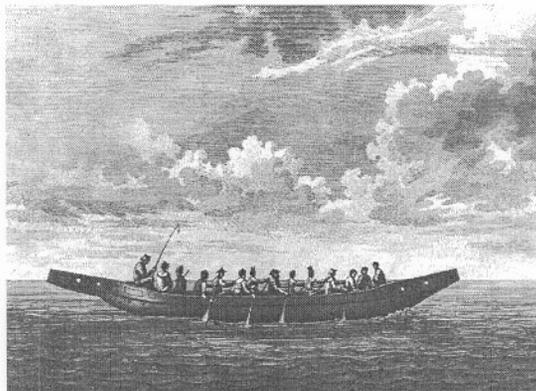
¹⁶“An earthquake at ~7645 cal. BP, the ETC site subsided a few meter allowing marine water to flood part of the fan delta surface ... along the western shore of the South Arm of Russell Fiord there is evidence of a sudden submergence (3 – 4 m.) of the delta surface at 7634 cal. BP.”

people, fish from *Xaat sati* (the owner or keeper of the Fish) and the sun, moon and stars from the Chief at the head of the Nass. When Raven's jealous uncle Dis (moon) caused a great flood,¹⁷ it forced people into canoes and onto the tops of the highest mountains (Mt. Fairweather and Mt. Saint Elias), where they built shelters or "nests", a number of clan origin stories begins with this even. (de Laguna 1972: 794, 845.)

The North Pacific shoreline was deglaciated by 15,000 to 16,000 years ago (Ames 1999). In Southeast Alaska the Ground Hog Bay site with artifacts radiocarbon dates at around 8230±800 BP; this site was probably un-glaciated throughout the Holocene. Human bones found in 1996 at Tongass Caves Project site 49-PET-408 in a cave on the Prince of Whales Island date to nearly 10,000 years ago:

.... making them the oldest reliably dated human remains found thus far in Alaska or Canada. The antiquity of these bones of a young man, and their location on Prince of Wales Island, lend support to the theory that early people migrated to North America along the Pacific Coast. Radiocarbon dates from Paleontological specimens from the cave span the past 40,000 years, indicating the presence of ice-free refugia during the late Pleistocene (Lysek).¹⁸

Dry Bay in Parable¹⁹ and Legend



Lituya Bay 1786 "Pirogue du Port des Français."²⁰

¹⁷ This flood could be associated with Lake Agassiz. When the southern edge of the Laurentide Ice Sheet began melting 13,000 years ago, Lake Agassiz was born. Around 8,400 years ago Lake Agassiz was around 841,00 km³. When the ice sheet gave way, at least 163,00 km³ of water spilled into the North Atlantic (Sid Perkins, "Once upon a lake: the life, times, and demise of the world's largest lake, Science News, Vol.162, No. 18, 11/2/2002).

¹⁸ Carol Ann Lysek, Ancient Alaska Bones May Help to Prove Coast Migration Theory, <http://archaeology.about.com/dynamic/offsite.htm>

¹⁹ A parable is a short moral story.

²⁰ http://lcweb2.loc.gov/cgi-bin/query/D?aipn:3:./temp/~ammem_j1Wr::

The Dry Bay area is significant to Tlingits because it is connected to Tlingit beliefs about their origin, history and the nature of their world. Many place names in the Dry Bay area are associated with Raven, with Qakexwte²¹, with the Thunderbird,²² and with other mythical beings. At Dry Bay, Raven opened the Box of Daylight. At Dry Bay's east end is a sand dune representing the "Footprints of Raven" (Yeil Aa Yoo Akaawajiyi Ye). There, Raven used a cane shaped like a devilfish tentacle to pull ashore a house (or canoe)²³ --"it was a boat but on the end in front was a house"-- filled with all kinds of food and animals such as seals and sea otters (de Laguna 1972: 84).

Raven also tricked the king salmon into coming ashore at Dry Bay. What is now Bear Island, the rocky island in the middle of the bay, was the Whale; Raven flew through his blowhole and when the Whale washed ashore Raven came out of it. On or close to the islands are rocks said to once be two brothers and two dogs that turned into stone when an adolescent girl in her puberty hood looked at them (Swanton 1908).

Gunaaxoo Kwaan - Dry Bay People

The Dry Bay area is called "Alsex" in Tlingit, referring to the Alsek River or "Gunaxo" (Harrington spelling is kannaa xxuu), contracted from gunanax, "among the foreigners," i.e. Athabaskans. The Dry Bay People's traditional territory extends from Cape Fairweather (or Lituya Bay) to the Akwe/Italio River area and continues back above the glaciers. The original inhabitants were probably Tutchone Athabaskans who were joined by the Tlingit L'uknax.adi, Kaagwaantaan and Shungukeide clans from Chilkat and Hoonah. De Laguna (1990) described the Gunaaxoo as "eighteenth-century Tlingit traders from Hoonah and Chilkat country mixed with the Athabaskan residents to form a separate tribe, the Dry Bay"—also known to the Russians as people from the "Bays of Akoine." With the Gunaaxoo lived the remnants of the Xatka'ayi.

²¹ Referred to as "The man who killed his sleep" in Tlingit myths.

²² A mythological bird that lived in the mountains.

²³ The L'uknaxadi Canoe Prow House refers to the enclosed prow of this canoe. The L'uknax.adi use a dance paddle shaped like the cane.

Early ethnographers labeled the Dry Bay people as Gunaaxu Kwaan or Akwe Kwaan. Emmons (1991) called the Dry Bay people the Gun-na-ho-kwan Tribe, which means “tribe among strangers.” Veniaminof, in 1840, mentioned a tribe called Ltua (Lituya) or Akwe-kuan (Akwe Kwaan) with 200 souls. Holmberg, in 1856, listed a tribe called Shltuja or Akwetz-khoan (Akwe Kwaan). Lt. Verman/Tikhmenev, in 1861, gave a population of 590 for Ltua Bay (Lituya Bay). The 1880 census counted 200 Tlingit between Cape Spencer and Yakutat. Krause (1956), in 1882, said that the “gunachokon” at Jakutat-kon (Yak-tat Kwaan) were “living separately.” Reverend Albin Johnson, who visited Dry Bay in 1900, counted 167 people living in three houses. Swanton, in 1904, said the Gona’xo (at the mouth of Alsek River) and Gathi’ni, “Silver Salmon creek” (Gus’eix?, north of Dry Bay) were Huna groups (Swanton 1909, republished 1970).

Oral history related the story of the Kaagwaantaan man, Qakexwte²⁴, known in legends as the man who killed sleep²⁵, who wandered to Dry Bay, discovered people catching hooligan and taught the (Tutchone) Athabaskan Tlingit skills, and from them acquired a wife. A Lukaax̄.adi man was also said to have married a Shungukeidi woman, so through her other members of this Wolf sib came to Dry Bay from Chilkat.

L’uknax.adi villages were located on the Akwe River at Gus’eix (probably originally an Athabaskan settlement), on the Tanis-Ustay, and on Stuhinuk Creek. X’at’ka.aayi villages were at “Gooch-ache” (hill town) at the confluence of Akwe and Ustay, “Tlu-tu-heen-nok”²⁶ or Stuhinuk (“Cannery”) Creek, and at Lituya Bay. Lukaax̄.adi settlements were at Eddy Fort, at Dinetki’an “it wiggles like jelly” or Dry Bay, East River, Stuhinuk Creek, and Gusex.²⁷ Swanton (1909) considered the Kosk’eidi a clan originally from Guxeix̄ (Kose’x) that moved to Sitka. It is thought the people who moved to Lituya became Xat’ka’aȳi and those who moved to Hoonah became

²⁴ Married to a L’uknax.adi.

²⁵ In the form of a bird, which De Laguna (1976) guesses is an eastern nighthawk, see also Swanton, 1909, Tales 32 and 104.

²⁶ De Laguna 1972:83.

²⁷ Sealaska Site no: 94.

Dakdeintaan. Emmons reported seeing a L'uknax.adi house at Italio River in 1886. The Kagwaantaan clan members also moved to Sitka except for a single family at Yakutat.

The villages seem to have been abandoned due to smallpox and the loss of canoes at Lituya. "When smallpox came, the Indian doctors saw spirits²⁸ coming, paddling in canoes." Gus'eix was abandoned after 1852 or 1865, after smallpox, after canoes were lost in Lituya Bay²⁹ and after a war between the Chilkat Ganaxtedi and L'uknax.adi (Swanton 1909, Tale 32). According to a Shungukeidi informant³⁰, smallpox killed everyone in Dry Bay (de Laguna 1972). Another story, "Big Rabbit and his Wife," mentions the smallpox epidemic. Many of the survivors moved to Johnson Slough,³¹ Lituya Bay and Sitka. Around 1910, a Boulder House was built at Situk. Dry Bay houses were built in Yakutat Old Village³² and Yakutat.³³

Seasonal migration and trading routes

Dry Bay people were distinctive because of their use of Athabaskan snowshoes, clothing, sleds and cottonwood dugouts: "in wintertime, snowshoes and sleds were used, perhaps more by the people at Dry Bay, than at Yakutat." They traveled by sled between Yakutat, Situk and Dry Bay: "...the Dry Bay people walked all the way from Dry Bay. They pulled sleds and walked on djakji (snowshoes)" (M.J., quoted by de Laguna 1972). Dry Bay people spent the summer in Dry Bay and the winter in the interior trading. Every fall or winter they went up to "Yewaltch hin (heen)³⁴", where they hung their fish to dry "and it would take care of itself". A Yakutat elder said:

The Tlukwaxadi (Lukaxadi) used to go way up to the head of Alsek. (Here) They would catch King Salmon, and when they came down from the head of Alsek, it

²⁸ Or saw skeletons; personal communication, George Ramos.

²⁹ De Laguna 1972: 273.

³⁰ Mrs. Chester Johnson.

³¹ Dry Bay houses established here include Boulder house, built by Natskik; Dekina Hit (Far Out House); and Sleep House, built by Chiefs Xananek and Ckinan (de Laguna 1972:317).

³² Boulder House, built by Charley White; Mt. Fairweather House, built by Xananek and Ckinan (Charley White); and Sidewise House, Lullaby House or Mountain House, built by Max Italio.

³³ Thunderbird House, built by Jack Peterson and Frank Italio, and Far Out House, built by Dry Bay Jack.

³⁴ Yewal'ji Heen.

(the salmon) was just dried good. Up at Tinx Kayani ³⁵(Kinnikinik Leaves) at the head of Alsek, they used to get soapberries ... They used to go up there for all kinds of meat – black bear meat, and then they (would) come down (de Laguna, 1972).

The original trail from Dry Bay to the Chilkat country was “pioneered by a Tlukwaxadi (Lukaax.adi) Dry Bay man, Yelkida, who went to Chilkat for a Cunguqeyidi (Shungukeidi) wife” (de Laguna 1976). The Lukaax.adi with their Shangukeidi spouses made annual trading expeditions up the Alsek. This trip required, lining up the canoes and portaging them to avoid the Alsek Glacier or a journey up the Alsek in winter on foot. In spring, the journey downstream was by canoe and cottonwood dugouts (de Laguna 1972). The trading route went over a glacier:

They found a glacier, an easy way to go back and forth. The name of the place where they found the road they have to walk on is called Kiyaxw or Giyakw³⁶. It's not too big a glacier, just a small glacier. And from there they found a different place, called Gutas or Gutas. This is the easiest way to walk back and forth, a path that goes easy, no bushes. And they get away from that glacier business (Frank Italio quoted by de Laguna 1972).

Once in the interior other trails went to Nuqwa-ik, to Neskatahin (near Old Dalton Post) and to Klukshu,³⁷ a summer fishing camp on the headwaters of the Alsek. Trails to the northwest led to villages on Kluane Lake. Dry Bay people were even known to walk all the way to Dawson (de Laguna 1972). The destination villages in the Yukon were at good fishing locations:

A mile down river, at the confluence of Village Creek (in the Yukon) and the Tatshenshini River, is the site of Nesketaheen (Neskatahin). ...Before... Village Creek, which cuts through the middle of the settlement, teemed with sockeye salmon. The name Neesgadi Heen actually refers to the creek it self and is Tlingit for “water (Heen) (goes) under rocks,”.... downstream from Nesketaheen at the site of an old Tlingit settlement named Nuqwa'ik (Noogaayik), or dying fish valley. Here some of the coastal people wintered over in order to trade more effectively with the “gunana” (Champagne-Aishihik Indian Band, 1988).

³⁵ Emma Ellis's grandmother was living here at the time of the 1985 flood (de Laguna 1972:276).

³⁶ “Gel'kw” (Glikw) is a portage opposite Alsek Glacier, a gully between two mountains, like a V, with a ravine. The mountain on the west was called Gel'guwa (Ghilw.uwaa or Gilguwaa).

³⁷ Klukshu is L'ukshu, meaning Coho Place, in Tlingit.

When Seton-Karr (1891:80-81) was camped on the upper Klehini in May of 1890,

some Indians came into camp having crossed the Pass from the Alteskh (Alsek) River, carrying heavy packs. One of the women was a Yakutat other Indians had remained a short distance up the valley, in order to manufacture cottonwood canoes. They stated that it took seven days to reach Dry Bay, and that there were canoes upon the Altsekh, which shot down to salt water with great velocity.

Emmons also documented the Chilkat trade route:

Another trip, taken in August when the salmon catch had been made, was by the way of the Klaheen (Klehini River) to the Kluckshu, where they (Chilkat) traded with the Alsek people. In early days they followed them down the Alsek in winter to the coast and traded with the Gu-nah-ho (Gunaxo) and Yakutat (Emmons 1991).

According to Emmons, the Huna also traded with the Alsek people. The man who killed the “spirit of sleep,” traveled up the Alsek to the interior:

Upon leaving, he was given copper which he carried back to his people. From this time, the Hoonah made trading trips to the Alsek country and procured native copper which they traded (Emmons 1991).

In 1999, the frozen remains of an “ancient person” were found in British Columbia’s Tatshenshini-Alsek Park. The man was named Kwaday Dan Sinchi or “long ago person found.” He was found with artifacts, including a spruce root hat. Initial radiocarbon dating of the artifacts indicated they are roughly 550 years old. He is believed to have been a coastal Tlingit trader.

Russians in Dry Bay

When Purtov and Kulikalov visited Yakutat in 1795, they noted that Dry Bay people were visiting Yakutat (de Laguna 1972). In 1802, Kuskov wrote to Baranov about the Tlingits’ plan to attack the Russians. The Dry Bay people were involved in this planning. Kuskov himself was attacked when he was at Akwe River: “the Akwe River chiefs complained to Kuskov that his (Aleut) hunters had not only taken their furs but had robbed graves.” The Kloshi (Tlingit) attacked his camp, and “... on their retreat, left 10

killed behind and must have had many wounded” (de Laguna 1972). After the attack on the Russian fort, the Lutnax.adi were also involved on an attack on the (Tlaxayik) Teikweidi at “Eagle Fort” up the Situk River. To protect themselves against retaliation by the Teikweidi, the Lutnax.adi built “Eddy Fort” on the Alsek River.

By the 1900s a few Tlingit families were still living in the Dry Bay area. Vince Johnson described his life there in the 1930s and 1940s:

We’d put up our subsistence fish, we’d ... canned them and we’d salt the salmon, King salmon bellies, Coho and stuff like that. And take the heads and split the heads in two and then salt them down in barrels, ten gallon, and ten gallon barrels. And we’d send, we’d take \$600 of the money we have and sent to Pelican and get a whole bunch of groceries for the winter. And we’d (hunt) seal, stuff like that, wood, we’d get a whole bunch of wood set up for the winter and that’s what we did there. ... we had ten cases of salmon, you know for the winter.

In 1981 half of Dry Bay became Glacier Bay National Preserve. The Tongass National Forest manages the other half of Dry Bay. Dry Bay continues to be used seasonally by summer fishermen. The development of commercial salmon fishing in Dry Bay will be discussed later in this report.

II. Yakutat Tlingit Traditional Use of Salmon

Fish are the staff of life for the Tlingit, and of all kinds the salmon is what is meant when the Tlingit speaks of fish (de Laguna 1972).

Gulf coast Tlingit people's maritime economy and reliance on salmon has been well documented (de Laguna 1972; Ames 1999; Davis 1990). Madonna Moss and John Erlandson found that the development of large salmon weirs complexes in Southeast Alaska dating to 1800 BC suggest an intensification of salmon harvest. In the Yakutat area, Stanley Davis (1996) established that the Lost River village of Diyaguna'et was probably founded between 800 and 1500 years ago. Since then several large box-type fish traps have been discovered on Lost River.¹

Late in the spring, they would go to their fishing camps until October. At the fish camps, the summerhouse was at the mouth of the stream; in some cases a group of such houses form a small village (Emmons 1991).

Previously coho and humpback salmon were the most important² salmon harvested, although the red and white varieties of king salmon and sockeye were also preserved. "The ideal fish for preservation is one that is not lean as the dog salmon, and not as fat as the sockeye or white king because fat fish become moldy very fast and although smoked, must be eaten soon" (de Laguna 1976). Subsistence fishing was generally done after the commercial season, in early October when the coho are running. The Ankau lagoon system was formerly reserved by law for this purpose (de Laguna 1972: 51). Hardy Trefzger (1963: 23) noted,

In the fall smoked salmon was put up, every family putting up from three to five hundred pounds. The village would be practically deserted, as this work was done at their fishing grounds on the rivers. I have seen smoked fish piled up like cordwood and wondered who was going to eat it all.

¹ Iwamoto, Karen and Stanley Davis, Lost River Fish Trap: Yakutat, A Recovery Plan.

² This was before freezers and jarring salmon.

Local Knowledge of Salmon Distribution and Habitat and Traditional Fishing Sites

Tlingits had broad knowledge of local salmon distribution and habitat. Yakutat people used the whole coast from Icy Bay to Dry Bay for salmon. They utilized different locations for different species of salmon as shown by where they set up their spring, summer and fall fish camps:

- The Galyax-Kaagwaantaan used the coast from Icy Bay to Copper River. Their villages were on the Kaliakh River and Bering River.
- “Between Point Mandy and Esker Creek is good for silver salmon” (Jack Ellis in Goldschmidt and Haas 1946/1998).
- Yakutat Bay, Russell Fjord and the “Islands” were important for harvesting King Salmon.

From January to March you can troll for winter kings. In April you can get Dry Bay kings That’s your first salmon that starts coming into the village, is your Dry Bay kings (Elaine Abraham 2002).

- Humpy Creek and “across from Knight Island” were important places to get pink, known as “chaas” or humpies, in the fall. “They’re easy to dry because they’re not oily” (Elaine Abraham 2002).
- Aka Lake is where Schwatka observed two fishing villages in 1886.
- The Ankau and Ophir Creek areas were important for fall fishing and coho: We didn’t get any salmon from Ophir Creek until Fall time and we waited until it lost some of its fat, and this is where we got our, it was Coho. ... (At) Ankau we fished there for Coho. All of this area here is Coho. And this is where I lived from, ... Ankau and Salt Chucks and Ocean Cape ... This is where I lived from October, all of October and this is where we dried something like 300 salmon ... every year (Elaine Abraham 2002).

Mosier (1901) noted that when Ensign Miller went to the “second lake” in July of 1901 he found the remains of a slat barricade. At “the Ankau River ... above a point where three houses and some drying frames are located on the southern bank and where the natives cure fish during the season” and at

...the lower part of the An-kau redfish were very abundant on July 1, though the natives say there are more Cohoes, which species they prefer for drying. With the spear the native is usually able to obtain all the fish he wants.

One reason for the destruction of the Russian fort in 1805 was that the Russians denied the Indians access to their traditional fishing grounds in this region. Military regulations during World War II also kept people out of this area.

From 1902 until 1925, when Federal law closed the Ankau to commercial fishing, this area supplied the saltery and later the cannery, but even by 1913 the runs of reds and Cohoes had been seriously depleted (Rich and Bell 1935: 447). However, enough salmon still come to the Ankau to make this a place where the natives go in the fall to put up fish for their own needs (de Laguna 1972: 73).

- Seventy-five percent of Yakutat residents today utilize the Situk.³ It is an important river for kings, sockeye and steelhead.
- Ahrnklin River had a Teikweidi village two miles above its mouth. The government closed the river at one time to commercial fishing. Anklin was important for coho and sockeye.
- Italo River was described as “a fine stream, clean and clear ... with sandy bottom, and runs of sockeye, Coho, humpback, dog and a few king salmon” (de Laguna 1972).
- On the lower Alsek, in the Dry Bay-Akwe area, there was formerly excellent fishing, especially in the smaller rivers and sloughs where eulachon, king, red or sockeye, silver, humpback, and dog salmon were caught. By 1925, however, the Akwe River and the “basin” of the Alsek River had to be permanently closed to commercial fishing, and other regulations severely limited the length of the commercial fishing season off the mouths of the rivers. Many Yakutat people go regularly to Dry Bay early in the summer to fish for the cannery, before the season opens off the Situk and Lost Rivers.

³ Yakutat Household Surveys 2000.

Bert Adams (2002) fished in this area with his father, Peter Harry and Alex Johnson:

... Akwe River never used to be a sockeye river it was always known as a silver river. But we had, for about five years, some of the best sockeye runs that ever came through there.

- Moser's investigation in 1901 found:

The Stu-hee-nook⁴ is a small stream about 15 yards wide, a few inches deep and flows with a sluggish current, while the Ko-kon-hee-ni⁵ is probably three times as large. Both carry redfish and cohos in large numbers, at their junction, on July 4, several canoes were employed spearing redfish. This whole system, called the Ah-quay, is said to carry a very large number of king salmon, redfish, and cohos When Robson went to Dry Bay in 1909, ... he found about 50 members of the "Dry Bay tribe" living in temporary summer huts and tents near the mouth of the Kakanihi, where they were putting up salmon.

- On the lower part of the Alsek River in Dry Bay is a small place called Kunaga'a, where people living on the east side of the bay used to go to put up king salmon Emmons reports "Ku-nar-ka-ha" as a small sand flat at the mouth of the Alsek where people caught king salmon in the early summer. Possibly it was on the north shore of the bay, ... or what we now call East River (de Laguna 1972).
- "Dohn River is Dog Salmon River"⁶,
Her Kagwantan paternal grandfather used to set his salmon trap in a nearby stream, Gun hin, "Clear Spring Water." Perhaps his Box house was on the Dohn or Titl'hini (de Laguna 1972).
- Upper Alsek River, The Lutnax.adi used to go way up to the head of Alsek, "Alsexyik," where:
They would catch king salmon, slice it and cover it over with cottonwood branches... They would just leave it there, and when they came down from the head of Alsek it was just dried good (de Laguna 1972).

⁴ Cannery Creek, called Staheenakw or Stuhinuk.

⁵ Muddy Creek, called K'agun heeni or Stickleback Creek.

⁶ Called Teel'Heeni or Titl'hini in Tlingit.

Tlingit Fish Terms

Salmon	Tlingit	Scientific name
<i>Salmon (any species)</i>	<i>Xaat</i>	
<i>Coho (silver)</i>	<i>L'ook</i>	<i>Oncorhynchus Kisutch</i>
<i>Dog (chum)</i>	<i>Téel'</i>	<i>Oncorhynchus keta</i>
<i>Humpy (pink)</i>	<i>Cháas' (Kwaaskw-Eyak)</i>	<i>Oncorhynchus gorbuscha</i>
<i>Sockeye (red)</i>	<i>Gaat</i>	<i>Oncorhynchus nerka</i>
<i>King (Chinook)</i>	<i>T'á</i>	<i>Oncorhynchus tshawytscha</i>
<i>Salmon eggs</i>	<i>Kahaakw</i>	
<i>Salmon eggs in fresh water</i>	<i>Geel'</i>	
<i>Salmon eggs, fermented</i>	<i>Kahaakw kas'ex</i>	
<i>Dolly Varden</i>	<i>X'wáat'</i>	<i>Salvelinus malma</i>
<i>Cutthroat</i>	<i>X'éitaa</i>	<i>Oncorhynchus clarki</i>
<i>Steelhead</i>	<i>Aashát (Lake wife)</i>	<i>Salmo gairdnerii</i>
<i>Sea trout</i>	<i>Yaa</i>	

John Harrington collected Tlingit and Eyak terms for fish in Yakutat and Seattle. He recorded the following notes⁷ on Tlingit fish terms:

Scale: akhatjiikii,⁸ (a kajeigi, a jeigi).

Brain cavity bone flake: xat.can thunuus'uu, literally fish head shell (porcelain).

Interior head bone: achuntus'aakii (ashuntu s'aagee). "This is the little bone like a shell which salmon and also halibut have inside the head."

Salmon palate-bone: s'aax't k'ihe, literally sky or palate fish bone. T'ahkuk.an,

King salmon's palate, xaat-kokl'an (k'ikl'an - his palate).

Fish tongue: Xaat nuutt'inni (nuutt'innii is the uvula in humans).

Gill: 'ag'eex'uu (a x'eix'u).

Anterior dorsal hump: 'aththakuutlii, (its hump) (goodlee is hump).

Caudal fin: 'akhut'eesii, his tail, 'akhuuwuu, its tail (a koowu).

⁷John P. Harrington's notes, 1930-40. His informant was George Johnson.

⁸Spelling is John Harrington's spelling from his notes.

Air bladder: 'akheelii, (ageelee).

Heart: 'anuutc'ii, its heart.

Pelvic fins: 'ataas'aakii.

Pectoral fins: 'ukukcik-s'aakii.

Historical Techniques of Harvesting Salmon

In 1838, Robert Campbell of the Hudson's Bay Company came to the Stikine River. Greatly impressed by the volume and scale of the indigenous fishery there, he wrote:

From the top of a hill we caught our first glimpse of the immense camp of which we had heard so much, and indeed the description given us was not exaggerated. Such a concourse of Indians I had never before seen assembled. They were gathered from all parts of the Western slope of the Rockies & from along the Pacific Coast. These Indians camped here for weeks at a time, living on salmon which could be caught in Thousands in the Stikine by gaffing or spearing, to aid them in which the Indians had a sort of dam built across the river (Robert Price 1990).

Spears, gaff hooks, hook and line, fish traps, dams and weirs were traditionally used to harvest salmon depending upon the species and the water in which they were caught. Lake streams were usually dammed by a tree "that was dropped across the stream not far from the mouth, if possible just above a pool" (Emmons 1991: 103) to confine fish so they can be taken. Different kinds of traps were also used: cylindrical or semi-cylindrical baskets of split spruce rods, seized to hoops with spruce roots at the mouth; and Box Traps. "These traps were placed at opening in the barricade, their mouths downstream, for the fish always head up against the current" (Emmons 1991: 103-115).

One type of spear or harpoon (ada) was a rounded shaft of young fir or spruce, from ten to fifteen feet in length, in the end was the butt of a barbed head. Harrington reports that king salmon were taken with the harpoon from a canoe in dead low water at

the mouths of rivers, where the salmon were perhaps only 3 feet below the surface” (de Laguna 1972: 384). In the legend of Salmon Boy, a boy’s parents were using a harpoon to harvest salmon:

And pretty soon the old lady looked down and she saw him and she called her husband, “Come on, run, hurry up. Spirit of Salmon over here”, so he got his spirit, we call it Ada. It’s longer than this room. Got a cut in front of it. ... That’s a genuine original cut that the blade used to be made out of whalebone, and used to be made out of bear bone. Anyway he speared it and he brought it up to her (George Ramos 2002).

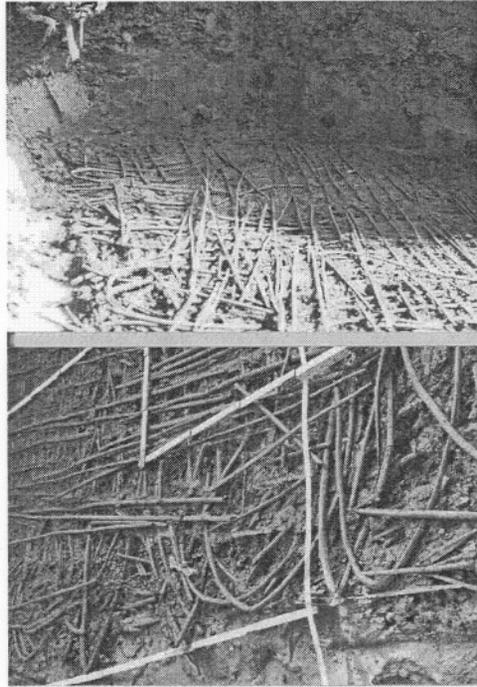
In 1901, Moser noted that the Dry Bay Tlingit were still using spears: “With the spear the native is usually able to obtain all the fish he wants.” On both the “Stu-hee-nook” and the “Ko-kon-hee-ni” he observed people catching larger numbers of sockeye and cohoes, and “...on July 4, several canoes were employed spearing redfish” (Moser 1901).

In Yakutat, detachable barbed harpoon heads (over 10 cm) were used to harvest seal, porpoise, sea lion, and salmon. The smaller heads (under 6.5 cm) were arrowheads for sea otter (de Laguna 1964: 131,149). Malaspina, a Spanish explorer, described a harpoon with a toggle head in 1791: “Their most common food is the salmon which they take with a small harpoon-like barb made of bone, which in the part opposed to the point has a conical cavity, into which fits the end of a shaft of wood ... and which on the other end is attached to a bladder” (de Laguna, 1972: 384). Emmons also described this kind of harpoon head: “Another type of spear ... a toggle (harpoon) head on a loose (fore) shaft that was set into the end of the spear shaft”⁹ (Emmons 1991:107).

Other devices used for fishing include torches and gaff hooks: “Fishing in the rivers and lake streams for the king, sockeye, and coho salmon was done chiefly at night when they ran upstream; and the Yakutat (and Sitka) used torches” (Emmons 1991: 112). Harrington found:

⁹ De Laguna showed plates of fishing implements Emmons collected: AMNH E/160, 473, 859, 1577, 2121, 2601 (de Laguna 1972:112).

Especially Cohoes are to be obtained in riled water such as comes from glaciers. ... and as they float down hook Cohoes from the muddy water at various places. The gaff hook (kixaa) consists of a pole make from a small young spruce tree with a steel hook at the tip end of it (de Laguna 1972: 386).



Excavation of Lost River Trap (Forest Service photo)

One kind of salmon trap used was cylindrical with an inverted funnel-shaped entrance (Tlingit - kitx-yik yadi, child inside the trap). This trap was used for salmon in the Dry Bay area until early in the present century. In 1786, La Perouse's men observed Tlingits catching salmon in such traps in the Huagin River, near Lituya Bay. La Perouse described the trap as: "Narrow wicker baskets, closed at one end, into which they enter, and being unable to turn in them, they are thus caught" (Emmons 1991: 106). Cylindrical traps were also use for trapping eulachon at Dry Bay, Situk, and the Ankau area (de Laguna 1972).

Another trap used was the box trap:

Several informants mentioned the enormous traps that were formerly used in Lost River.¹⁰ These traps were given individual names referring to the sib (clan) totem, such as “Brown Bear Trap,” or “Raven Trap.” They were described as box-like affairs, about 25 feet wide and almost three times as long, with a catwalk on top. The trap was made of red cedar (more often perhaps of local wood), which the men procured, while the women gathered the spruce roots with which the men lashed the pieces together (MJ) The trap was set in a fence or weir that was built across the river and was attached to stakes driven into the bottom. ... Salmon were permitted to ascend the stream above the trap, then the river was closed with the weir. A large party went upstream above the fish to drive them down into the trap. Some people were in canoes, others stripped almost naked and walked down the bed of the stream, carrying sections of fence. When the fish entered the trap it was closed. One or more little trees had been thrust through the top of the trap; the chief in his canoe watched these, for their shaking indicated when the trap was filling. When the tree shook hard and finally stopped moving, the trap was full. The inner part of the trap was hoisted out with spruce root ropes and the fish taken into canoes. One trap full was said to have been enough to supply all the people of Diyaguna’et on Lost River for the winter. When the chief the owner of the trap, had taken enough for his house-hold he let the others have the rest. These traps were used especially for coho’s, and also for sockeye salmon (de Laguna 1972).¹¹

The Southern Tutchone of Neskatahin and Klukshu in Canada learned how to make salmon traps from the Coastal Tlingit. They used box shaped traps are set in a V-shaped weir that prevent the salmon from swimming upstream. “The sharpened ends of the poles keep the salmon from swimming out again ... people can easily gaff out the fish and club them” (McClellan 1987).

Fish dams, constructed near the mouth of a stream, consisted of a series of artificial basins enclosed by walls of boulders reaching to about the half-tide line. “The fish, running in with the flood, entered the basins, but were confined when the tide fell, and so were easily caught” (Emmons 1991). Most of the intertidal fish traps and weirs Langdon (2001) found on his survey pf Prince of Wales Island¹² were simple traps of a single arced stonewall

¹⁰Lost River Diyaguna’et fish trap dated to 160 +/- 50 (Beta 33024).

¹¹See the trap Emmons collected - AMNH E/533.

¹²Steve Langdon, Tidal Pulse Fishing: Selective Traditional Tlingit Salmon Fishing Techniques of the West Coast of the Prince of Wales Archipelago (2001).

...made up of two or three layers of irregular stone cobbles from about 6 inches to 24 inches in length stack on each other. The single trap walls were usually continuous with no gaps as were found in the weirs. They are typically arced constructions but a variation identified in one location resembles a check mark or the Nike-brand symbol.

The size of the traps ranged from 70 meters to 28 meters. They opened toward the forest and most were located slightly above half-tide. According to Langdon,

The intertidal weirs identified consist typically of a straight stonewall placed across an intertidal section of a stream channel, typically at a right angle to the freshwater flow. The stone weirs were found primarily in the intertidal zone of small streams on the outer islands of the archipelago. These weirs are typically less than 30 meters in length and most consist of less than three layers of stone piled up. Local oral tradition states that tree branches were embedded between the stones of many of these structures to complete their functioning by creating a higher wall. Excavation in 1986 of deposited sediments behind one intertidal stone weir located on the east coast of San Fernando Island did indeed reveal a wooden stake that was subsequently dated to approximately 1050 AD.

Schwatka (1886) found a fish trap in Yakutat at T'awal Creek, a stone fish dam, it was 'large and well constructed,' and blocked the stream so the rising tide could not ascend farther. There was a break in the center of the dam, through which water poured and through which the Indians managed to take the canoe. He noted that:

This dam deserved more than passing notice. The rocks of which it was built seemed as old in place as any of those lining the shores themselves, and not one of them had apparently been displaced since its making.... it was (said to be) built by the Aleuts (Eyaks?) many years ago (de Laguna, 1972).

A salmon weir was "an open-tip V-shaped weir, made of vertical pole fencing." The fish swam into the converging arms of the V, where they were trapped when a gate was closed. The enormous fish trap out in the ocean in which the salmon are supposed too have been imprisoned until released by Raven was a "vertical pole corral" of this type. A stream might be completely blocked by a fence of vertically placed poles which prevented the fish from ascending and that they were harpooned below this. "Moser's party found a number of such barricades on T'aal Creek in 1901" (de Laguna 1972).

III. Tlingit Philosophy, the Ecosystem and Salmon

Dr. De Laguna explained how traditional Tlingit philosophy affected their treatment and management of salmon:

Please remember that you are to explain the Native ways of thinking about territorial rights, fishing and all the other topics on you list. Give up the jargon of “*resource management*”. That is the white man’s way of thinking about such matters. If you could only consult “Under Mount Saint Elias” you would see that the Tlingit and Native peoples felt that they were living in one world with the plants and animals and fish. There are other entities in the world that we think of as inanimate, such as mountains and glaciers, yet the Tlingit thought of these to as like people with intelligence and moral values. They did not think that these were resources to be “managed.” The natives have been part of the ecosystem for hundreds of years and a balance had been achieved so that there was no danger that they would take more fish or game and deplete the supplies. ... They only felt that they should treat the fish and game and plants that they took with the respect that one person would give another because they believed that the animals permitted human beings to use their bodies provided they treated them with respect and were not wasteful. It was only after commercial fishing began on a large scale in the late eighteen hundreds that shortages began to appear and we began to think of “management of resources.” The whole balance of the ecology was overturned then and there was widespread waste over fishing and actual throwing away of salmon that could not be salted or canned. Before that time, the Indians had no need or no desire to catch more fish then they needed because drying and preserving it was a long and difficult process.¹

Dr. de Laguna found that the Ahtna followed the same rules:

To ensure a sustained yield the Ahtna followed a set of rules regarding the treatment of salmon that were embedded is a cosmology in which fish, birds and mammals, were recognized as social being who were controlled by powerful forces, and protected by elaborate systems of rules that men transgressed only at their peril (de Laguna 1969-70:18, quoted in Simeone and Kari 2002).

¹ Dr. De Laguna, personal letter to Judy Ramos dated 11/15/01.

The Supernatural World

Tlingits believed that “inside and between” the earth and sky “everything was alive with spirits (life-force) called Yeik, and some resided upon the sky itself.” Because of this belief, “The Tlingit never took life unnecessarily, having a positive belief in the existence of a spirit in all nature” (Emmons 1991). Even the rocks had souls called “Te Kwaani.” When Raven released daylight at Dry Bay, they (the rocks) tried to run away. “And because he break (broke) daylight on them all, the rocks went that way and that way” (elder quoted by de Laguna, 1976). Tlingits believed animals had souls like human beings and animals were once men. They lived in their own homes, under the sea² or in the mountains and they could take off their outer skins, change their bodies, or even appear before men in human form.³ Myths from “the beginning of time” tell that when people were still living in darkness, they wore fur robes. After Raven stole the sun, moon and stars, he opened the Box of Daylight (in Dry Bay) on the people. That’s when they turned into animals with the same fur as the robes they were wearing:

Some (animals) who been wearing sealskin coats go (went) in the water. Others with bearskins on – everyone for themselves scattered. The sealskin coats go down on the beach; the mountain goats go up in the mountains; the groundhogs go up in the mountains, as soon as he opened daylight. It happened right in Akwe, in Gunaxo (Dry Bay) (Yakutat elder quoted by de Laguna 1976: 855).

In *Make Prayers to the Raven*, Richard Nelson (1983) says that the Koyukon Athabaskans’ “Distant Time” stories provided the Koyukon with a basis for understanding the natural world and humankind’s proper relationship to it: “Stories therefore serve as a medium for instructing young people in the traditional code, and as an infallible standard of conduct for everyone.”

² See the Salmon Boy story.

³ See the Kats story, The Woman Who Married the Bear.

Reverence and the Conservation of Animals and Salmon

Because animals were once human-like and could understand humans, animals were treated as powerful beings and treated with great respect. “Cruelty, torturing or insulting animals and laughing at them, or even wanton killing, was believed to bring misfortune, death and punishment in the afterlife.” Likewise, avoidance of what was prohibited, as well as positive acts, brought success to the hunter. Tlingits believed animals could be killed only if they were willing “that their deaths were favors granted only to those who came to them purified and who treated their bodies with respect” (de Laguna 1972).⁴ “The hunter or fisherman appealed to them before their capture; and after their death and followed certain observances that were supposed to propitiate their spirits” (Emmons 1991). The conservation of salmon and all animals supported these beliefs. Any squander, waste and wanton killing of anything, could not be justified and so was taboo. Tlingits never just shot animals for no purpose; they only killed what they needed. When they killed something, they always “fixed it up,” prepared it, cleaned it, and then put it away so they could use it. Yakutat elders reiterated these beliefs in interviews for this study:

First of all you never killed an animal for the sake of killing. You never killed an animal to hang it on your wall as a trophy. You never killed more than you needed. ... all animals had a spirit. You never offended the spirit, you never cursed the spirit and this is one of the things that they tell the stories, a lot of the stories on how you're going to live, how you're going to treat the animals from the time you're small. ... They always tell you that, you never curse an animal. You never curse the wind, the moon, sun, because they are all part of your life that revolve around you. ... You don't curse, you treat the animal, you don't curse at anything that's a spirit. All animals in our world have spirits, all the things around them (George Ramos 2001).

And like anything else, you never abused a, you never killed him for nothing. You know, you only took what you needed and that's it. And like any other creature you'd pray about it first (Ted Valle 2001).

⁴ See also Adrian Tanner, “Bringing Home Animal, Religious Ideology and Mode of Production of the Mistasini Cree Hunters, St. Martin's Press, New York, 1979.

Tlingits were careful not to waste any part of the salmon. They tried to dry everything but the fins and entrails. When the flesh was eaten, they burned the bones. They believed that “if this was not done, the fish would suffer and there would be no more runs” (de Laguna 1972). Olaf Abraham (1973) explained:

Animals that were used for food were treated with respect. In that time we did not eat white man food, all our food came from our land. I will first speak of the fish. Fish was the main diet for twelve month out of a year. No part of the fish was thrown out every part was utilized. The head, the intestine, all was used most of it was dried.

The proper treatment of the salmon bodies and proper observances after death included cutting salmon in a certain way, from the vent, along the belly to the throat because it “was believed necessary lest the fish or their spirits feel offended and desert the stream.” The head of the fish had to be turned upstream when the most important cuts were made. A Stikine legend related that once, in a salmon stream up the river, a fish was cut along the side by mistake

... Whereupon all of the other (salmon) immediately disappeared. ...Then the shaman’s spirit went out to the fish and begged them to follow the canoe (Emmons, 1991).

Salmon bones were placed in the water or fire:

The bones shouldn’t be cast anywhere. Don’t set towards the water. Among the fishes, it’s like you set naked. You have to set sidewise to the river (Ted Valle 2001).

After you are finished splitting the fish, you hang it with its head upstream.

This was obviously to insure the return of the reincarnated salmon in another run... The pole...runs parallel to the riverbank, and therefore the fish can be hung or saddled on the pole with the head upstream (de Laguna 1972).

Women of menstruating age were not allowed near the stream.

In the old days, when salmon began to run, the women were not allowed to come close to the water. They had to stay back in the house where they belonged. This was to show respect for the fish. But now, women even help to catch them, one man commented (de Laguna 1972).

Salmon were not allowed to be bothered when they were outside of the river because it was believed the salmon might go to another stream.

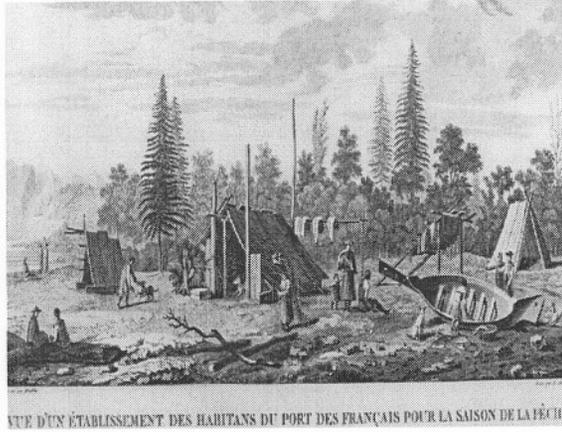
After they came inside, then, they came up to the trap, after they came up further then you can use your spear, fish spear to gather. But when they're on the outside, never, it was taboo (George Ramos 2001).

Elaine Abraham said :

they weren't allowed to disturb the rivers. Children could not play around the rivers because they would disturb the fish people or insult the fish people. There was absolutely no activity to disturb the fish in any way at all as the fish started to come up. Only when it was time that they could go ahead and start pulling up, open their fish traps, and that was done by the house leaders and the shaman where the shaman communicated with the fish spirits that it was alright to go ahead and take them for food. That was how they controlled and took care of the fish.

Traditionally, Tlingits sang to an animal when they killed it to show respect for it:

They sing a song to anything they killed - different songs for different animals... They talked to it and explained why they had to kill it. They showed the animal respect ... in the old days, when we kill anything, even a little trout, we pray to it. We explain why we kill it ... We sing a song to it ... a song to things in the water... Either water animal, either mountain animal - tell him why you kill it. Tell the whole water animals why you kill it. You tell them story (the reason) same time you sing the song; - your family left at home is hungry ... That's why every Indian say every time he kill the fish... "Why I kill that fish? I need it to eat to myself" (Yakutat elder quoted by de Laguna 1972).



Lituya Bay 1791⁵

Understanding Salmon Through Salmon Legends⁶

From the Salmon Boy story, Tlingits learned that salmon could be reincarnated only if you burned their bones. Tlingits believed they were just killing and eating an image of the fish, “the same fish over again, provided that he burns their bones and so enables them to live and return in the next year’s run” (de Laguna 1972).

When you get fish, it’s not the real fish. It’s just the picture of it--Tca ‘ayahayi. (That is, the fish’s body is the image of the true fish, which is its soul). If you do not *burn* the bones (to liberate the spirit) that fish going to really suffer--the fish will really die.... If they don’t burn the bones, pretty soon, no more fish (de Laguna 1972).

The Salmon Boy story taught Tlingits proper behavior toward salmon and about their behavior and life cycle.

The Fish Commissioner thinks he knows a lot about fish, but we know more. In the old days we used to take care of the fish... There is a wonderful story that explains how we know about fish (de Laguna, 1972)

The proper behavior toward salmon was learned by the boy who insulted the fish and was taken by them. He returned as a fish, was caught by his own father, and eventually regained his own form and became a great shaman. Then he told his

⁵ <http://lcweb2.loc.gov/>

⁶ See also the Ahtna myth of Bac’its’aadi as reported by William Simeone and James Kari in *Traditional Knowledge and Fishing Practices of the Ahtna of the Copper River, Alaska*, 2002.

people how salmon should be treated. In one version of this story the big traps in the river appear like forts to the fish, which try to break them down, just as a war party might. It should be noted that the Eyak word for “fort” and for “fish trap” is the same (Birket-Smith and de Laguna, 1938, cited in de Laguna 1972).

The lessons of the story of Shin-quoklah or Moldy End are that you cannot insult salmon and that salmon bones must be burned. The little boy would not eat moldy salmon. Later when he was catching seagulls, he disappeared and was presumed dead. The fish had taken him under the sea. He learned that after eating fish you burn all the bones, the “Whole thing. Don’t leave any of it on the ground.” The boy left one bone unburned and when he came back, one of the salmon people was sick until he burned the bone (de Laguna 1972).

Keithahn⁷ (1963) also collected the story of Shin-quo-klah or Moldy End. Shin-quo-klah was a high-caste Tlingit boy at Karta Bay. Because he had given life back to one of their people, he was taken. He learned, “It is only when salmon were eaten and the remains burned or thrown back into the water that Salmon people could resume their life in human form in their villages beneath the sea.” The Stone women told the salmon boy to eat one of the salmon and to throw all the fish bones in the water and they will come back to life. He left part of the salmon unburned and one of the children became sick. When he burned the bone the child got well again. In Keithahn’s version of the story, we learn what happens to villages that break a salmon taboo. After two or three seasons, the salmon people formed a great armada and

...started off toward the mouths of the rivers and the villages of men. They were going to fight the battle of the leaves. They met great companies of Herring People returning from a recent trip to the land of men. As the mouth of each river or creek was reached, the Salmon Chief assigned a company to enter it. They bypassed rivers where people disobeyed the salmon taboos and were being punished by starvation (Keithahn 1963).

In a similar story collected by Swanton, Tlingits learned that salmon lived under the sea in a village like humans. After a boy got pulled into the water,

⁷ See also Olson (1967: 34), Nexdi Clan Legend.

The salmon people went out to sea with him. To him it looked as if they were in a canoe. A chief among these salmon had made him his son (Swanton 1909).

Then the boy stayed in the salmon people's town. He was among them for one year. In their world, a village of salmon,

...the post and doors were alive. There is a Shark house and in the Herring people house, what looked like feathers flying around were really herring eggs (Swanton 1909).

In Dr. Cyrus E. Peck's (1986) version of the story, you learn the salmon's life cycle. The salmon colony traveled by boats and when the silver salmon were ready to leave,

a conflict arose among the salmon colony, which caused them to destroy the boats of the silver salmon, the dog salmon, and the pink salmon. But, in the course of the conflict, the salmon were able to save some of their equipment and boats. Because of this conflict, the order of spawn was switched around.

We also learn from the Auk Ta Tseen story that it took two years for the pink salmon to complete their cycle. "This order of cycle was established from Auk Ta Tseen's experience." When the migration of salmon began, the salmon and Auk Ta Tseen

... traveled as if they were in a boat going down the creek. The salmon people knew the salmon month had come us ... they started back with him... The Coho people broke their canoe, this is why they come back last (Swanton 1909).

In both de Laguna's and Cyrus Peck's version we also learn about the Salmon Messenger or First Salmon, who is sent by the Salmon Chief to clear out the grass, so that the salmon run will come to a clean river. Tlingits believed that

when salmon are running and one is seen too jump, people should call out "Again! (tsuk)," and it will jump again. They also call "Come (jump) again? (tsuk tan). Your river runs in grass ('ihini xal' naside)" (de Laguna 1972).

They believe that if the fish do not come, the stream becomes choked with grass, which the fish do not like. The parents of Auk Ta Tseen saw a salmon jump and said,

“Ahoy! Ahoy! Your river is only flowing with marine growth grass. Keep moving on because your river is only flowing with green marine growth” (Cyrus Peck 1986).

Yakutat elder Elaine Abraham (2002) talked about the first salmon or “fish messenger”:

The fish, when they had messengers or watchers all the way up and down the coast, in the springtime they would look for the first jump. That means the fish spirits, the fish. The first jump, they call it in Tlingit, the forerunner of the fish spirit that they would sight. And the messenger would run back to the community houses to tell them that the fish spirit has already acknowledged the movement of the fish people coming up.

Tlingit myths tell of the origin of salmon. Tlingits believed salmon are a tribe, “organized into families, that lived at Seete” (Emmons 1991). The salmon live in a place where the ocean’s horizon is surrounded by an opening and closing ring which the fish had to jump. Those caught were scarred. The salmon traveled in invisible canoes, with their chiefs standing at the stern to direct their movement landward.

At the horizon, there was supposed to be an opening called cloud hole (gus wul), and the Russians were believed to have come through this. Before that, it’s where the fish come from. That (hole) opens up and all the fish just comes right out. When you see those scars of that fish ... there’s something that closes up on them, leaves those marks on them (de Laguna 1972).

Once when Raven was at Dry Bay, he

wanted to find out where the salmon and herring came from, it is just like a great fish-weir out in the ocean, and from this the fish are released by xaat saathi, the keeper (owner) of the Fish out in the ocean there is a place, khatathankhaahiti (kada tankahidi) [a weir or fish trap] It is like a vertical staked corral. All the fish live there” (de Laguna 1972).

Harrington (1939-40) heard that

Xaat saati (Owner/Keeper of the salmon) owned the salmon. The salmon used to spawn in the ocean but Raven got the salmon to come up the rivers to spawn Raven... first caused the salmon to enter fresh waters, their entry into which had hitherto been forbidden by the owners or masters of fresh water.

In the myth of Salmon, Fog Woman and Raven, Fog Woman created salmon. Raven met a beautiful woman in a fog. When she turned her spruce root hat upside down, the fog poured into it. Raven married her. When Fog Woman put her fingers inside the hat, she created salmon. She filled the stream with salmon. Together she and Raven smoked and dried all the salmon. But Raven mistreated her. She turned herself back into fog and left him. All the salmon returned to the water. Some say Fog Woman's daughters, the Creek Women, live at the head of every stream and the salmon "fights its way to the headwaters of the stream for just one look at *the Woman of the Creek*" (Keithahn 1963:150).



The women here appear to be doing the work and attending to the business. The men are at the saloon, maybe, the sign of which shows.

IV. Traditional Allocation and Management of Resources

Definitions

Tribe - To the Tlingit, the tribe was a much less important political entity than the clan.

According to R. L. Olson,

There were no tribal organizations, no tribal chiefs, no tribal councils. Neither tribe nor town had, or has, any formal organization, and ownership of land was by clans and households rather than by tribe. Thus the term 'tribal territory' does not apply in the usual sense.... The really important features of Tlingit society were the maternal clans ... and the moieties. The chiefs were clan chiefs, not tribal chiefs (R.L. Olson, 1967).

Clan - De Laguna (1976) said the members of a Tlingit clan (sib) consider themselves brothers and sisters:

... All are bound together by the possession of important prerogatives; a common name, a body of historical and mythological traditions, possession of territories for hunting, fishing and berrying The clan is made up of households, consisting of closely related families living together under one roof, numbering sometimes over fifty.

House chief (hit sa'ti) – Each clan house was headed by a hit sa'ti, “master of the house.” Emmons said, “While the house chief was accorded much respect and represented the communal body at all public functions, his authority was very limited” (Emmons 1991). Oberg said,

The oldest male is generally the house chief, or, as the Tlingit denote him, yitsati (hitsati “keeper of the house”). The hitsati does not own the house nor the ceremonial articles but holds them in trust for the others. ... the hitsati is pre-eminently a ceremonial leader, a repository of myth and social usage, and an educator of the young of the house-group (Oberg 1973).

Clan chief - This was the highest-ranking house chief. According to R. L. Olson (1967), the clan chief had no special title. However, Oberg said this leader might be known as an ankaua (“rich man”).

The word chief does not fit the ankaua any more than it does the yitsati (hitsati “house-keeper”). The ankaua is not specifically the head of the clan, but he is the hitsati (House master) of the leading house. He is, therefore, the hitsati of highest rank (Oberg 1973).

Clan Control and Management of Land and Resources

Southeast Alaska is divided among the Tlingit clans, and subdivided by each clan among the house groups and families (lineages). Salmon streams, hunting and berrying grounds were inalienable clan possessions. Travelers through another clan's territory could kill animals for food, but not for pelt or profit. Otherwise, the rights of territory were duly respected and strictly enforced. This was clearly demonstrated when the first salmon canneries were established, payments had to be made to the clans owning the streams. Territorial rights usually included even fresh drinking water and firewood (Olson 1967; Oberg 1973; de Laguna 1983; Emmons 1991). The clan had ownership to certain defined hunting and fishing areas. Salmon streams, sealing islands and mountainsides for hunting of mountain goats, berry patches, house sites in villages and rights to passes into the interior were all clan-owned (Oberg 1973).

House ownership of land and resources

While clans owned the larger territorial area, houses had their own salmon streams, or fishing and hunting grounds, and berrying grounds (de Laguna 1983; Emmons 1991). Houses also owned trees, clover patches, and herbs (Oberg 1973). House chiefs owned certain summer camps and small creeks or special hunting areas.

Ownership was often based on the tradition that a great-uncle or some other clan ancestor or relative had “discovered the place”.... In reality such an “owner” was merely a trustee. The people of a household customarily went to a certain place or to certain places. Everyone knew this and would respect their rights (R.L. Olson, 1967).

In Yakutat, the Drum House Teikweidi owned the Ahrnklin River hunting rights:

Olaf Abraham’s uncle (Ned) Daknaqin used to own the land before him, but now Olaf Abraham owns it. He has four cabins there, and goes there to hunt every year. Because the land was bought for a copper worth 10 slaves, everyone had respect for him, and no one in Yakutat will go there to hunt without asking him permission (de Laguna 1972).

Oberg (1973) found that when salmon streams were small, they were owned throughout their length. When the streams were larger, they were owned in sections:

When a number of clans settled on the banks of large rivers... the question of rights to salmon fishing did not arise. There was plenty for everyone in the large river.... Large clans often held a good-sized stream while the tributaries were taken over by the smaller clan divisions.

Small places such as sealing rocks, berry patches, clover patches, and root gathering locations were small and often possessed by single houses. Oberg also observed that the division of territory was influenced by the power of the clans, kinship, rank, scarcity and the quality and availability of salmon. In areas where salmon were scarce, the people became expert seal hunters. Rank was important:

Rank is even more important than numerical power and kinship ties in determining the distribution of clan settlement and clan territories. ... new clan divisions must be given property in house sites and hunting and fishing grounds, and, if they are of high rank, the best available territories are sought.

Validation at potlatches

Clan stories or clan legends usually accounted for a clan's ownership of a place. A clan's use of particular geographical sites as clan crests is connected to a story or origin of a clan's from some site or feature connected with their history. It is also related to the legal claims made by clans over the territories, which may be symbolized by geographical crests. In such cases rights to use the crest involve, or are dependent upon, rights to control the territory. At potlatches "the story of how they acquired title to this area would be told, or alluded to in oratory and song, and the guests who accept their hospitality would be witnesses to the validity of their claims to both territory and crest" (de Laguna 1972).

Compensation by Europeans for use of land

After La Perouse visited Lituya Bay in 1786, he wrote that he traded goods for the right to use the land:

After many songs and dances, he offered to sell me the island, on which our observatory was erected ... I gave him several yards of red cloth, hatchets, adzes, bar iron, and nails, and made presents to all his attendants (La Perouse, quoted in de Laguna 1972).

Capt. Sir Edward Belcher noted during his visit to Yakutat in 1837 on the HMS Sulphur with Lt. Commander Kellett on the Starling:

Kellett (Lieutenant Commander) acquainted me that this chief possessed very high notions of territorial right, and had thrown difficulties in the way of wooding and watering, which he (Kellett) was glad that our presence would remove This was apparently achieved by giving a few presents, which in themselves acknowledged the native claims to natural resources (de Laguna 1972).

Clan Leaders' Monitoring and Management of Resources

The chief was the clan custodian or trustee for the clan heirlooms and crest object, and the hunting and fishing territories of his clan. He determined when, where, and with what weapons his people and others might hunt or fish, and even how many animals each man might take. The chief of the ranking house "took care of the land." He allocated hunting grounds within his territory to his sons, brothers-in-laws, and grandsons, to men of other clan who were related to them through marriage. He was also responsible for protecting the group's territories against trespass by outsiders (de Laguna 1972). Oberg (1973) described the duties of the house chief (hit sa'ti):

His chief economic function is to decide when it is best to go hunting, or to begin the salmon harvest, or to go to prepare oil. This he does by watching the position of the sun. When it had passed certain landmarks, then it is time to undertake the various economic activities.

The house-group did most of the important food collecting and storing activities. "The men of a household usually went together in a canoe to hunt, fish, gather wood, and so on" (R.L Olson 1967). Members of the house group often shared food with other houses of the same clan:

If the men of the house-group are fortunate in getting a large catch of fish or game, they will take what they think they can use and leave the rest on the beach. The other houses of the same clan then send the women of their house groups to take as much as they can use. If there is still some left over, the original owners parcel it out and take it to their father and brothers-in-law who are in the opposite phratry (Oberg 1973).

Chief Olaf Abraham (1964) talked about clan leaders:

Each headman in each clan house was responsible for those that lived in the same house with him. Those that were in his council helped with law and order. What was on their land was taken care of and protected.

Yakutat elders interviewed for this project verified that the traditional lands were managed and controlled by the clan leaders together with the council. Other house leaders would be called together and decisions were by consensus:

The Clans owned the territory and the streams and the house leaders together with the men and women council, according to their status in the clan. By status I mean the house leader, his nephews and his sister ruled together from each house My uncle, my brothers and the woman council helped rule areas where people can hunt but they also came together with their sister houses. .. And we still meet as a clan when we have potlatches and when we have to determine something. And it's by consensus, they're ruled by consensus and the house leader would call them together. It wasn't just a house leader, in the house leader, they bring it down to very diluted ways but they still maintain that way of thinking (Elaine Abraham, 2001).

And so it was the clans and the chiefs that gave permission to, for another clan to use your... The houses didn't control specific territory or streams. More or less the Chief and his house Chiefs were the ones that made decision on what was going to happen or what it was they were wanting to give permission to do or what it was they were going to do had always depended on the Chief of the clan and the house Chiefs, they called them house (hit) sati in Tlingit (Lena Farkas, 2001).

The rules of clan control were "not simply to insure a fair distribution to every man, but were also to protect the animals during their breeding season" (de Laguna 1972: 464). Breeding animals were protected. De Laguna was told

If anyone comes on their land or disturbs their animals that are breeding, they shoot. They don't ask questions or give warning or give a second chance. They just kill the man ... (de Laguna 1972).

In their 1946 research, Goldschmidt and Haas collected this statement from a Yakutat resident:

Our people believe we should let seasons go by, when we do not need the money, so as to preserve the game....Abraham did not go trapping this winter because it was a very cold winter, and because he wanted the game to breed (Goldschmidt and Haas 1946/1998).

The upper Situk was reserved for the black bears:

They also restricted activities there (Situk). They were really restricted there and they only in time of, in complete need of say meat would they allow any hunting around there. They shared it. ... they shared it with the Black Bears 'cause the Black Bears ate there but they had complete rules and regulations and punishments in any disturbing of where they called it the place of birth, the Situk River. I can't talk about the rest, I just know the rules and regulation of what belonged to my clan (Elaine Abraham 2002).

De Laguna was told of the control exercised by the chief of the Galyix-Kagwantan over their hunting territory with respect to a Teqwedi visitor from Yakutat:

The Kagwantan (chief will) say, and they tell how many animals the visitor can get. ... And he (the chief) always be around and watch if they get too many. ... The same way with mountain goat, black bear and brown bear. The chief names how many each family is going to get (de Laguna 1972).

Olaf Abraham (1973) described clan control:

Next, animals that walked among them were not bothered. Only when the Head chief gave the command that they could kill these animals could they kill them. This depended upon the animal and the time of year, for they knew at what time of the season that the meat was good for food.

Stream Tenure and Fishery Management

Tlingit clan chiefs directed salmon fishing. De Laguna was told that the clan owners of the Humpback Salmon Stream broke the spears of the young men who were fishing there without permission.

The Hinyedi were pretty strict with that humpy stream. Some of our boys went to that stream to get some salmon. The Hinyedi caught them and got hold of them and broke up their spears. And the boys went to report back to their chief, because they wouldn't fight unless the chief said so (de Laguna 1972).

Fishing territories were owned by clans or by houses.

The chief of the sib (clan) or lineage that owned the stream determined where the weirs and traps were to be placed, and who might spear or gaff salmon. In any case, trap sites were not privately owned. ... before the ...government made and

enforced regulations. It is said that the local chief would watch the salmon runs, and if there were too few fish going up, he would order the nets taken up for a day or two (de Laguna, 1972).

Teikweidi Chief Olaf Abraham (1973) described how the Tlingit monitored fish:

One (man) was delegated to be responsible for the fish; he watched the ocean daily, when the different species of fish would be coming in to spawn. The head chief was responsible also for the fish, he delegated men to keep a watch on the ocean beach for fish jumps and keep a look out and keep track of all the movement of the fish. No one was allowed to kill fish before they came upstream to spawn. They believed if the fish was bothered and disturbed during their migration upstream to spawn, they would turn back and go up another river. Since fish was their main food they were very careful the fish were treated. If a man broke any of their laws of fish, his hunting equipment was taken from him, sometimes his spear was broken up.

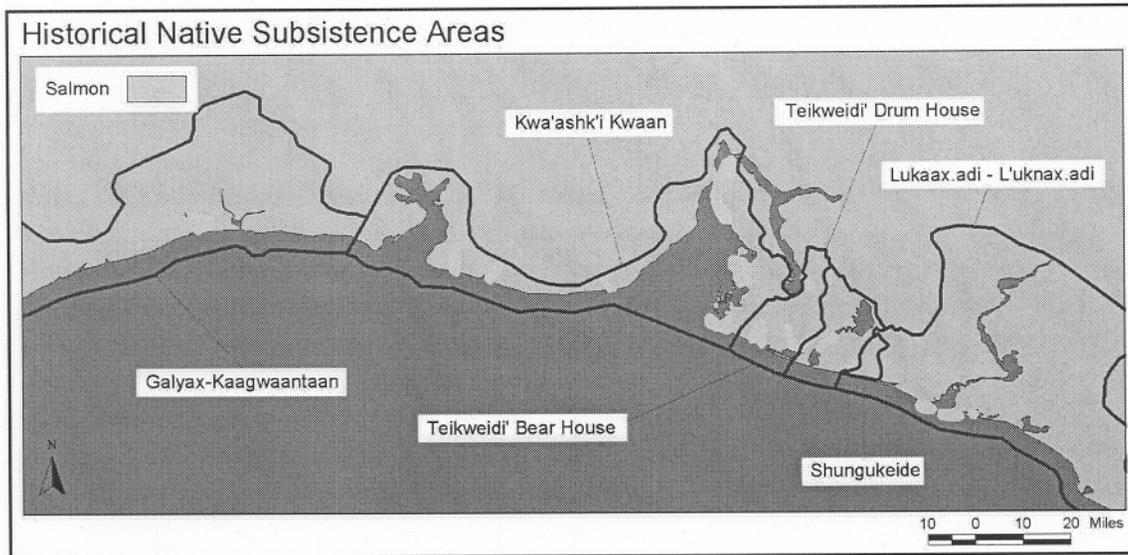
In Canada, the Southern Tutchone (Athabaskan) people living near the head of the Alsek had a system of clan ownership of salmon traps that paralleled Tlingit practices:

Each salmon trap was said to be owned by one person, but a great deal of cooperation was required to set the traps properly. ... The owner of the trap asked his relatives to help him make it ready, build the weir and put the trap in the water. All the families who worked on the trap had a chance to take fish from it, and the owner might let poor people or visitors use the trap too. At Neskathin and Klukshu the Wolf people put their traps in one stream or one part of the stream, while the Crow people had theirs in another (McClellan, 1987).

Among different cultural groups living up and down the Pacific Northwest Coast, chiefs also directed salmon fishing:

In 1841 an observer estimated that the annual native catch at Kettle Falls (near the Columbia) amounted to 600,000 pounds. Three weeks before the expected arrival of the salmon, the camps were occupied, and drying frames and storehouses were erected. The entire enterprise was said to be under the direction of a 'Chief' whose basket trap was installed a month before the others could begin to fish (Hewes 1947).

Customary Stream Ownership and Stream Tenure in the Yakutat Area



In the Yakutat area, the L'uknax.adi clan claimed Dry Bay and Akwe River. The Ahrnklin River, Situk River, Lost River, and Yakutat Creek (or Slough) were claimed by the Teikweidi (Goldschmidt and Haas 1946/1998). The Drum House Teikweidi bought several rivers including the east, the main, and the northwest branches of the Ahrnklin; Seal River and a small stream northwest of the Seal River; and the Dangerous River--“but Olaf Abraham doesn't take care of Dangerous River any more” (de Laguna 1972). Each house on Lost River had its own fish trap:

Several of these were set in the openings of the fence across the river, and would presumably have been much smaller than the large boxlike traps They were last used about 1870 or perhaps even earlier (de Laguna 1972).

The Bear House Teikweidi clan claimed the Lost and Situk Rivers.

Rights to the Lost River area are said to have been willed by the last local chief to his daughters, for his grandchildren. The husband of one of these daughter, who belongs to the same lineage as the deceased chief, “takes care of the land” at present, and serves as “beach boss” although he does not claim the position of chief nor the right to exclude anyone from fishing in the area. However, the people who regularly fish here constitute a family group, structured much as it might have been in former days (de Laguna 1972).

In the 1940s, Helen Bremner said the Dagisdinaa clan owned the Italo River. The “gang of fishers” was made up of members of that clan (Goldschmidt and Haas 1946/1998).

For this project, Lorraine Adams also talked about the Italo River:

Just like when I was talking about Italo River and now Italo River was L'uknax.adi territory, ah river. And Dry Bay Chief George was in charge of that area. So his sons, he turned it over to his sons, Sam George and Frank Italo and so they were the ones that had that tribal house there. And I can't recall that, at that time they were already beginning to call them Shangukeidi but they're actually Dagisdinaa, that's what they were, Dagisdinaa. And Jenny White and them though, I believe are really the Shangukeidi (Lorraine Adams 2002).

Interviewed for another study, Emma Marks said the clan ownership of rivers was a business:

... to have a salmon river of your own was like having a large boat. It took many crewmembers to manage it. All of the rivers were considered ancestral lands under the management or stewardship of various clan leaders. ... The Situk was under the stewardship of Situk Harry, who had inherited the river rights from Situk Jim. Frank Italo was the owner or steward of the Italo River. He ran it like a business. In the summer when the salmon were coming up river, men would come to Frank Italo to join his crew. After the salmon were caught and sold, the money was divided among Frank and his crew (Dauenhauer 1994).

In the Situk River, in the 1920's and 30's, the chief would hire the fishermen and open and close the fishing:

I know my grandfather Situk Harry did and Situk Jim in the Situk River. They, before commercial fishing before independent fishing came in, my grandfather used to hire twelve people from Yakutat to go fishing for him and then my grandfather's older brother, Situk Jim who owned the Situk River area, had hired twelve fishermen of his own to go fishing. And they used those big seines then And they would pay them for fishing for them but they would also This was in the early 20s and 30s because the canneries were here then and then there was boats coming out and so they were able to buy food and my grandfathers would buy groceries and they cooked for all the fishermen, you know. So they, and they gave them housing ... and paid them for fishing for them. So yeah they did control, the chiefs did control my grandfather Situk Harry used to close fishing (in the Situk), Sockeye fishing in July he had a flag that was white and it had Situk on it and so whenever he wanted the river closed, whenever he wanted the fishermen to take the fish up, pull ... the net in, he

would put the flag up and they'd know that fishing was over. And they would, he would give them a week off so that the fish could escape up the river to the spawning area. He did this every summer and that's how come we always had a good return in fishing (Lena Farkas 2002).

Situk Harry brought Olaf Abraham down from here to be his beach boss ... they controlled when the nets can go into the water, how many fish was brought out of there, when they can fish, when they cannot fish. They were completely controlled by the Eagle-Wolf clan in all of the area in Situk River (Elaine Abraham 2002).

Vincent Johnson talked about how John Williams monitored Williams Creek in Dry Bay:

William's Creek is right here John Williams did his own ah, he let certain people on certain days come in and use the creek or use the river and he'd do his own fish and game. He let guys come in for one day with two nets and then move out and get their load of fish and move out and he'd stand there and watch them and make sure that they abide by his rule. And when they didn't why then they were immediately told to leave or not to come back. But most of the people that he let in there would abide by his rule, and they'd leave with a, their load of catch and then he'd let the other come in ... And one week after everybody had their catch he'd shut the river down and that's when the rest of the fish go on up ... He'd be the lookout....He'd go up and stand on that hill there Unless it was like subsistence by then it was open, it was open for subsistence, but for commercial otherwise it was controlled (Vincent Johnson 2002).

Yakutat elders interviewed for this project also talked about how the clan owners formerly cleaned the rivers for the salmon:

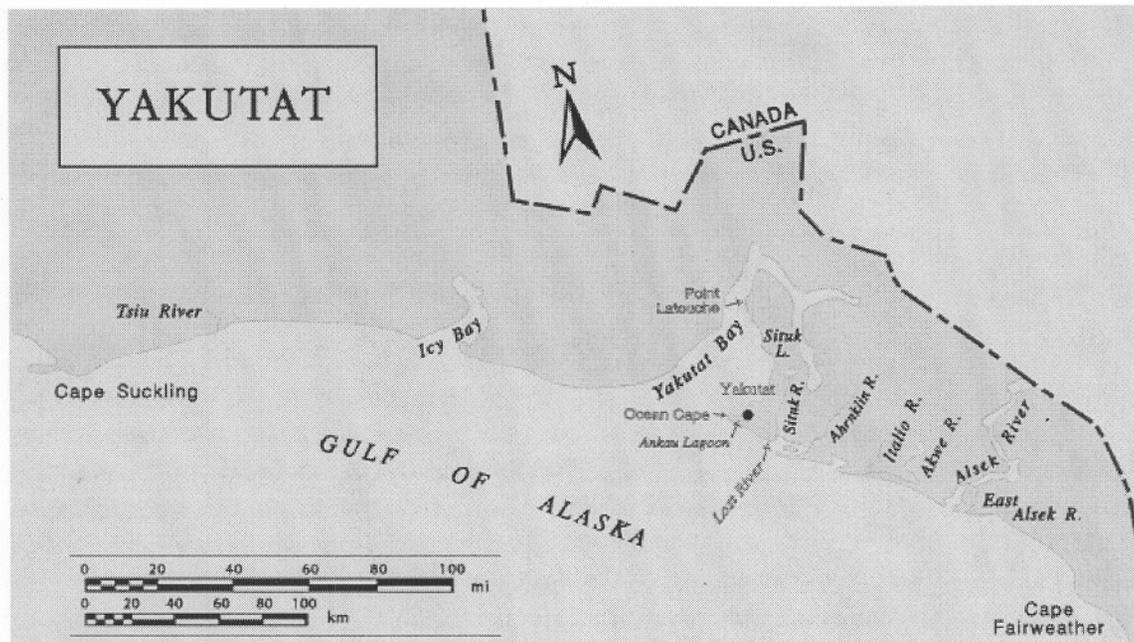
He kept the river clean. He would get his fishermen, when they'd go out there to go fishing, ... he'd have the fishermen do was go up the river and cut and get all the logs and stuff out of the river so that the fish could go all the way up and spawn and have a return on fish, I know that (Lena Farkas 2002).

They also controlled the cleaning of the rivers for spawning. ... on when and how they would start letting the fish go up to Situk River, how much would up that way, when it would go up and if the rivers needed cleaning. But they had real stringent taboos ... two months and fasting before they would go up to the lake because of the taboo of the fish spirits The

trees would be taken out of there if they blocked the river and they also, when the bottom of it looked like it was full of debris, they would actually pack real nice small rocks from the beach The spawning lakes ... was the same thing. They kept it clean and they took the heavy trees or whatever that fell on it (Elaine Abraham 2002).

Elaine Abraham said that in the past, it was slaves who cleaned the rivers:

You know up until then they had a lot of slaves Situk River, these guys had slaves when they earned money from their rivers, and the canneries came in they were paid with those gold dollars so they potlatched a lot right after the canneries 'cause they had money and they freed their slaves at that time that helped them clean the rivers by taking each slave and putting those gold, silver dollars on their forehead and they freed them so, the slaves are the ones that packed the small rocks to do the streams or the river. But the main thing they did was they made sure it wasn't blocked (Elaine Abraham 2002).



V. Establishment of Federal Authority and Conflict Over Fishing Rights

In 1867, Russia sold Alaska to the United States. During this period, relations between the United States and the Tlingit were full of conflict. They were at their worst after the U.S. military bombed both Kake and Wrangell in 1869. The trouble began when a soldier killed a Kake Tlingit in Sitka. In retaliation, the Kake Tlingit killed two white traders. This led to the USS Saginaw bombing Kake on February 15. The Navy destroyed four houses at Kuiu Island and burned 15 houses on Kuprianoff Island. On February 16, at Security Bay (Snug Harbor) the Navy destroyed 10 houses, destroyed two stockades and one fishing ranch. In December the Army also bombed the villages at Wrangell¹. The village of Angoon was also bombed by the U.S. military, in 1882.

By 1889, 14 salmon canneries and several sawmills were operating in Southeast Alaska. In 1889 federal legislation outlawed aboriginal traps and weirs; a year later, commercial fish traps were permitted.² In 1927, there were 575 traps in Southeast Alaska, nearly all of them owned by whites; non-Natives also owned all the canneries (Price 1990). George Grinnell (1995) talked about how wasteful the canneries were:

Not only are salmon taken by the steamer load, but in addition millions of other good fish are captured, killed, and thrown away A friend told me of the throwing away of 60,000 salmon at one time near a cannery in Prince William Sound in the summer of 1900 and again of the similar throwing away of 10,000 fish.

The Alaska Native Brotherhood campaigned against fish traps.³

Whites and Indians clashed over fishing rights, because the former did not recognize the Indians exclusive rights to fish in waters claimed by clans. Ensign J.O. Nicholson (Glass 1882:44) reported at Klawock in 1881, when the Indians drove off the cannery seiners who were taking fish to near their summer village whites appealed to Commander Glass in Sitka ... he sent Ensign

¹ Robert Price, "The Great Father in Alaska," 1990.

² Rosita Worl, History of Southeastern Alaska Since 1867, Handbook of North American Indians, Smithsonian, 1990.

³ See Robert Price, "The Great Father in Alaska," 1990, pp. 91-94.

Nicholson with twenty men ... and at their request gave the chiefs official "papers" recognizing their status. In 1890, the Hutsnuwu were protesting fishing by the whites in Sitkoh Bay, claimed by the Desitan Raven, as their exclusive territory. Again an appeal was made by the cannery personnel to the naval authorities and Sitka, and Ensign Robert Coontz (1930: 152-55) was sent with six marines and an interpreter to explain the whites' view of their rights and to arrest any Indians who might interfere with them. Coontz was able to secure the surrender of 125 Indians, and took 20 of their leaders to Sitka (Emmons 1991, cited in Price 1990).

In 1890 the "Stickeens" Tlingit hired attorney Willoughby Clark to write a letter to President Harrison on their behalf. They asked to be exempt from fish, game, timber and general land laws; that they be legally authorized to make their own laws; that the system of concubineage between white men and Indian women be restricted; that title to villages and garden patches be confirmed to them in severalty in fee; and that their rights to their fishing streams be recognized or that they severally receive quid pro quo for their relinquishment. They complained that their rights were being usurped by white men, that "the streams are being fenced so as to prevent the fish from ascending to their spawning grounds, and that in consequence, they are rapidly becoming exterminated" (Price 1990).⁴

In 1897 the Tlingit Orthodox Chiefs also sent a petition to the U.S. President. Among other requests, their petition said:

We beg to have the superintendent of the Baranoff Packing Co. forbidden to take away from us our bays, streams and lagoons where we fished long before white man came We demand that he stop throwing bars and traps across the streams, where by the fish cannot enter the lakes for the purpose of spawning.⁵

In 1898 Governor John Green Brady met with the Tlingits clans to discuss problems they were experiencing. Chief Kah-du-shan from Wrangell spoke about their hunting and fishing area's being taken over:

Long, long ago before white people came to this country our people lived here at certain places where they went hunting and fishing By and by they began to build canneries and take the creeks away from us, where they make salmon and

⁴ See also Ted Hinckley "The Canoe Rocks, p. 330, 1996.

⁵ See also Kamenskii, Anatoli Fr. "Tlingit Indians of Alaska" 134-136 (1985).

when we told them these creeks belonged to us, they would not pay any attention to us and said all the country belonged to president, the big chief at Washington ... We meet here tonight for the purpose for you to write to the chief at Washington and to let them know our complaint. We also ask him to return our creeks and the hunting ground that white people have taken away from us.⁶

Yakutat Canneries

In Yakutat in 1901, the F.A. Fredericks Company of Seattle built a large herring saltery at the head of Monti Bay. A.L. See and A. Flenner built a saltery inside the mouth of Ankau Creek. "From 1902 until 1925, when federal law closed the Ankau to commercial fishing, this area supplied the saltery and later the cannery, but even by 1913 the run of reds and cohoes had been seriously depleted (Rich and Bell, 1935)" (De Laguna, 1972: 73). During World War II, military regulations also kept people out of the Ankau area. In 1903, F.S. Stimpson of Seattle incorporated the Stimpson Lumber Company and the Yakutat and Southern Railroad. The railway went eight miles, from the cannery wharf at Yakutat to Johnson Slough near the lower Situk River. In 1904 the cannery began operating.⁷ The Yakutat Tlingit beach seined on the Situk:

This operation (beach seines) requires a group of men, and the members are selected by the owner of the boat largely on a family basis. Thus, his brothers, sons, sons-in-laws, or sons of his sib "brothers" and "sisters" are apt to be asked (de Laguna 1972).

George Ramos⁸ was told the Coast Guard was sent with machine guns to Situk to arrest the independent fishermen. The fishermen knew something was happening when they heard the train blowing its whistle. Peter Lawrence confronted the train. The Yakutat Alaska Native Brotherhood minutes show their concerns about fish traps, staking fishing locations on the Situk, the Situk weir, policies toward independent fishermen, the fishermen's union, and interactions with non-resident fishermen.

⁶ Testimony of Kah-du-shan, Tlingit Chief. Sources: Hinckley, Ted C., "The Canoe Rocks – we do not know what will become of us", reprinted in *Alaskan Historical Documents Since 1867*, Ronald Lautare; also Robert Price, "The Great Father in Alaska, 1990, pp. 59-60.

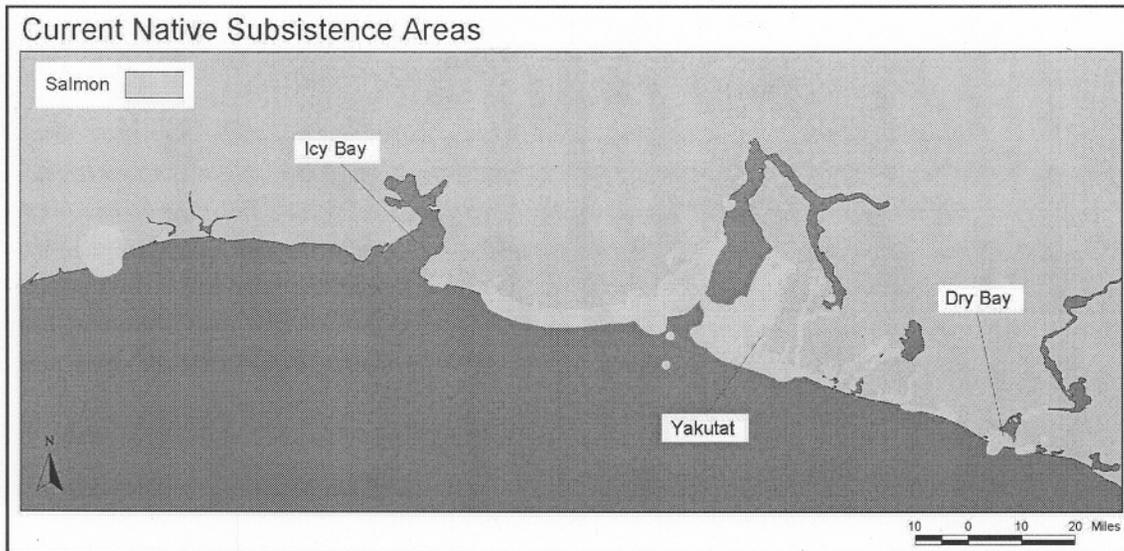
⁷ "Painting a Portrait, The Colors of Yakutat", Yakutat High School 1994.

⁸ Personal Communication. See also ANB minutes.

Jefferson Mosier (1901) reported on fisheries in Yakutat:

The small steamer Beaver and a large naphtha launch belonging to the Western Fisheries Company, at Dundas Bay, both crossed the Alsek bar during June and carried a few king salmon to their cannery. The Beaver made one trip and the naphtha launch at least two. The last time the latter crossed she rolled over and filled, but was floated, with the loss of her upper works. This cannery expects next year to fish the Alsek, making a sea run from the cannery.

In Dry Bay in 1907, Mr. T.E.P. Keegan and Captain Malcolm Campbell started the Alsek Fisheries Company in order to try "mild-curing" king salmon on the Alsek. Bad weather forced the company to stay in Yakutat Bay. They finally got into Dry Bay on May 12. The Pacific Fisherman reported that the scow was completely wrecked by an ice crush in the Alsek River. The company operated in 1907 and 1908, and Captain Campbell operated the mild-cure business in 1909 and 1910. In 1910 the St. Elias Packing Company built a cannery on Cannery Creek, and in 1911 it canned 14,240 cases of salmon. Gorman & Company bought and operated the cannery in 1912 its last year of operation. In 1916, Libby, McNeil & Libby bought the cannery. Tenders brought the salmon to Yakutat. In 1922 a floating cannery called the Retriever began buying fish at Dry Bay (Caldwell 1986). In 1930 the New England Fish Company bought the Retriever. In 1934 Red Salmon Packers Association bought back the Retriever and packed fish from the Alsek, East and Doame Rivers until 1937. Since the 1958 earthquake, the Doame River has not been a viable salmon fishing location; the earthquake closed the mouth of the river and diverted its flow into the East River (Gmelch 1982).



Commercial Fishing Regulation

Until Congress passed the White Act in 1924 there was almost no government regulation of commercial fishing in Southeast Alaska. The white Act divided Alaska into fishery districts, each with its own specific fishing regulations.

The first regulation that applied to Dry Bay was a closure of fishing during the 1924 season for twenty days, ending August 31 In 1925 and subsequent years commercial fishing for salmon was prohibited in the "Basin" above Dry Bay (Caldwell 1986).

By 1925, however, the Akwe River and the basin of the Alsek River had to be permanently closed to commercial fishing, and other regulations severely limited the length of the commercial fishing season off the mouths of the rivers. By 1930 there were 120-hour closures. The dates for the Dry Bay and for the Situk-Ahrnklin Inlet commercial fishing openings were different.

Many Yakutat people go regularly to Dry Bay early in the summer to fish for the cannery, before the season opens off Situk and Lost River The main fish camps are now at Dry Bay (principally for king salmon) When the (commercial) season opened at Dry Bay in May 1954, most of the (Yakutat) men went there without their wives (de Laguna 1972).

Commercial fishing in Dry Bay started on June 1 and continued until the end of September, Vincent Johnson said. Sockeye fishing took place in June and July.

In mid-August people would have to take a week or two off because “the Alsek River used to raise, it would raise a height in tremendous areas. It would flood the areas and we knew then that we couldn’t fish and we had to take two weeks off Ice would come down with trees and stumps (Vincent Johnson 2002).

The flooding affected all except the lower part of Dry Bay. Vincent Johnson told about how one fisherman reacted to the flooding.

...his name was Gunner Erickson; he had his boat right in this area. And he’d take off and come down the river and pick up the fish, he was a fish tender. And we always, before this place flooded out or whatever, we had another tender that would act up in here, which was a Robert S, called the “Robertess” ... he’d run out the bar and run to Pelican, deliver down to Pelican (Vincent Johnson 2002).

The effects of the flooding continue to impact fishing habitat in Dry Bay.

VI. Contemporary Management of Salmon

By 1953, salmon stocks and the fishing industry were in such bad shape that President Eisenhower declared Alaska a federal disaster area.¹ Today, Alaska's state constitution mandates the conservation of salmon stocks and other renewable resources in accordance with the principle of sustained yield. The Alaska Department of Fish and Game (ADF&G), through the Alaska Board of Fisheries (BOF) manages salmon fishing in Alaska. The state is divided into regulatory areas and the BOF addresses each area every three years. Local ADF&G biologists monitor salmon runs through aerial surveys, weirs, and streamside counting towers. "Based on their in-season abundance count, salmon managers open and close fisheries on a daily basis to ensure spawning escapements are adequate to sustain production" (ADF&G 2000).²

The Yakutat area is divided into two fishing districts: the Yakataga District between Cape Suckling and Icy Cape, and the Yakutat District between Icy Cape and Cape Fairweather.

Set gillnet gear is the only net gear permitted in the Yakutat area. About 170 commercial setnet entry permits are renewed annually. ... Set gillnets fisheries in the Yakutat area are managed by adjusting fishing times and areas in response to inseason assessments of run strength. These actions are taken to provide adequate spawning escapements and to allow harvests of salmon that are surplus to escapement goals. Inseason assessment methods include both fishery performance and spawning escapement information (Burkholder 2000).³

East River catch and escapement records are available from 1947. I found that catch records for the years 1960, 1962 and 1964 differed greatly between the USDA Forest Service's 1972 Management Report and ADF&G Fisheries Technical Report 90-3 (Rowse 1990). Gmelch noted,

¹ ADF&G "Alaska's Salmon Management A Story of Success."

² ADF&G and Board of Fisheries 2001 "Sustainable Salmon Fisheries Policy for the State of Alaska."

³ Alan Burkholder, ADF&G, Yakutat Set Gillnet Fishery 2000 Management Plan. Regional Information Report No. 1J00-20.

Prior to 1969, the East River was not a large producer. The growth of the East River stocks may be attributed to a decision by the local fisheries biologist to change the area in which commercial fishing was allowed. Until the early 1960's fishing was permitted upriver, near the spawning beds, while the lower river was closed (Gmelch 1982).

Gmelch's 1982 report was a resource use study of the Dry Bay area for the Glacier Bay National Park General Management Plan. While most of his report described the commercial fishery, he also described the natural setting, early and contemporary settlement and population, subsistence hunting fishing, and trapping, and recreational uses of the area. In 1978 part of the Alsek River area was added to the Glacier Bay National Monument.⁴ This boundary was extended to the Dry Bay area in 1980. The Tongass National Forest manages the other side of Dry Bay.

In the 1980s, set gillnets were the main gear used to harvest salmon in rivers and at river mouths just outside the surf. People traveled south as far as the East River (i.e., East Alsek River) to fish for sockeye salmon (Mills and Firman 1986:111-112). Set gillnets are placed near or in river and stream mouths (ADF&G 1984:46). Set gillnet fishermen established small fishing camps, usually temporary, in the river mouths, with a high concentration of such camps at Dry Bay. Fishing occurred only two or three days a week. Sportfish guiding services also operated out of Dry Bay for king, coho and steelhead (ADF&G 1984:34-35).

Aboriginally, although Tlingit clans and houses owned salmon fishing areas along rivers and guarded them closely, there were no such rights on salt water (de Laguna 1972:383). Before 1981, some fishermen in Dry Bay area practiced a kind of gillnet fishing called "breaker" or "surf" fishing. Most of the breaker fishermen were young Tlingit men. Older men called it dangerous. In addition to the excitement, breaker fishing could also be more profitable. ADF&G closed breaker fishing in 1981, and a group of Yakutat fishermen challenged the lawsuit in 1982 (Gmelch 1982:65-66).

⁴ Catton, Theodore, Land Reborn, A History of Administration and Visitor Use in Glacier Bay National Park and Preserve.

In 1974, the state of Alaska designated about 160 set gillnet salmon permits for the Yakutat area (ADF&G 1984:49). Of the 164 salmon limited entry permits issued for Yakutat, 83% were held by local residents in 1980. In 1984, 26% of Yakutat households commercial gillnetted for sockeye salmon and used some part of their catch at home. People fished for subsistence, using gillnets, in the same areas they fished commercially (Mills and Firman 1986:38, 116).

In July 1982, 58 people were living at Dry Bay. All the residents fished the Alsek River and delivered fish to the Dry Bay Fish Company, a floating processor a few miles up the river. Most of the summer residents were non-Natives who lived in cabins along the East River, Alsek River, and Dry Bay; others, mainly Yakutat residents, lived in tents on the Alsek and East River sandpits (Gmelch 1982:18-19). At that time most of the Dry Bay fishermen were non-Native; they came to the area in May and stayed through the next four months. Native fishermen from Yakutat, however, typically arrived in Dry Bay in late July and stayed only for the sockeye salmon run, ending in mid-August (Gmelch 1982:24).

A conflict with non-Native fishermen occurred in 1977 when Yakutat residents came to fish in Dry Bay with renewed interest. One of the attracting factors was a new fishermen's coop, which would allow non-residents of Dry Bay to sell their fish there. For more than a decade the Dry Bay Fish Company, the only local buyer, had only purchased fish from Dry Bay residents. Yakutat fishermen didn't like the Dry Bay cannery, which had declared bankruptcy a few years earlier and had not settled its debts with some Native fishermen. Fish prices were good in 1977, making it possible for Yakutat fishermen to afford transport to Dry Bay. At the same time, production was declining on the Situk River. Yakutat residents heard that East River fishermen were doing very well that summer. When Yakutat fishermen arrived in Dry Bay, non-Native fishermen there resented the competition. They complained that the Native fishermen came only for the peak of the season. Each group of fishermen saw the other as outsiders (Gmelch 1982:26-29).

A fisherman wishing to construct a cabin on Glacier Bay National Preserve or Forest Service lands had to acquire a permit from those agencies. In the early 1980s, most residents of cabins had CB radios, outhouses, smokehouses, and saunas; and electricity supplied by generators. Fishermen's tents had simpler furnishings and fewer outbuildings. Many of the tent fishermen returned home to Yakutat for a few days each week, typically flying home after the fishing closes on Wednesday and back to Dry Bay on Sunday before the Monday opening (Gmelch 1982:31-33).

The fish processing plant was built on a slough of the Alsek River in 1973. In addition to buying fish, it provided many services to Dry Bay residents and was a social gathering place. Many Yakutat fishermen didn't feel welcome there, but this may have changed after a Native corporation bought the Dry Bay Fish Company in 1981 and renamed it Yakutat Seafoods (Gmelch 1982:34-37).

Yakutat set gillnet permits do not require that fishermen stay at a particular site. Most Dry Bay fishermen preferred to fish the same set gillnet sites every year. In the past, each fish camp was strongly identified with a particular site, particularly on the upper Alsek where the integrity of fishing territories was still observed in 1982. In Dry Bay, however, the sandbars constantly shifted, making it necessary to change fishing sites. Fishermen were less attached to particular sites on Dry Bay and the East River. Some said the shorter openings made it less worthwhile to stick with a non-productive set. Certain courtesies were extended to other fishermen, so as not to crowd one another or cork off each other's set (Gmelch 1982:48-50).

There were also "challenges" in which a fisherman simply took another's set. The ADF&G fisheries biologist and stream guard agreed to referee challenges in 1978, in order to maintain order, but ADF&G made its employees stop refereeing challenges in 1982. Challenges were unique in Southeast Alaska to Yakutat setnet fishing. On the Situk River, closer to Yakutat, challenges occurred regularly between local fishermen. Only elders were exempt from challenges on grounds that they had fished the same sites

for many years. Most non-Native Dry Bay fishermen, however, thought the first fisherman to claim a site should have exclusive rights, similar to the idea of homesteading a property. Fishermen who were Yakutat residents were also more likely than other fishers to move from one river to another over the course of a season (Gmelch 1982:50-54).

In 1985, there were record-breaking high sockeye returns on the East River (ADF&G 1985:4.6). On the Alsek, however, the season was delayed for two weeks until June 17, to conserve a weak early run of sockeye salmon that was 80% lower than the Alsek River's 15-year average. Effort levels were also low, since most fishermen had moved to the East River. Surf fishing was allowed in 1985 outside the Alsek and East rivers. No one surf fished the Alsek surf in 1985, but 26 setnet units fished the ocean area off the East River mouth (ADF&G 1985:4.7-4.11).

Sockeye Salmon Returns on the East Alsek River, 1982-1987

Year	Greatest # of boats per opening	# sockeye salmon harvested
1982	36	98,837
1983	42	81,201
1984	37	39,386
1985	42	184,962
1986	79	74,972
1987	47	133,723

Source: ADF&G Technical Data Reports, 1982-1987.

In 1988, the East River continued to be a major sockeye stream. That year, as in the recent past, 70% of the sockeye catch came from the East and Situk Rivers. Again, the surf and ocean areas were open to set gillnets. The peak number of surf fishermen was 22 and the peak number who fished the ocean area was 26 (Rowse 1990: 7). The Alsek River, however, had unusually low returns in 1988. The Klukshu River weir escapement was the lowest in the history of the weir, which was operated by the

Canadian government (Rowse 1990:8). The 1988 Alek River season opened in Alaska on June 13, a delay of only one week (ADF&G 1989:4.8).

Surf and ocean effort off the mouth of the East River had, in 1988, been increasing in recent years. Peak effort was 26 nets in the ocean, down from the ocean record effort of 30 nets in 1987. In 1988, a new system for setting and pulling gillnets using pulleys was growing more popular in Yakutat. It was most common in the East River at the highly productive surf net sites, where the pulleys allowed fishermen to check their nets no matter what the surf conditions. Some fishermen expressed concerns that the pulley setups would make set gillnet sites more permanent (ADF&G 1989:4.10).

Also in 1988, harvests were reported for 8 subsistence permits in the East Alek River, for a total of 180 sockeye salmon; and 11 subsistence permits in the Alek River, for a total of 148 sockeye salmon (Rowse 1990:18). Sockeye salmon has been an important subsistence resource for Yakutat residents. In 1987, 86% of households surveyed in Yakutat harvested salmon, 71% of them harvesting sockeye salmon (Kruse and Muth 1990:85-86). ADF&G reports of subsistence harvests between 1975 and 1987 show that in most years, more sockeye were taken than other species (ADF&G 1989:2.60).

Between 1969 and 1994, the East River was one of the most productive sockeye salmon fisheries in the Yakutat area. Almost 185,000 sockeye were taken there in 1985. Following that high year, however, the sockeye fishery declined until the East River was closed in 1999 (Burkholder 2000). Since 1994, there has been a dramatic decline of sockeye salmon in the East River, with catches of sockeye averaging 37,000 fish per year between 1994 and 1998. The river was closed to sockeye salmon fishing beginning in 1999, and will not reopen until escapement goals are met (Woods 2002:6).

Glacier Bay National Park⁵



⁵ <http://www.glacier.bay.national-park.com/map.htm>

CONCLUSIONS AND RECOMMENDATIONS

Traditional Tlingit management of salmon was based on a territorial management by clans and clan leaders. Clan leaders with their council had the authority and responsibility to direct and manage salmon resources on their clan land.

Each head man in each clan house was responsible for those that lived in the same house with him. Those that were in his council helped with Law and Order. What was on their land was taken care of and protected (Olaf Abraham 1964).

In the Yakutat area, the clan leader would open and close fishing, monitor the cleaning of the lakes and rivers and allocate the resources. Each clan had control over specific hunting, fishing and harvesting territories. Territorial control usually included even fresh drinking water and firewood.

Rank and kinship, combined with the size of the river, were important in determining the division of territory. A clan's ownership of sites was connected to a story of how they acquired the territory and validated at potlatches. Early European explorers like La Perouse and Captain Belcher recognized and compensated clans for use of their territory.

Exploitation, waste and disrespect of salmon were taboo and believed to be offensive to the spirit of the salmon. The Tlingit learned about salmon behavior and the rules of proper treatment of Salmon from the Salmon Boy myths. They killed only what they needed and utilized all of the salmon, "The head, the intestine, all was used and most of it was dried" (Olaf Abraham).

The Yakutat Tlingit utilized primarily the king salmon, sockeye and coho salmon. Coho was ideal for dried salmon because "fat fish become moldy very fast and although smoke, must be eaten soon" (de Laguna 1972). They utilized different location and fishing methods based on the species of salmon they were harvesting. Traditionally, house groups did harvesting collectively and often shared with other houses of the same clan.

Traditional methods of management based on local control by clan, fishing methods and allocation of resources is different from contemporary methods were fishing sites are now privately owned, traditional fishing method are not used and allocation is by permit. The state is now divided into regulatory areas instead of clan territories, local state fish and game biologists monitor salmon runs instead of local clan leaders. Opening and closing of fishing based on monitoring of salmons escarpment is similar to traditional management.

Importantly, the Dry Bay area is predicted to become a significant subsistence fishery as the result of the impoundment of Russell Fjord by the Hubbard Glacier. The U.S. Geological Survey expects that the Hubbard Glacier ice dam will become established within the next decade (Trabant et al. 1991). Most salmon spawning and rearing habitat in the Situk, Old Situk, Lost and Russell Fjord streams would be significantly affected by such an event (Thedinga et al. 1993). Flooding would negatively impact important area fisheries. This would undoubtedly cause a major shift in area subsistence use with many families forced to rely on more distant Yakutat Forelands and Dry Bay fish. Kruse and Frazier (1988) queried Yakutat residents regarding area fishery use during 1988. When asked where they would direct fishing effort if the Hubbard Glacier impacted use of the Situk and Lost rivers, respondents mentioned the East River, Dry Bay, and the Alsek River. Yet the most productive Yakutat area sockeye run in the East River has exhibiting the lowest returns in its history over the past two decades. Consequently, East River sockeye population status is important to Yakutat subsistence users.

Traditional Tlingit knowledge of salmon in Yakutat and Southeast Alaska is based on thousands of years of collective observation and interaction with salmon. Dr. de Laguna (2001) explained the difficulty in bridging the gap between traditional knowledge and western science in her letter to the principal investigator of this project when she said,

Give up the jargon of “resource management.” That is the white man’s way of thinking about such matters ... It was only after commercial fishing began on a large scale in the late eighteen hundred that shortages began to appear and we began to think of “management of resources.”

Despite the difficulties in juxtaposing Tlingit traditional management and western management, we hope that the information collected in this report will be used to improve management of the Dry Bay sockeye fishery and aid in developing a plan of restoration.

The East Alsek River in Dry Bay, in recent years, has undergone a drastic decline in sockeye salmon returns, affecting an important subsistence resource. The original goal of this project was to document Tlingit traditional knowledge and management of sockeye salmon fishing in Dry Bay/East Alsek River area, and to inform Western managers about Tlingit historical practices. Those practices successfully conserved and regulated salmon for many years prior to the beginning of commercial fishing. Some of the tensions between Yakutat residents and “outside” fishers in the 1980s might have been mediated by more attention to the responsibilities Tlingit clans and houses had in the past for regulating salmon fisheries. Beyond the benefits they could derive from reading this report, it would be helpful for state and federal land managers to meet with Tlingit elders and spokespersons from those clans historically associated with Dry Bay. Together, these parties might be able to develop strategies to bring back this important subsistence and commercial fishery.

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Appendix: Important Events in Yakutat⁶ - Dry Bay History

- 600 - 920 AD Culmination of glacial advance in Icy Bay (AD 756 ± 160)
- 970 – 1290 AD Hubbard advance to mouth of Yakutat Bay (AD 1127 ± 160)
- 1225 AD Hubbard Holocene maxima
- Unknown? Village at Guyot Bay, Icy Bay overwhelmed by ice
- 1700-1791AD Hubbard advance to Blizhni Point
- 1741 Vitus Bering sights Cape St. Elias. Steller went ashore
- 1775 Spanish expedition spreads smallpox in Sitka
- 1778 Captain Cook named Fairweather Cape and “Bering’s Bay” (Dry Bay)
- 1786 La Perouse visits Lituya. He called Dry Bay “Behrings River.”
- 1787 Dixon visits Port Mulgrave
- 1788 Three Saints (a Russian galleon) visits with Izmailov and Bocharov⁷
Capt. James Colnett visit with the Prince of Wales⁸
Douglas, on the Iphigenia Nubiana
- 1791 Voyage of Alejandro Malaspina, Spanish expedition
- 1794 Vancouver’s voyage
Baranof sends 700 baidarkas to Yakutat (Bering Bay)
- 1796 Russian settlement established at Yakutat
- 1802 Unsuccessful attack on the Russians at Dry Bay
Attack on the Russian fort in Sitka
- 1805 Russian settlement destroyed at Yakutat
- 1806 Russian survey of Yakutat by Boolingin
- 1823 Russian survey of Yakutat by Khromchenk
- 1822-25 Russian sea otter expeditions, Yakutat/Lituya⁹
- 1830’s Smallpox epidemic (De Laguna 1972:277) epidemic wiped out many villages from Dry Bay to Yakutat.

⁶ Compiled from Land of the Ocean Mists, Francis E. Caldwell (1986)l.

⁷ De Laguna 1972 and “A Voyage to America, 1783-1786, by Shelikhov, translated by M. Ramsay

⁸ See Menzie’s biography.

⁹ De Laguna, 1972:177.

- 1837 Capt. St. Edward Belcher visits on the HMS Sulphur
- 1840 Veniaminov census
- 1847 Russian chart shows Mt. Fairweather as “Gor(a)khor-oshypogody”
- 1848 Measles epidemic
- 1852 Tebenkov map, recorded name of Alsehk (River)
- 1853-54? Giant wave at Lituya¹⁰
- 185? 10 war canoes from Gussex lost at Lituya
- 1849-75? Ice bridge breaks at Russell Fiord, floods Situk
- 18? Ice bridge breaks above the Alsek. Flood at Dry Bay¹¹
- 1862 Smallpox epidemic
- 1867 Russia sold Alaska to America
- 1868 Customs Act
- 1869 Alaska Coast Pilot called Dry Bay “Shallow Bay”
George Davidson of Coast Survey named it Dry Bay
Bombardment of Wrangell and Kake
- 1874-80 Dall’s visit
- 1878 The first canneries in Alaska
The Hollywood Prospecting Party
The U.S. Coast and Geodetic Survey
- 1880s Placer Gold Miners at Lituya
Aurel and Arthur Kraus voyage
Prospector murdered by Yakutat Native, visit by Commander Lull.
Bombing of Angoon by Captain Merriman on the Corwin
Visit to Yakutat by Capt. Merrinan?
- 1884 Lt. Abercrombie trip up the Copper River
The Organic Act
- 1885 USS Pinta visits Yakutat
- 1886 New York Times expedition to Mt. St. Elias with Lt. Schemata
Lt. Emmons, Captain Nichols, Dr. Libby and H.W. Seton-Karr

¹⁰ Jay Williams, ‘Alaskan Adventure’, 1952 and de Laguna, 1972:94.

¹¹ De Laguna, 1972: 276.

- Libby took over 200 photographs.
In re Ash Quash (citizenship case)
- 1887 Gold found on sands of Khantaak Island
 Coalfields found at Esker Creek by John Dalton
 Covenant Mission started by Reverend Lydell
- 1888 Gold seekers went from Chilkat to Yakutat
 Topham's Mt. St. Elias expedition
- 1889 USGS and National Geographic attempt to climb Mt. St. Elias
 USS Rush visits Yakutat
 Yakutat Earthquakes of 8.3, 8.6 and 8.0
- 1890 Frank Leslie's Illustrated Newspaper descent of the Alsek
 U.S. Census
- 1891 Thousands of dogfish washed ashore, ruin gold sands
- 1896 Lituya - Ruby Sand Diggings
- 1897 Duke of Abruzzi summits Mt. St. Elias
- 1897-99 Gold miners trail from Disenchantment Bay to Dalton Post
- 1898 Governor John Brady organized a meeting with Tlingits
- 1899? Earthquakes at Yakutat
 Native village and saltery destroyed at Lituya
 Harriman Alaska Expedition
 Capt. Moser's visit on USS. Albatross for US. Fish Commission
- 1900? F.A. Fredericks Company of Seattle, built herring saltery at Monti Bay
 A.L. See & A. Flenner built saltery at Ankau Creek
- 1904 Yakutat & Southern Railroad Company, Yakutat
- 1906 Geological Survey attempt the Alsek
- 1907 Alsek Fisheries Company.¹² People drown on Dohn River by a sudden
 flood of glacial melt water (De Laguna 1972:85).
- 1908 The Boundary Survey party¹³
- 1909 "Heroism on the Alsek", Sunset Magazine article by George Farewell

¹² US Bureau of Fisheries

¹³ George Farewell

- Also in 1909, Natives at Dry Bay had observed that there had been remarkable and long-continued changes in the volume of the Alsek (Tarr and Martin 1910, cited in de Laguna 1972:87). Robson went to Dry Bay.
- 1910 St. Elias Packing Company starts cannery on Cannery Creek
The Conquest of the Alsek, article in Alaska-Yukon Magazine (August)
- 1911 Survey Party – Ralph Robson
Point Munoz sank
- 1912 Gorman & Company bought the Dry Bay cannery
- 1916 Libby, McNeil & Libby bought Dry Bay cannery
- 1915 Alaska Native Enfranchisement Act
- 1917 John Wilson party's ascent of the Alsek
- 1922 Floating cannery Retriever operates at Dry Bay
- ? Building of the Alaska Native Brotherhood Hall
- 1923 First regulation of fishing at Dry Bay
- 1925 Alsek River closed to commercial fishing
- 1931 ANB/ANS convention held in Yakutat
- 1933-34 Aerial survey of Glaciers by Washburn and Goldthwaite
- 1934 J. Frank Wright of Red Salmon Packers bought the Retriever
- 1936 Giant wave in Lituya¹⁴
- 1937 Last year the Retriever operated
- 1944 Loss of boat launch from U.S. Coast Guard Clover at Lituya
- 1954 Tidal wave in Lituya
- 1958 Earthquake 8.3, part of Khantaak Islands sinks. Earthquake and splash wave at Lituya
- 1961 Clem Rawert and John Dawson descend the Alsek
- 1970-71 Attempts to descend the Alsek

¹⁴ Caldwell 1986:171.

BIBLIOGRAPHY

- Abraham, Olaf. 1973. Haa Kusteeyee Aya, Yakutat History. Translated by Elaine Abraham. Sitka, Alaska: Sheldon Jackson College.
- Alaska Department of Fish and Game, Office of the Commissioner. 1984. Yakutat Comprehensive Salmon Plan. Juneau, Alaska.
- Alaska Department of Fish and Game, Division of Commercial Fisheries. 1985. Southeast Region Staff Reports, Board of Fisheries, Petersburg, Alaska.
- Ames, Kenneth M. and Herbert Maschner. 1999. Peoples of the Northwest Coast, Their Archaeology and Prehistory. New York: Thames and Hudson.
- Barclay, David. 1998. Holocene Glacial History of Yakutat Bay and Russell Fiord, Southern Alaska. Ph.D. Dissertation, State University of New York at Buffalo. Buffalo, New York.
- Caldwell, Francis E. 1986. Land of the Ocean Mists: The Wild Ocean Coast West of Glacier Bay. Edmonds, Washington: Alaska Northwest Publishing Company.
- Careless, Rick. 2000. The Lost Coast. Anchorage Daily News, May 15.
- Champagne-Aishihik Indian Band and Sha-Tan Tours. 1988. From Trail to Highway. Victoria, British Columbia: Morriss Printing Company Ltd.
- Chatham Ranger District. 1963. Salmon Habitat Reconnaissance. Juneau, Alaska: U.S. Forest Service.
- Clague, J. J. and V.N. Rampton. 1982. Neoglacial Lake Alsek. Canadian Journal of Science. <http://cggr.geog.uvic.ca/ClagueNeglacialLowell1982.html>
- Davis, Stanley. 1996. The Archaeology of the Yakutat Foreland: A Socioecological View. Volumes I and II. Ph.D. dissertation, Texas A&M University.
- Davis, Stanley, Karen Iwamoto and Michael Shepard. Lost River Fish Trap; Yakutat Alaska, A Recovery Plan. Juneau, Alaska: USDA National Forest Service, Chatham Area.
- Davis, T. Neil. 1979. Sandblows. Alaska Science Forum, Article #323, July 7. <http://www.gi.alaska.edu/ScienceForum/ASF3/323.html>
- De Laguna, Frederica. 1972. Under Mount St. Elias: The History and Culture of the Yakutat Tlingit. Washington, DC: Smithsonian Institution Press.

De Laguna, Frederica, Francis A. Riddell, Donald F. McGeein, Kenneth S. Lane, J. Arthur Freed and Carolyn Osborne. 1964. Archeology of the Yakutat Bay Area, Alaska. Washington, DC: U.S. Government Printing Office.

Dauenhauer, Nora Marks and Richard Dauenhauer, eds. 1987. Haa Shuka, Our Ancestors: Tlingit Oral Narratives. Seattle: University of Washington Press.
Emmons, George Thornton. 1991. The Tlingit Indians. New York: American Museum of Natural History.

Gedney, Larry. 1986. The Southeast Flood of 1950. Alaska Science Forum, Article #792. November 27. <http://www.gi.alaska.edu/ScienceForum/ASF7/792.html>

Gmelch, George. 1982. Resource Use in Glacier Bay National Preserve. Report to the National Park Service, Alaska Region, Division of Cultural Resources.

Goldschmidt, Walter and Theodore Haas. 1946. Possessory Rights of the Natives of Southeast Alaska. Reprinted 1998, edited by Thomas F. Thornton, as Haa Aani, Our Land: Tlingit and Haida Land Rights and Use. Juneau, Alaska: Sealaska Heritage Foundation.

Grinnell, George Bird. 1995. Alaska 1899: Essays from the Harriman Expedition. Seattle: University of Washington Press.

Harrington, John P. 1939-40. Unpublished Notes. National Anthropological Archives. Washington, DC: Smithsonian Institution.

Hewes, Gordon. 1947. Aboriginal Use of Fishery Resources in Northwestern North America. Unpublished Ph.D. Dissertation, University of California, Berkeley.

Keithahn, Edward L. 1963. Monuments in Cedar: The Authentic Story of the Totem Pole. Second edition. Seattle: Superior Publishing Company.

Kraus, Aurel. 1956. The Tlingit Indians, Results of a Trip to the Northwest Coast of America and the Bering Straits. Seattle: University of Washington Press.

Kruse, John A. and Rosylnd Frazier. 1988. Tongass Resource Use Cooperative Study: Report to the Community of Yakutat. Institute of Social and Economic Research, University of Alaska, Anchorage in cooperation with U.S. Forest Service and Alaska Department of Fish and Game, Division of Subsistence. In Alaska Department of Fish and Game, Division of Subsistence, Technical Paper Series.

Kruse, John A. and Robert M. Muth. 1990. Subsistence Use of Renewable Resources by Rural Residents of Southeast Alaska. Final report under the U.S. Forest Service/University of Alaska Cooperative Agreement PNW 88-553.

Langdon, Steve. 2001. Tidal Pulse Fishing: Selective Traditional Tlingit Salmon Fishing Techniques of the West Coast of the Prince of Wales Archipelago.

Lysek, Carol Ann. 1997. Ancient Alaska Bones May Help to Prove Coast Migration Theory. Mammoth Trumpet, Vol. 12, No.4.
<http://archaeology.about.com/gi/dynamic/offsite.htm?site=http://www.peak.org/csfa/mt12%2D4.html%23part5>

Mills, D.D. and A. S. Firman. 1986. Fish and wildlife use in Yakutat Alaska: Contemporary patterns and changes. Technical Paper 131. Alaska Department of Fish and Game, Division of Subsistence. Douglas.

Montyka, Roman. 2000. Scientist Watch Southeast Land Rising and Try to Figure out Why. Anchorage Daily News, September 6.

Mosier, Jefferson. 1901. Salmon Investigations in the Steamer Albatross in 1900 and 1901. Bulletin of the United States Fish Commission, Vol. XXI. Washington, DC: Government Printing Office.

Nelson, Richard. 1983. Make Prayers to the Raven: A Koyukon View of the Northern Forest. Chicago: University of Chicago Press.

Olson, R.L. 1967. Social Structure and Social life of the Tlingits in Alaska. Anthropological Records Vol. 26. Berkeley: University of California Press.

Oberg, Kalervo. 1973. The Social Economy of the Tlingit Indians. American Ethnological Society, Monograph 55. Seattle: University of Washington Press.

Peck, Cyrus. 1986. The Tides People, Tlingit Indians of Southeast Alaska: A Narrative Account of Tlingit Culture and Values.

Price, Robert. 1990. The Great Father In Alaska: The Case of the Tlingit and Haida Salmon Fishery. Douglas, Alaska: The First Street Press.

Rowse, Melinda L. 1900. Chinook Salmon Mortality Associated with the 1988 southeast Alaska Purse Seine Fishery. Alaska Department of Fish and Game, Division of Commercial Fisheries, Technical Fisheries Report 90-03.

Simeone, William E. and James Kari. 2002. Copper River Subsistence Evaluation 2000 7 Traditional Knowledge Project, Part One. Alaska Department of Fish and Game, Division of Subsistence, Final Report No. FIS 00-040.

Swanton, John. 1909. Tlingit Myths and Texts. Bureau of Ethnology, Bulletin 39. Smithsonian Institution. Reprinted 1970 by Native American Book Publishers, Brighton, Michigan.

Thedinga, J.F., S.W. Johnson, K.V. Koski, J.M. Lorenz and M.L. Murphy. 1993. Potential effects of flooding from Russell fjord on salmonids and habitat in the Situk River, Alaska. Auke Bay Laboratory, Alaska Fisheries Science Center. National Marine Fisheries Service, National Oceanic and Atmospheric Administration. AFSC Processed Report 93-01. Juneau, Alaska.