This timeline of herring fisheries in Southeast Alaska is sourced from *Herring Synthesis,* Thornton et al, 2010

Submitted at request of board member Johnson

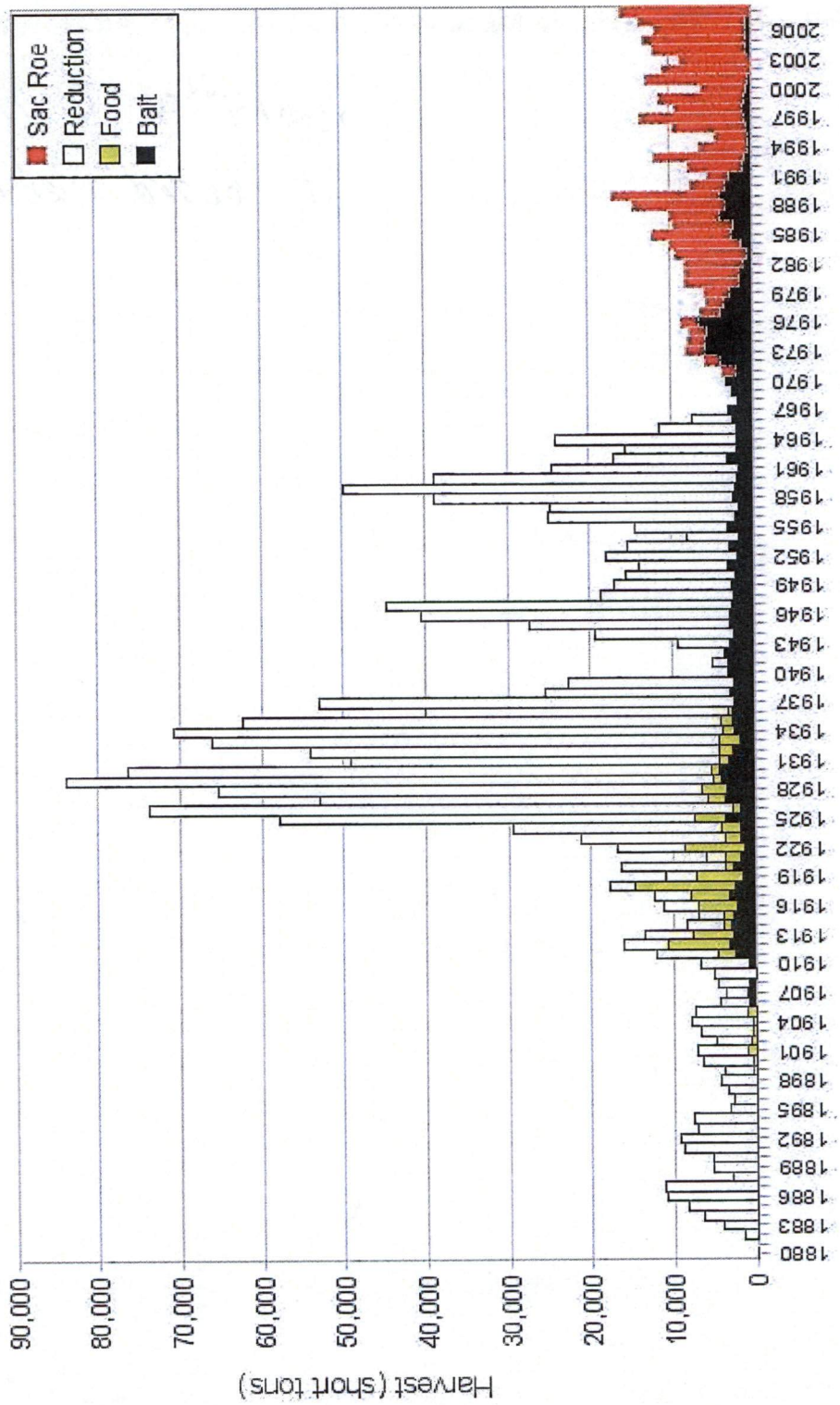

Figure 5.1. Southeast Alaska commercial herring harvests, 1880-2008, by fishery.

TIMELINE OF COMMERCIAL HERRING FISHERIES IN SOUTHEAST ALASKA

1867 The United States purchases Alaska from Russia*.

1878 Commercial herring production in Alaska begins in 1878. A combination of beach seines, gill nets and a form of Norwegian seining produces an initial total catch of 30,000 lbs. Jigs and rakes produce a small fraction of that, usually by individuals for use as bait or for curing (Huizer 1952, Rauwolf 2006).

"As early as 1878 persons in Wrangell engaged in the business of catching herring, from which they extracted the oil, in addition to salting and drying the fish" (Cobb 1906).

The Northwest Trading Company establishes a trading station at Killisnoo*.

1880 The trading station at Killisnoo begins rendering whale oil.

1882 The trading station, turned oil-reduction plant at Killisnoo experiences an explosion caused by a whaling harpoon. Whaling operations cease but herring oil reduction begins at the site: 1,520 tons of herring are processed for oil this year *.

1883 The Killisnoo herring reduction plant processes 4,200 tons of herring.

1884 The Killisnoo plant begins processing herring into fertilizer as well as oil*.

1887 The U.S. Bureau of Commercial Fisheries sends a research vessel "Albatross" to the inside waters of Alaska*.

1889 Thirty seven canneries are operating in Southeast Alaska (Cobb 1905).

1889 Fifteen canneries are operating in Southeast Alaska (Cobb 1905).

1897 The first 'official' catch statistics are collected by the research vessel 'Albatross' and reported to the United States Fish Commission*.

1900 Fishing operations begin purse seining from power boats allowing fishermen to increase catch rates in less time with less human labor (Huizer 1952).

Herring bait production begins; 4–6 million lb (1,800–2,700 mt) per year. (ADF&G 2007a).

"Soon after 1900 the small operators of Petersburg and Ketchikan commenced using purse seines from power boats" (Rounesfell 230:1930).

Petersburg-based fishermen begin curing herring. Many of these early operations were off-shore operations where salt packing was done on scows*.

* See Chapter V. History of Commercial Herring Fisheries in Southeast Alaska

1902	Sixty four canneries are operating in Southeast Alaska (Cobb 1905).
1904	The Bureau of Fisheries first requires every individual and company fishing in Alaska to record annual statistics such as total fish products, fishing gear, and vessels.
1905	Forty seven canneries are operating in Southeast Alaska (Cobb 1905)
1906	An annual report "Fisheries of Alaska" (also known as the 'fish and fur seal' report) begins to be published by the US Bureau of Commercial Fisheries*.
1907	The Tyee Whaling Company is established at Murder Cove on Admiralty Island. It operates until 1913*.
1910	The first herring are frozen for bait for the halibut fisheries at the New England Fish Co. plant in Ketchikan (Marsh and Cobb 1911).
1911	The method of salt-ruing herring expands rapidly.
1912	The United States Whaling Company opens a station at Port Armstrong. The company operates until 1923, and processes nearly 1,600 whales*.
1912-13	Halibut fishing is introduced as an important Alaskan industry. The need for herring bait fuels both fisheries (Rounsefell 1930).
1916	The Bureau of Commercial Fisheries hires experts to train fishery workers in the method of "Scotch Curing" *.
1918	Power seine boats almost totally replace the old Norwegian method of operation in all of Southeast Alaska. All are powered by gas internal-combustion engines. Each boat employs a five to seven man crew. The average net tonnage is 17 tons (range of 11-31 tons) (Rounsefell 1930). Herring caught for the food market (salt-cured, dried) peaks at 12,304 tons. Large herring become hard to find in the following years and many salt-cure operations move to Prince William Sound and Kodiak *.
1919	Three additional reduction plants are built in Chatham Strait *.
1925	Herring plants begin to record the quantity of fish being processed into meal or oil (Reid 1927)
1926-1966	Ninety percent of herring catches go to the reduction process (Reid 1971).
1927	The purse-seine boat average net tonnage is 31 (range of 20-42 tons). Half of the fleet is powered by diesel engines. Each boat employs a six to eight man crew (Rounsefell 1930). The halibut industry uses over 8,000,000 pounds of herring bait from Alaska: 4,600,000 from the southeastern region (Rounsefell 1930).

* See Chapter V. History of Commercial Herring Fisheries in Southeast Alaska

1929-1956	Approximately 812,290 tons of herring is harvested from southeast Alaska (Skud, Sakuda and Reid 1960).
1930-31	Rounsefell is assigned the task of studying the cause of fluctuating herring populations. Using catch per unit (CPUE) data from the 1920s, he concludes that there is no evidence to support the hypothesis that the reduction plants were the source of depletion (1930) but does attribute declines to fishing and recommends restricting the fishing fleet (1931)*.
1932-1934	Herring populations undergo three successive recruitment "failures" and cause the collapse of the herring fishery in the late 1930s (Dahlgren and Kolloen 1944).
1935	Tagging surveys of herring are attempted (Rounsefell and Dahlgren 1935). Rounsefell and Dahlgren find that Kootznahoo Inlet was once an abundant herring spawning ground, but the population had declined*.
1937	Peak herring reduction year: 125,000 tons are processed. Production levels begin to decline rapidly after 1937 (Reid 1971).
1939	Because of evidence of severe depletion of herring, commercial fishing for herring other than for bait purposes is prohibited after August 2, 1939 in all of southeast Alaska*. The Bureau of Commercial Fisheries opens an 'exploratory' fishery in an attempt to locate herring and possibly reopen the commercial fishery. No herring is found *.
1941	A 6,250 ton quota is set for the herring fishery. Half of the quota is filled*.
1942	All of southeast Alaska is closed to allow herring populations to rebuild*.
1943	Annual catch quotas are implemented, beginning with 12,500 tons.
1947	Kolloen (1947) develops 'cohort analysis,' a means to track herring using age composition. Using this technique, Kolloen describes the herring population as recovering: 41,828 tons of herring are harvested. Shortly thereafter, in the late 1940s, herring populations crash once again*.
1948	The annual catch quota is set at 50,000 tons; 16,114 tons of herring are actually harvested.
1950s	Japanese and Russian ships begin trawling for herring in the Bering Sea. (ADF&G 2007a). Herring reduction plants begin to decline due to competing Peruvian anchovy production (ADF&G 2007a).

* See Chapter V. History of Commercial Herring Fisheries in Southeast Alaska

The Sitka Chamber of Commerce lodges an official protest against commercial herring fishing for reduction purposes (STA Chamber of Commerce 1954).

1951 The annual quota is decreased to 100,000 barrels.

1959 The state of Alaska begins managing herring fisheries.

1966 The last herring reduction plant shuts down due to market conditions and depleted herring stocks (Reid 1971)

1964 The first commercial spawn-on-kelp fishery opens in Sitka (Ad Hoc Committee on Herring Spawn on Kelp Statements of Findings, n.d.)

1967-1972 "Unregulated bait fisheries deplete stocks in George Inlet (9000) tons and Caroll Inlet (1200) tons while being surveyed by ADF&G's biologists aboard the vessel Sundance" (Rauwolf 2006).

1968 ADF&G opens the spawn on kelp fishery (Rauwolf 2006).

1969 The first unofficial sac roe fishery in Sitka begins operation (Garza 1996).

1970s Herring stocks experience the first collapse (ADF&G 2007a)

Herring sac roe production begins in the 1970s to provide for declining herring numbers in Japanese waters. Much of the current herring sac roe harvest in Alaska is destined for these Japanese markets although younger generations are not so keen on this traditional dish.

Japanese and Russian ships trawling for herring in the Bering Sea harvest 320 million lb (146,000 mt) in 1970 (ADF&G 2007a).

"The development of extensive crab fisheries in the 1970s greatly increased the demand for herring bait" (ADF&G 2007a). Bait harvests increase to 4,000-6,000 tons annually*.

1972-1975 ADF&G conducts stock surveys on spawning grounds in preparation for the sac roe fisheries. The results of these surveys on diminished stocks are called "pristine biomass" by ADF&G biologists (Rauwolf 2006).

1974 The commercial spawn-on-kelp fishery closes in Sitka (Ad Hoc Committee on Herring Spawn on Kelp Statements of Findings, n.d.)

1976 The Magnuson Fishery Conservation and Management Act creates the following for all commercial fisheries:
"A fishery conservation zone between the territorial seas of the US and 200 nautical miles offshore. An exclusive US fishery management authority over fish within the fishery conservation zone (excluding highly migratory species). Regulations for foreign fishing within the fishery conservation zone through international fishery agreements, permits and import prohibitions. National standards for fishery conservation and management

* See Chapter V. History of Commercial Herring Fisheries in Southeast Alaska

and eight regional fishery management councils to apply those national standards in fishery management plans" (MMS 2007).

ADF&G opens commercial sac roe fisheries in southeast Alaska (gillnet and seine) (Rauwolf 2006)

1980s "[C]onsensus emerged among west coast herring biologists that a 20% maximum exploitation rate was appropriate for herring, and management agencies began shifting to this target. By the late 1980s, a consensus to set thresholds at 25% of the average unfished biomass also emerged. This policy was initially developed for British Columbia (Hall et al. 1988), and the rationale was extended for Alaskan herring fisheries by Zheng et al. (1993) and Funk and Rowell (1995)"*.

1980 West Behm Canal closes to commercial herring fishing after only one year of sac roe and three years of bait fishing. (Rauwolf 2006)

Auke Bay/Lynn Canal fishery collapses (third largest biomass in Southeast Alaska) (Rauwolf 2006)

1980-1988 Many small spawning areas are depleted by gillnet and seine fisheries (Rauwolf 2006)

1990 Kah Shakes gillnet sac roe fishery, second largest biomass in southeast Alaska closes (Rauwolf 2006).

1991 ADF&G moves the Kah Shakes gillnet fishery outside the legal boundary, 12 miles west to Cat Island, adjacent to the Annette Island Reserves herring fishery on Crab Bay flats. (Rauwolf 2006).

1993 Board of Fisheries tosses out proposals from local concerned citizens, and does not allow testimony on these proposals. At the same time the BOF expands the legal boundary of Kah Shakes to Include Cat and Mary Island, and classifies all area stocks as one stock (Revilla Channel Stock) (Rauwolf 2006).

1994 Local citizens file a lawsuit in an attempt to protect the remaining herring populations in Kah Shakes and Cat Island (Rauwolf 2006)

1995 People begin to notice a reduced size in herring in Revilla channel. Spawning biomass at Kah Shakes has shrunk to 143 tons from a high of over 20,000 tons at the onset of the fishery (Rauwolf 2006)

1995 The Sitka Tribe of Alaska implements a "branch watch" program to try to protect branches set out by subsistence harvesters from theft and other destructive activities (see Appendix D).

1996 The chairman of the Sitka Tribe of Alaska sends a letter to the Area Manager of the Commercial Fisheries asking the agency to close the commercial herring sac roe harvest in Sitka (Cockerman 1996a).

* See Chapter V. History of Commercial Herring Fisheries in Southeast Alaska

The Sitka Tribe of Alaska files a proposal to the Board of Fisheries to increase the threshold for the commercial fishery (see Appendix D).

1996 The combined spawning biomass of herring at Kah Shakes and Cat Island total 4338 tons, 1662 tons below the required 6,000 ton biomass threshold set by ADF&G before they are supposed to allow a commercial harvest for the coming season (Rauwolf 2006)

An experimental commercial herring roe on kelp program is established by the Board of Fisheries in Sitka (see Appendix D).

1998 Gillnetters exceed the quota at Cat Island by 11%. No fishery has been conducted at Cat Island since (Rauwolf 2006)

2000 The Sitka Tribe of Alaska submits a proposal to the Board of Fisheries to implement an 'ecosystem' management approach to the fishery. The proposal was denied (see Appendix D).

2001 The Sitka Tribe of Alaska submits an 'agenda change request' to the Board of Fisheries in order to address the detrimental effects of the 2001 commercial sac roe fishery in Sitka Sound. Affidavits, surveys, personal statements, and additional data is collected to support this proposal (see Appendix D).

2002 The Board of Fisheries reviews the 2001 proposal and data submitted by the Sitka Tribe of Alaska. The Board sets subsistence harvest levels at 105,000 to 158,000 pounds of herring spawn annually and requests that the Sitka Tribe of Alaska and ADF&G enter into a Memorandum of Agreement, a document that was signed on November 4, 2002. This document created a collaborative responsibility for both the Tribe and ADF&G to 1) participate in the pre-season and post-season stakeholder meetings, 2) communicate, collect and share data, and 2) conduct a collaborative post-season subsistence survey. The first post-season subsistence survey documented 111,962 pounds of herring roe (see Appendix D).

2003 The Board of Fisheries opens West Behm Canal to commercial herring harvests in spite of intense local opposition and ADF&G briefing documents requesting more time to study the fishery (Rauwolf 2006).

The Sitka Tribe of Alaska expands the post-season subsistence survey and documents 209,995 pounds of harvested herring roe (see Appendix D).

2005 The Sitka Tribe of Alaska expands the post-season subsistence survey once again and documents only 73,432 pounds of harvested herring roe, well below the threshold designated by the Board of Fisheries in 2002 (Craig 2009).

2006 The Sitka Tribe of Alaska files a proposal with the Board of Fisheries to review the inability of subsistence users to meet the 105-000 – 158,000 harvest quota set by the Board in 2002. The Board determines that it is not

* See Chapter V. History of Commercial Herring Fisheries in Southeast Alaska

the responsibility of ADF&G to guarantee that this subsistence harvest quota is met (see Appendix D).

2008 The Sitka Tribe of Alaska documents another failure to meet the subsistence harvest threshold set by the Board of Fisheries in 2002 (see Appendix D).

* See Chapter V. History of Commercial Herring Fisheries in Southeast Alaska