

THE CULTURAL SIGNIFICANCE OF HERRING

Pacific Herring (*Clupea pallasii*) and herring habitat, like Sitka's famous Herring Rock, were honored and cared for with names, songs, dances, crests, and protocols for engagement.

After a long winter, the herring was highly prized for the roe which it yielded, and the coming of the herring to Sitka was the first event of the spring, a time of excitement for the people. . . The Herring Rock was the first place to which the herring returned. . . Early in the spring the herring gathered at the rock and started dancing round it. The water was silver with the fish flipping and jumping, and the rock was shiny with them. The people sang songs to welcome the herring. . . The Herring Rock was a sacred place.

The Story of Herring Rock—as told by Esther Littlefield

My dad says it was the seagulls that named that herring. "Yaaw" is the noise they make when the herring's around...that's what the Tlingit call it: yaaw.

Herman Kitka (Sitka)



Tlingit village fishing boat captains and crew set a herring net for commercial long line halibut bait, while an elder and his dog watch and wait with a bucket to take herring home for dinner. Some will be salted for later use. Youth at the end of the dock are jigging for herring using multiple small hooks on weighted line, while the cry of feeding seagulls fills the air.

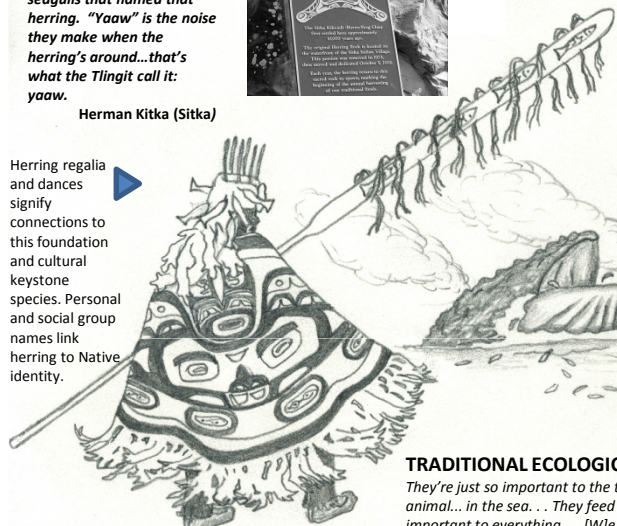
Wanda Culp (Hoonah/Juneau)



HERRING SYNTHESIS PROJECT:

LOCAL & TRADITIONAL ECOLOGICAL KNOWLEDGE IN SOUTHEAST ALASKA

Herring regalia and dances signify connections to this foundation and cultural keystone species. Personal and social group names link herring to Native identity.



TRADITIONAL ECOLOGICAL KNOWLEDGE

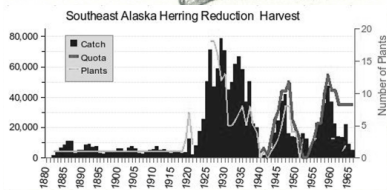
They're just so important to the total food chain . . . every animal . . . in the sea . . . They feed everything. They're important to everything. . . [W]e didn't like the idea of commercial fishermen coming in and taking them on a large scale because they're very important to our salmon and especially king salmon, you know. And they feed our seals and stuff like that. Things that we're depending on.

Harold Martin (Juneau)



Above, Sitka Tlingit fishermen haul in herring eggs on (Western) hemlock branches, the most prevalent subsistence technique. Tlingits, Haidas, and other Natives and non-Natives harvest herring and herring eggs throughout Southeast Alaska.

According to traditional ecological knowledge and historical records, herring were once so abundant they could be easily harvested with rakes, including this double-ended, kayak-paddle-style rake with spikes made of bone or (later) nails. Herring were eaten freshly cooked and also rendered into oil. But herring eggs were the greatest delicacy.



THE COMMERCIAL HARVEST OF HERRING

- 1800's Whaling declines, herring reduction begins
- 1882 Killisnoo, first herring reduction plant built
- 1920's Herring fishing intensifies in proximity to reduction plants.
- 1940's Stocks become depleted, quotas imposed.
- 1954 Sitka Chamber of Commerce files "an official protest" against the commercial reduction fisheries for their overexploitation of herring in proximity to Sitka.
- 1966 The last herring reduction plant at Washington Bay closes.

Respondents emphasized the impact of this industry on local herring populations and the fact that it may take decades for stocks to recover from overexploitation. Herring also have been fished commercially for bait, roe on kelp, and sac roe, the latter being dominant since 1976.



HERRING IN THE ARCHAEOLOGICAL RECORD

The use of herring has an antiquity dating back to 9310-7930 cal BP (Before Present). In some sites herring represents more than 50% of the assemblage, suggesting herring procurement, processing and use was a major activity. At Garnes Point (49-SIT-304) near Angoon, the assemblage was almost entirely herring, indicating a strong specialization, a fact which is supported by the ethnographic record. Nearly every site tested using fine mesh screen contained herring.

Herring vertebrae from a site in Coffman Cove, Alaska.



Photograph by Gyoung-Ah Lee



kashudoha 2009

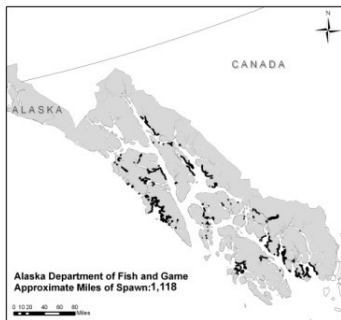
PROJECT SUMMARY

Pacific herring (*Clupea pallasii*) are a foundation and bellwether species for North Pacific marine ecosystems. Alaska Natives for millennia have fished herring as part of their seasonal rounds of subsistence. More recently, the species has been subject to intense commercial fishing practices beginning in the late 1800s. Communities with local and traditional knowledge (LTK) of herring fisheries claim that historical stocks were larger and spawning areas more numerous earlier in their lifetimes.

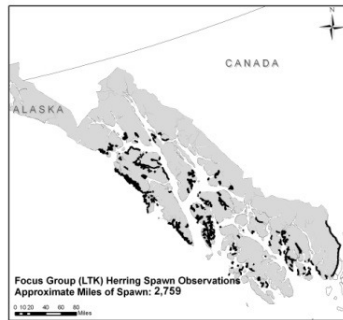
Despite the biological, cultural and economic importance of Pacific herring, productive areas and times of year for spawning in Southeast Alaska are limited and historical population dynamics and ecology of the species are not well understood.

In order to address the gaps in our long-term historical and cultural ecological knowledge of Southeast Alaska herring, this project synthesized archaeological, ethnological, historical and biological records with data from interviews (86 individuals were consulted as part of this project as were 117 unpublished interviews) with herring fishers with significant long-term observations and local and traditional knowledge (LTK) of herring populations.

Miles of Spawn Identified by Alaska Department of Fish and Game (c.1970 - 2007) Compared to LTK* Data (c.1915 - present)



Linear miles of spawn identified by Alaska Department of Fish and Game (c.1970 - 2007). The data was presented as an image of aggregate data without a specific time span. Using this image, spawning locations were georeferenced using GIS software. The linear miles of spawn was calculated using a function of this software that sums the total miles of coastline identified as spawning locations. Note that some spawning areas are more frequented than others from year to year according to local conditions. For example, Middle Island, in Sitka Sound, has supported significant spawn nearly every year documented, while other areas have supported spawn irregularly or become barren.

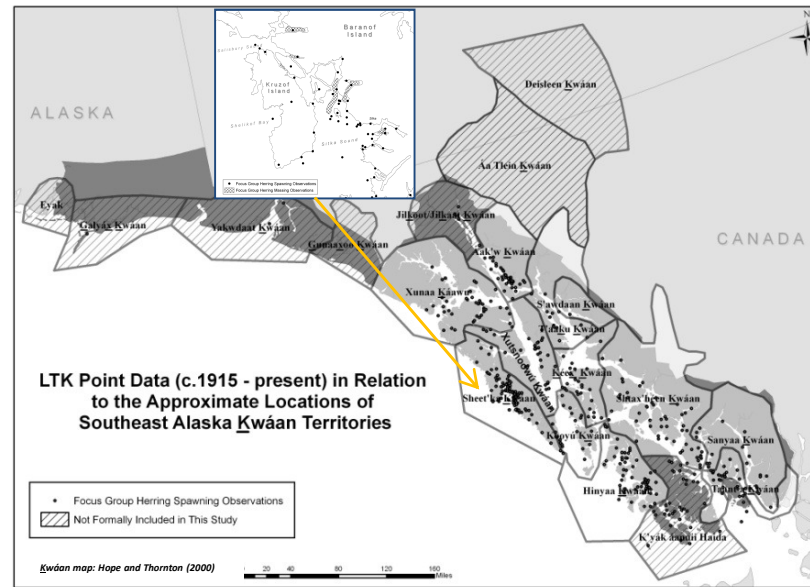


Linear miles of spawn identified by consultants who participated in the Herring Synthesis Project (c. 1915 - present). At every focus group and individual interview, maps were provided and consultants were encouraged to identify and mark herring spawning areas. This data was transferred into a GIS database and miles of linear spawn were calculated using a function of this software. According to these observations, herring spawning areas have covered extensive areas historically and greatly exceed those monitored by the Alaska Department of Fish and Game.

*LTK data do not include Yakutat, Haines, Klukwan, Hydaburg or Metlakatla; limited data were collected from Wrangell



For more information and full report, see: <http://herringsynthesis.research.pdx.edu/>. Research: Thomas F. Thornton (PI, Portland State University), Virginia Butler (Portland State University), Fritz Funk (Juneau), Madonna Moss (University of Oregon), Jamie Hebert (Portland State University), Tait Elder (Portland State University), & Robi Craig (Sitka Tribe of Alaska). Original art by Wanda Culp (*Kashudaha*, Chookan sháa).



Observations made by Local and Traditional Knowledge bearers were registered in space and time using a geographic information systems (GIS) database and mapping protocol. This map shows hundreds of sites in Southeast Alaska where local experts made observations about herring ecology, including changes to herring spawning and habitats over time. When linked with other environmental data these insights help to compose a more complete picture of herring ecology over the past century. The inset shows Sitka Sound, where the bulk of commercial herring roe and subsistence herring eggs are harvested. See the full report for more information.

SUMMARY OF CONCLUSIONS

- *Present herring stocks, even in highly productive areas such as Sitka Sound, are essentially being managed in a depleted status, representing a fraction of their historical abundance and distribution.* There was widespread agreement among our consultants that the reduction fisheries of the mid-twentieth century overfished herring in key areas causing both local and regional impacts on stocks, including reduced extent, duration, and quality of spawn.

- *Significant long-term impacts to Southeast herring stocks distribution and abundance have been anthropogenic (a result of human activity), in particular over-exploitation of the species by commercial herring fisheries in the twentieth century (e.g., for herring reduction plants), but also disturbance, contamination, and degradation of critical spawning habitats.* The localized impacts of the commercial reduction fisheries are clearly documented and widely acknowledged in both the written and LTK records. However the long-term impacts of commercial fishing versus other factors affecting Southeast herring populations are still not fully understood.

- *Human dependence on herring as a food resource evolved through interactions with key spawning areas with abundant substrates for egg deposition (such as macrocystis kelp, rockweed, and eelgrass), with which many aboriginal settlements are associated, and was later enhanced through the development of engineered marinescapes (e.g., placement of hemlock boughs in intertidal areas), techniques for conserving herring stocks by regulating human harvests and disturbances to critical spawning habitat, and by the development of new technologies (such as the herring rake) for capturing whole herring in quantity.* The archaeological data synthesized for this project confirm the importance of herring in the prehistoric era, particularly in the last 4,000 years where herring remains appear consistently in sites employing a fine enough screen mesh.

- *Maintenance of diverse herring spawning locations in Southeast Alaska is critical to conserving intra-specific biodiversity.* The scientific record and our LTK interviewees both recognize the fact that herring stocks are dependent on quality spawning and rearing habitat and, when not stressed, will maintain a significant degree of fidelity to their spawning grounds. Diverse spawning populations, in turn, help reduce the vulnerability of herring populations and support the resilience and diversity of local marine ecosystems. Herring are key to the food web.