RC 330

Rosita F. Worl, Ph.D.
President, Sealaska Heritage Institute

Review of

Herring Synthesis: Documenting and Modeling Herring Spawning Areas with Socio-Ecological Systems over Time in the Southeastern Gulf of Alaska.

By

T. Thorton, et. al.

The Alaska State Fish and Game Department contends its management of the Pacific Herring Fisheries is conservative, but fails to consider and manage the stock as a significantly depleted resource.

In 2010, seven respected scientist including anthropologists and archaeologists with extensive experience in Southeast Alaska, and a biologist with over twenty years researching Pacific herring published a *Herring Synthesis: Documenting and Modeling Herring Spawning Areas with Socio-Ecological Systems over Time in the Southeastern Gulf of Alaska.* They consulted historical, biological, ethnographic and archaeological studies and reports on herring ecology; thousands of pages of testimony and data from 86 interviews with Native and non-Native from ten different Southeast Alaska communities. They built a historical and spatial database that 1) identifies the extend of historic and prehistoric herring spawning and massing areas; 2) links changes in herring spawn extent and intensity to environmental and human factors in the socio-ecological system; and 3) identifies sensitive areas for protection and potential restoration of herring spawning. This work provides a robust picture of the history of herring over 4,000 years in Southeast Alaska and notably that in the past century.

Southeast Natives have fished herring as part of their rounds of subsistence harvest for thousands of years. Scientific data and recorded observations report that historical stocks were larger and spawning areas more numerous. The results of the study suggest that present herring stocks are being managed in a "depleted status" representing a fraction of their historical abundance and distribution.

Commercial herring fisheries by non-Natives began near Angoon in 1882 and continued until the mid 1960s. As early as the 1930s, biologists identified Southeast herring as overfished, and the first quotas were implemented in the early 1940s after the commercial harvest had dramatically declined. However, seine boats continued to harvest large masses of herring until 1966. The reduction herring fisheries overexploited herring, causing disproportionally local and regional impacts on the herring population with some localized depletion of the stock.

A modern fisheries management regime was implemented in the 1960s, but herring were already depleted in many areas though the extent was difficult to quantify. Observations combined with fisheries record seem to support that significant long-term impacts to Southeast herring stock distribution and abundance have been the result of human activity, in particular over-exploitation of the species by commercial herring fisheries in the last century, but also disturbance,

contamination and degradation of critical spawning habitats. The long term impacts of commercial fishing versus other factors affecting the herring population are debated. The commercial herring reduction fisheries had the most profound impact on herring stocks. However, the role of other fisheries, including the bait and sac-roe fisheries contributed to local declines. Subsistence roe harvest on branches or roe on kelp fisheries have not been reported as a factor in the herring decline because these fisheries take only the deposited eggs and do not kill the fish.