

# CONTRIBUTIONS OF INDIGENOUS KNOWLEDGE TO FISHERIES MANAGEMENT



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## WHAT IS INDIGENOUS KNOWLEDGE?

Indigenous knowledge, also known as traditional ecological knowledge or TEK, is the accumulated and evolving knowledge of local people built upon generations of direct contact with a specific environment. It includes a deep spiritual connection to place.



An Inupiat elder in Selawik cuts whitefish and northern pike to dry in spring. Located in a maze of wetlands and waterways, Selawik residents subsistence fish nearly year-round.

The Inupiat of northwest Alaska have relied upon the local land and resources for thousands of years, and continue to do so. Their resource knowledge, rooted in survival and derived from keen observation and powerful long-term connections to the environment, brings a valuable perspective to resource management. The purpose of this study was to document Inupiat knowledge of whitefish in northwest Alaska, a prized subsistence resource but one that scientists knew little about.

## STUDY AREA

This study took place in the Northwest Arctic region of Alaska. The study area includes the Noatak, Kobuk and Selawik rivers as well as coastal communities. Three National Parks and one National Wildlife Refuge lie within the region.



## INTERVIEWING IÑUPIAQ ELDER

Fifty-seven Inupiat elders in six communities were interviewed using a semi-structured interview format. All had spent their lifetimes engaged in fishing, hunting, and gathering wild foods on their traditional homelands. The interviews were supplemented by participant-observation at spring and fall fish camps.



The author (right) visited fish camps such as this one on the Kobuk River to learn first-hand about whitefish.

## A BETTER UNDERSTANDING OF WHITEFISH

The respondents provided a remarkable body of Inupiat indigenous knowledge pertaining to the natural history of whitefish, some of which had not been previously documented. Among the highlights of the findings:

- Whitefish have been a consistently abundant and highly reliable food source over the lifetimes of respondents, playing a critical role in seeing people through years of failed salmon runs, diminished caribou herds, and other resource shortages.
- More precise ranges of several whitefish species were documented, a substantial improvement over the range maps currently available in scientific literature.
- Respondents identified several spawning areas, including one for broad whitefish. No broad whitefish spawning areas in northwest Alaska have yet been documented in scientific literature.
- The Inupiat taxonomy of whitefish was largely congruent with the Linnaean taxonomic system in all communities except one. The exception, Selawik, had an unusually complex classification system for whitefish, likely owing to the centrality of this resource to the community's subsistence activities.

English Names	Scientific Name	Inupiat Names <sup>1</sup>				
		Selawik	Noorvik	Shungnak and Kobuk	Noatak	Kotzebue
broad whitefish short-nosed whitefish	<i>Coregonus nasus</i>	siyyuilaq				
		qausriulik	qausriulik	qausriulik	sigguiilaq	sigguiilaq
		qalupiaq			qausiulik	qausiulik
humpback whitefish needle-nosed whitefish sharp-nosed whitefish	<i>Coregonus pidschian</i>	qaalgig			qaalgig	qaalgig
		ikkuuyiq	qaalgig	qaalgig	iqalupiaq	iqalupiaq
					iqalutchiaq	iqalutchiaq
least cisco	<i>Coregonus sardinella</i>	anyutituuq				
		qalutchiaq	qalusraaq	qalusraaq	iqalusaaq	iqalusaaq
Bering cisco	<i>Coregonus laurettae</i>	<sup>2</sup>	tipuk	<sup>2</sup>	tipuk	tipuk
round whitefish	<i>Prosopium cylindraceum</i>	quptik	quptik	quptik	savaigutniq	quptik
whitefish of any kind		qalupiaq	qalupiaq	qalupiaq	iqalupiaq	iqalupiaq

<sup>1</sup> Where more than one name is in the same box, these are different names for the same fish. Where each name is in its own box, these are considered different fish.

<sup>2</sup> This fish was not familiar enough to these communities for residents to be confident about its name.

This table points out the complexity of the nomenclature for whitefish species in northwest Alaska. Indigenous knowledge sheds light on topics like this, ensuring better communication between managers and Alaska Natives.

- An unusual subsistence fishery utilizes ditches dug in gravel at the mouths of coastal lagoons as a harvest technique for whitefish. Details about this fishery were revealed in this study.



An Inupiat elder waits patiently by a ditch, or qargisaq, an ingenious, simple, and very effective whitefish harvest method used in coastal lagoons in Arctic Alaska.



Whitefish are a staple food in much of northwest Alaska. Families seine large numbers in the fall along the Kobuk River, cutting and processing them for days at a time.

## IMPROVING FISHERIES MANAGEMENT

Indigenous knowledge with its holistic, long-term perspective complements data-based western science. Results from this project have been used in several ways:

- To identify critical habitat for whitefish and focus scientific investigations on these areas.
- To design scientific research that builds on existing indigenous knowledge, thereby expanding our understanding of fish with the most efficient use of time and funds.
- To provide a common vocabulary for species identification, so managers and the public can communicate clearly.
- To amend fishing regulations to better accommodate traditional subsistence activities.
- To promote a more meaningful and informed cross-cultural relationship with Alaska Native communities.



Humpback whitefish dry on spruce pole fish racks. The Inupiat have perfected many ways to store and prepare whitefish, depending on the species and season.

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