

# **Seasonal Migrations and Important Habitats of Humpback Whitefish, Broad Whitefish, and Least Cisco in the Selawik National Wildlife Refuge, as Determined with Radio Telemetry**

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## **Abstract**

Thousands of whitefish of three primary species in the subfamily coregoninae are harvested each year in the Selawik River delta in northwest Alaska. Yet, very little is known about the habitats they use or the movements they make in the region. Radio telemetry was used in this study to identify seasonal migrations and important habitats of humpback whitefish *Coregonus pidschian*, broad whitefish

*C. nasus*, and least cisco *C. sardinella* tagged in the Selawik River delta. Transmitters were deployed in 64 humpback whitefish, 64 broad whitefish, and 32 least cisco during the two years of this study. Humpback whitefish were tagged in early June (early in the annual feeding period), 40 in the northern region of the Selawik River delta and 28 in the southern region. Broad whitefish were tagged during early June (n = 45) and in early August (n = 19), when broad whitefish were feeding in the delta. They were tagged in the northern (n = 36) and southern (n = 28) regions of the delta. Least cisco were tagged in early June, 16 in the northern region and 16 in the southern region. Transmitters deployed in 2004 (n = 96) were programmed to last for 13 months. Those fish have been tracked through a full year and are no longer transmitting. Transmitters deployed in 2005 (n = 64) were programmed to last for approximately 2 years. Those fish have been located during their first fall and winter time periods, and will continue to be tracked for another full year. During the first summer it became clear that there was very little interchange between fish tagged in the northern region of the delta and those tagged in the southern region. At least half of all tagged fish of each species were located during the fall spawning season, and fish that were not located were presumed to be in Selawik Lake or in Hotham Inlet, both large water-bodies that precluded comprehensive aerial survey coverage. Spawning areas for humpback whitefish were identified in upstream, gravel-substrate regions of the Selawik River drainage and nearby tributary streams. Broad whitefish spawning habitat was identified only in the Kobuk River. No least cisco spawning areas were identified. It is hypothesized that some areas of Selawik Lake with gravel or sand substrates may provide suitable spawning habitat for some fish of all three species. Ten humpback whitefish, 13 broad whitefish, and 12 least cisco tagged during 2004 were known to be alive in the Selawik River delta a year following tagging. Many others may also have been alive in Selawik Lake, Hotham Inlet, or other unsurveyed river drainages. Aerial survey data from spring and fall 2006 will be analyzed for additional information on survival, habitat fidelity, and spawning frequency of fish tagged during 2005.