



U.S. Fish & Wildlife Service

# Sheefish Studies in the Nowitna River

Fairbanks Fish & Wildlife Field Office

Sheefish *Stenodus leucichthys* (known also as inconnu) are a common fish in the Nowitna River drainage in central interior Alaska (part of Nowitna National Wildlife Refuge). Sheefish mature at 8 to 12 years of age and can live for 30 years or more. Mature fish in the Nowitna River are greater than 60 cm (24 inches) in length and some grow to over 100 cm (40 inches) long.

Sheefish are a good food fish and they are harvested by net and angling methods wherever they are found. The Nowitna River has always been a popular fishing destination for people from nearby villages along the Yukon River and it is now attracting an increasing number of anglers from more distant urban centers of Alaska and elsewhere.

A sheefish spawning area was identified in the Nowitna River



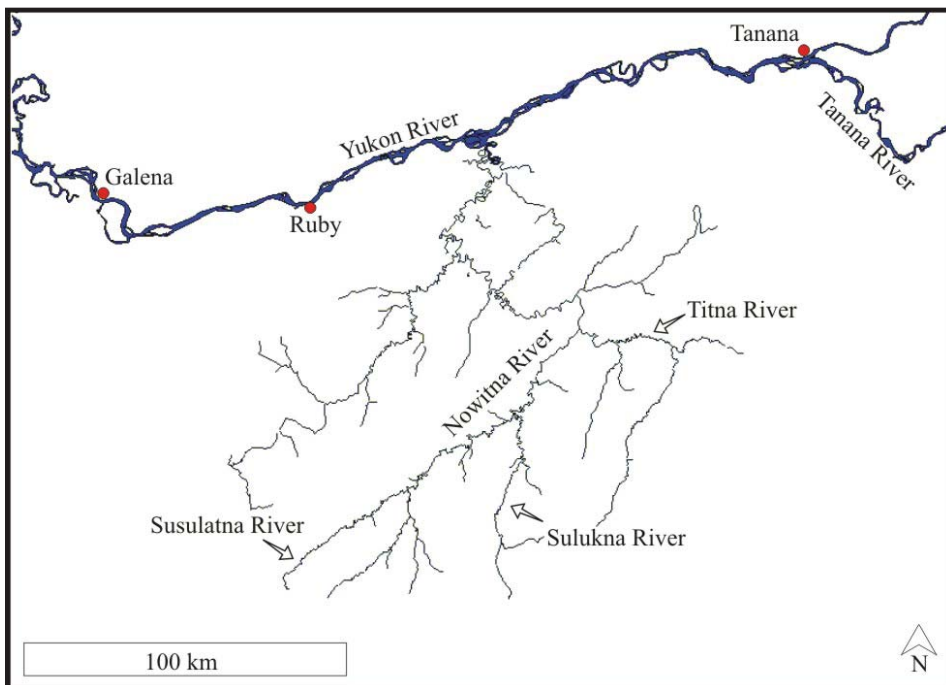
*A Sheefish with implanted radio tag is ready for release.*

drainage about 25 years ago in a tributary stream known as the Sulukna River. The Bureau of Land Management (BLM) recognized the spawning area as an essential habitat for the sheefish population and con-

ferred a measure of protection to it by designating it as an Area of Critical Environmental Concern.

Recently, the U.S. Fish and Wildlife Service (FWS), BLM, and the Alaska Department of Fish and Game (ADFG) collaborated on a radio telemetry project with sheefish in the Nowitna River. The study had the following objectives:

- 1) identify the geographic bounds of the spawning area in the Sulukna River.
- 2) Identify other spawning areas in the Nowitna River drainage if there were any.
- 3) Determine whether sheefish found in the lower Nowitna River spawned in the Sulukna River or in other Yukon River drainage spawning areas; and 4) document the spawning frequency of sheefish in the Nowitna River.





*An incision created from implanting a radio tag is stictcjhed up by USFWS biologists.*

The project began in 2005 and will continue through 2011. Sixty radio transmitters were implanted into mature sheefish in the lower Nowitna River during 2005 and 2006. As of fall 2007, 33 tagged sheefish have spawned in the Sulukna River. Their positions in late September, which is their spawning season, have clearly delineated the spawning area within the river. No other spawning areas were identified within the Nowitna River drainage. All fish that migrated up the Nowitna River went into the Sulukna River to spawn. Three fish spawned in the upper reaches of the Yukon Flats, which was first identified as a major sheefish spawning area in 1997 by the

FWS. Several tagged sheefish have been harvested and others have been located feeding in the lower Nowitna River or overwintering in the Yukon River but have not spawned since being tagged. Only two tagged sheefish have migrated to spawn two years in a row. Some spawned in 2005, skipped 2006, and spawned again in 2007. Several fish tagged in 2005 did not spawn until 2007, suggesting two years or more between spawning events. Spawning frequency appears to be highly variable.

There is still much to learn from this radio telemetry project, which will continue for several more years. In the meantime,

two projects supported by FWS, BLM, and University of Alaska Fairbanks (UAF) are describing the habitat features of the Sulukna River spawning habitat, and estimating the abundance of the spawning population by using sonar to count the post-spawning out-migration of sheefish from the Sulukna River during 2008 and 2009. The results of these projects should help tremendously in our efforts to manage the Nowitna River sheefish population for long-term sustainability.