Chatanika Whitefish spear fishery

Closed by EO 1994-2001. BOF closed fishery in regulation 2001.

The spear fishery reopened by BOF in 2007 by permit, limit of 10 fish per household/permit. For the fishery, ADF&G intended for a maximum of 1,000 fish harvested. Initially, 100 permits were granted, by first come-first serve. Only 52 permit holders participated, and they harvested 267 whitefish. The following year 200 permits were issued, and 92 permitees fished and harvested 522 fish. The following table indicates by year number of permits, participation, and harvest.

Table 1.–Chatanika River personal use whitefish spear fishery permit results, 2007–2021.

	Permits		Number of Households	Whitefish Species				Total Whitefish	Average Harvest/
Year	Issued	Returned	that Fished	Least Cisco	Humpback	Round	Unknown	Harvest	Permit
2007	100	97	52					267	5.1
2008	200	191	92					522	5.7
2009	200	194	124	104	501	77	68	750	6.05
2010	200	198	141	103	657	94	100	954	6.77
2011	200	196	129	172	284	66	22	583	4.52
2012	200	198	123	318	372	136	41	867	7.05
2013	200	199	153	324	495	139	147	1,105	7.22
2014	200	198	141	220	206	141	23	590	4.18
2015	200	196	115	330	105	107	23	565	4.91
2016	224	219	148	403	198	177	77	855	5.78
2017	227	203	134	481	237	181	63	962	7.18
2018	225	213	123	318	108	151	46	623	5.07
2019	225	217	113	197	177	101	18	518	4.58
2020	225	195	124	125	147	79	15	346	2.79
2021	225	216	132	176	243	178	3	600	2.77

Source: ADF&G, Sport Fish Division, Fairbanks, unpublished data.

[a] preliminary data

WHITEFISH

Chatanika River

Background and Historical Perspective

The Chatanika River supports a large spawning population of whitefish (primarily humpback and least cisco). During late summer and fall, humpback whitefish and least cisco migrate up the Chatanika River to spawn primarily between Murphy Creek and the Elliot Highway Bridge. They then move downriver to undefined overwintering areas, but they are suspected to be between Murphy Creek and the Trans Alaska Pipeline. Fleming (1999) described the potential complex life history of these stocks, which might include long migrations in the Tanana and Yukon Rivers. During the course of northern pike research, humpback whitefish and least cisco have been observed moving into the Minto Lakes immediately after breakup, where they feed during the summer before moving upriver to spawning areas.

Historically, the only major sport fishery for whitefish in the TRMA was the spear fishery on the Chatanika River near the Elliot Highway Bridge. This fishery traditionally took place in September, while least cisco and humpback whitefish were migrating upstream to spawn. Both species were harvested, as were a small percentage of round whitefish. The fishery became very popular during the 1980s, and harvests had increased to 25,000 fish/year by 1987 (Brase 2009b).

This fishery had no bag limit until 1988, when a 15-fish bag limit was implemented. Harvest decreased in 1988 after the bag limit was imposed but increased again in 1989. The decline in humpback whitefish abundance from 41,211 fish (SE=5,155) in 1988 to 17,322 (SE=1,655) fish in 1989 (Table 19; Hallberg 1989; Timmons 1990), combined with harvest estimates that were considered unsustainable, prompted the department to close the fishery by EO in October 1990 and again in September 1991 (Brase 2009c). In 1992, the BOF adopted an ADF&G proposal to limit the fishery to the month of September and to limit the area where the fishery took place to downstream of a point 1 mile (~1.6 km) above the Elliot Highway Bridge. During 1992, ADF&G also adopted an in-house Chatanika River whitefish management plan that set threshold abundance levels required to allow harvest. The threshold abundance level for humpback whitefish was 10,000 spawners, and the threshold abundance level for least cisco was 40,000 spawners.

Stock assessments done in 1992 and 1993 (Table 19; Fleming 1993, 1994) indicated abundance levels above the threshold levels in the management plan; however, harvest rates in those years were very low and attributed to poor weather conditions that reduced fishing success during the peak of migration (Hallberg and Bingham 1994).

Stock assessment during 1994 (Fleming 1996) indicated that the abundance of least cisco was below the management plan threshold allowing harvest; therefore, the fishery was closed by EO in September 1994. The fishery remained closed by EO through 2001, when the BOF prohibited the use of spears in the Chatanika River whitefish sport fishery by regulation.

In 2007, the BOF added spears as a legal gear type in the personal use whitefish fishery. Separate permits, specific to the Chatanika River, designated the dates, fishing area, and household limits for this fishery. In that first year, the department issued 100 household permits with a household limit of 10 whitefish. In 2007, there was a high demand for the 100 permits; however, participation and harvest were low with only half the participants reported fishing. Brase and Baker (2012a-b; Table 20) reported the number of issued permits doubled to 200 in 2008, and then raised again to 225 permits in 2016. Based on past

abundance estimates, a harvest level of 1,000 whitefish (humpback whitefish, round whitefish, and least cisco combined) was deemed sustainable. Factoring past abundance estimates, this ensures a very conservative annual exploitation of <5% for a given species.

In 2008, separate abundance estimates were obtained for Chatanika River populations of least cisco and humpback whitefish (Table 19; Wuttig 2009). The humpback whitefish estimate was 22,490 fish (SE = 2,777) ≥ 360 mm FL; the estimate of least cisco was 15,345 fish ≥ 10 in (≥ 250 mm; SE = 1,350). These results suggest that the humpback whitefish population was slightly below the historical average, whereas the least cisco population remained below the historical average. The lack of recovery in the least cisco population indicated that continued conservative management of the Chatanika River personal use whitefish spear fishery was prudent.

In 2012, the estimated abundance of humpback whitefish was 12,755 fish ≥360 mm FL (SE =1,405; Table 19). The abundance of humpback whitefish was within the range of most previous estimates. The percentage of the whitefish population composed of large fish (≥ 440 mm FL [~18 in]) increased from 60% (2008) to 72%. Correspondingly, few smaller-sized fish (i.e., 360-439 mm FL [~15-18 in]) were present in the sample, indicating short-term recruitment may be relatively small in subsequent years (Gryska 2014).

Recent Fishery Performance

Only 177, 147, and 243 humpback whitefish were harvested during 2019, 2020, and 2021 respectively, compared to the most recent abundance estimates of 22,290 in 2008 Wuttig (2009), and 12,755 fish in 2012 (Gryska 2014).

In general, the results from the personal use spear fishery seem to be relatively stable with regards to participation and success (Table 20). Participation and success are dependent on weather, water conditions (greater success when the river is low and clear), as well as spearfishing experience. In 2021, total reported harvests were 600 fish composed of 243 humpback whitefish, 176 least cisco, 243 round whitefish, and 3 unknowns (Table 20).

From 2007–2014, the ratio of least cisco to humpback whitefish harvested in the Chatanika River was 0:6, from 2015–2018 it changed to 2:4, and 2019-2021 it was 0.8. These numbers may indicate strong recruitment of least cisco 2015-2018 while humpback whitefish have had stronger recruitment during the last 3 years. These trends may reflect the influence of Minto Flats being continually flooded each summer since 2014, which when flooded provides more rearing habitat for young of year whitefish. Given the maturity schedule of least cisco (3-6 years) versus humpback whitefish (5-7 years), it is expected that humpback fish may become more prominent in the next few years.

There is little participation in this sport fishery due to the difficulty in catching whitefish by hook-and-line.

Fishery Objectives and Management

An unpublished *Chatanika River Personal Use Whitefish Spear Fishery Management Plan* was developed in 2007. This plan outlines a history of the Chatanika River whitefish fishery and the fishery's current management objectives.

The draft management objectives are as follows:

1. To maintain an orderly fishery that produces a sustainable harvest; and,

2. To stay within these permit guidelines:
    a. Permits will be issued starting in mid-August
    b. Permits will be only issued to Alaska residents who hold a sport fish license, and only 1 permit will be issued per household;
    c. Permits will be issued from the Fairbanks ADF&G office;
    d. Permits must be filled out and returned after fishing is complete or by October 31;
    e. If a permit is not returned, the permittee may not be eligible to receive another the following year;
    f. Permit will specify fishery area and fishery dates; and,
    g. Maximum total fishery harvest level of 1,000 whitefish (any species).

Current Issues and Fishery Outlook

Overall, there appears to be satisfaction from the participants in the personal use spear fishery. People report enjoying the opportunity to participate in the fishery and are satisfied with the 10-fish household limit. In 2009 and 2010, all permits were issued in 3 days or less. In 2019, it took 3 hours to issue all the permits. In 2020, due to the Covid-19 pandemic, the permit system was moved to an online lottery; where will likely remain an online lottery and online reporting should be available by 2022. Participation by permit holders has fluctuated between 50 and 77%, and averaged 60%.

Anglers interested in spearing whitefish are encouraged to look for other stocks that might provide opportunity for fall spear fishing. Because of ongoing interest, other spear fisheries may emerge on small stocks of whitefish in some of the clearwater tributaries of the Tanana River. There is an unknown level of spearfishing effort at the Fielding Lake outlet and the potential for the same kind of effort at the George Lake outlet; harvest levels at these locations may need to be monitored should popularity increase.

Recent Board of Fisheries Actions

There have been no actions taken by the BOF with regards to the Chatanika River whitefish fishery since 2010 when the BOF adopted an ADF&G proposal that repealed the exceptions to the general sport bag and possession limits and seasonal closures for whitefish in the Chatanika River. During 2016, the BOF permanently set into regulation a seasonal household limit of 10 whitefish for all species combined.

Current or Recommended Research and Management Activities

The population dynamics of least cisco can be highly variable because they are relatively short lived (e.g., 5–7 years) and more responsive to changing environmental factors. The last abundance estimate was in 2008 and a more recent stock assessment is recommended. The increasing ratio in harvests of least cisco to humpback whitefish since 2013 suggested a growing least cisco population (Table 20) that may have been overtaken by humpback whitefish during the last 3 years.

Current research efforts have focused on least cisco seasonal movements throughout Minto Flats and the Chatanika River using radio telemetry and sonar. Telemetry data will aid management in understanding where least cisco that spawn in the Chatanika River, reside in the winter and summer months. It will also describe the upstream and downstream migrations and spatial distributions least cisco period.

A feasibility study that used sonar operated downstream of the fishery and main spawning area attempted to enumerate out migrating least cisco after they have spawned. Preliminary data suggests that due to species apportionment issues (i.e., multiple fish species being of similar size), and upstream/downstream movement, a sonar, currently, is likely not beneficial to enumerate least cisco. Both telemetry and sonar projects are currently being drafted and results will be reflected in future FMRs.

The online lottery for permits is also likely to continue. Historically, permits were given out at the Fairbanks ADF&G office on a first come, first serve basis. It is assumed that the people who typically stand in line outside at the office are more likely to participate in the fishery and be successful at harvesting fish. In 2020 and 2021, the preliminary harvest/permit was to 2.8 fish (Table 1). It is unknown if this decline is due to water levels, the number of "new" users, fewer fish on the spawning grounds or the Covid-19 pandemic. There is some anecdotal evidence that new spearfisherman were less successful than experienced spearfishermen. Given participation levels and average harvest levels, it is recommended that permit numbers be increased to 300 permits. This number of permits will increase opportunity while also maintaining an orderly fishery that produces a sustainable harvest