

SUBMISSION TO THE NUNAVUT WILDLIFE MANAGEMENT BOARD

FOR

Information: X

Decision:

Issue: Brief update on the Fish of Nunavut book.

Background:

The Nunavut Series has had success and completed many books over the years, except for the Fish of Nunavut book. The Government of Nunavut, Department of Environment, Fisheries and Sealing Division has been working for the past 2 years with InHabit Media, Atiigo Media, Fisheries and Oceans Canada (DFO) to complete the Fish of Nunavut book. Please see attached mock-up of the Fish of Nunavut book. To date the GN and DFO have been the primary funders of the book; however the NWMB has contributed \$12,000 to this initiative to date. Final book production funding for Winter 2014 is still to be determined.

Current Situation:

Currently illustrations and descriptions of over 90 fish have been completed and are in the review process; many hunters and elders have been interviewed and their knowledge and stories about fish have been prepared for the book. By October 2013 the draft format of the book should be complete and ready for final review. Presently, we are expecting to have a finished pre-print copy ready by December 2013 and ideally final copies printed and ready for distribution by spring/summer 2014.

Consultations:

Fisheries and Sealing, GN

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Date: May 11, 2013



Fish *of Nunavut*



Arctic char



SCIENTIFIC NAME

Salvelinus alpinus

FAMILY NAME

Kingdom
Animalia

Phylum
Chordata

Class
Actinopterygii

Order
Salmoniformes

Family
Salmonidae

INUKTITUT NAME
Iqaluk or *tariungmiutaq*

OTHER NAMES
(COMMON NAMES, LOCAL NAMES)

Arctic char, Arctic charr,
char, charr, red belly fish,
red trout



Identification and Appearance

Arctic char is a streamlined fish with an elongate, typically troutlike body. Arctic char vary greatly in size, but the average length is 15 to 18 inches (381-457 mm). The body shape of Arctic char is somewhat round, with the greatest body depth occurring below the dorsal fin. The snout is somewhat rounded, and Arctic char have a terminal mouth. Notably, mature males often develop an upward hook or kype on their lower jaw. Arctic char develop teeth on their upper and lower jaws. Arctic char have a dorsal fin, adipose fin, distinctively forked caudal fin, and pelvic and pectoral fins (see fish diagram pg X for details on fins). Arctic char have cycloid scales and a lateral line with small pores along it.

Arctic char are known to vary greatly in their colour. The colouration of Arctic char at any given time depends on environmental conditions within their habitat, the life stage of the fish, and the time of year. Commonly the backs of Arctic char are dark green or blue-green, while their sides are silvery blue with scattered orange or red spots, and their bellies are whitish. The fins take on a bright orange, red, or gold cast. Arctic char are known for being exceedingly colourful, especially when spawning. Their underside becomes a brilliant orange-red while the lower fins develop striking white edges. Spawning males tend to be more colourful than females. In contrast, Arctic char may exhibit the relatively drab silvery colour of non-spawning, or a combination of colours between these extremes. (Scott and Crossman 1973)



Habitat and Range

Circumpolar in distribution, Arctic char are naturally found in northern streams, and the lakes and sea waters of North America, Asia, Europe, Iceland, and Greenland. Within North America they are found from Alaska around the Bering Sea and along the Arctic Coast all the way to Baffin Island, Nunavut.

Arctic char often exist in two different forms in the same lake. These forms are usually described as resident (dwarf) and anadromous (normal, sea-run). Both forms are found in Nunavut, often in the same populations. Typically, anadromous Arctic char are found in lakes in the winter and at sea in the summer, whereas resident Arctic char are found only in freshwater (lakes and/or rivers). Annually, anadromous Arctic char migrate from freshwater to saltwater environments in spring, and return in late summer or early fall. Spawning habitats are found only in freshwater, and tend to be the shallows of lakes or slow-moving areas of rivers. These habitats must be deep enough so that ice does not freeze to the bottom, and well enough oxygenated that water can flow throughout it in the winter (IUCN REDLIST).



Relation to humans

Arctic char has historically been, and still is, a fish of real economic and subsistence importance to polar and central Inuit. The best time for fishing in Nunavut depends on each area. In some areas, most fishing is done by nets or traps in river or river mouths during downstream or upstream runs; in other locations, fishing by nets in the summer (open water) is the best time. Lastly, sometimes fishing by gill nets, lures, or hooks is best in the winter. For example, at Bloody Falls on the Coppermine River, fish are speared, whereas at Sylvia Grinnell Territorial Park near Iqaluit, gill netting in the open water or angling in the river are the two preferred methods. A growing interest in Arctic char as a sport fish has become

evident in North America, as affluent anglers seek more exotic prey.

Traditionally Arctic char are eaten fresh, smoked, salted, or dried. In recent years, Arctic Char has become a gourmet food for the restaurant trade in many large North American cities. Frozen Arctic char is shipped to southern markets from commercial fisheries operated in the central Canadian Arctic and Labrador. Upward of 100,000 to 200,000 pounds are marketed annually. Arctic char are classified as red, pink, or white, according to flesh colour index, red commanding the highest price (Scott & Crossman, 1973).



Life Cycle

Locally it is believed that resident Arctic char are a different type of fish that cannot reproduce with anadromous Arctic char. These two types of char show differences in habitat and food selection, resulting in different growth rates, size at maturity, and average size. Anadromous Arctic char grow faster, grow to be larger, and have an older age at maturity (age 4 to 10). Resident Arctic char live their whole lives in freshwater. They remain smaller than anadromous Arctic char, but reach maturity earlier (age 2 to 4). Arctic char commonly live to age 15, but it is not uncommon for some individuals to live over 20 years (Scott and Crossman 1972, IUCN REDLIST).

Newly hatched Arctic char, called young-of-the-year, emerge from their eggs in the gravel bed and begin feeding immediately (Alaska, 2012). Anadromous Arctic char juveniles spend their first 1 to 9 years in freshwater then move to the sea where they spend the short Arctic summer, returning to overwinter in frozen lakes. At sea, they remain in coastal areas where they feed on marine food sources. In contrast to the anadromous form of Arctic char, resident (or landlocked) populations may remain within the lake environment their whole life or may migrate seasonally within the river drainage route, but never to sea.



Reproduction

Spawning takes place in lakes between the fall months of August and October. Most Arctic char are ready to spawn when they are between 4 and 10 years old, and individuals usually spawn only every other year. Eggs are fertilized and deposited over jumbles of substrate or shoals of gravel. Spawning sites are also chosen based on water depth, because thick ice can freeze to the bottom in shallower portions of lakes. In some lakes, pre-spawning Arctic char gather near inlet streams or waterways connecting lakes, but they move back into the lake to spawn. Fertilized eggs are deposited into the

gravel. The fertilized eggs require cold, highly oxygenated water for best incubation. Hatching usually happens before the spring (Alaska, 2012).



Feeding Habits

Arctic char feed on a variety of different foods, from zooplankton and insects to other fish (including smaller char), depending on location, age, and relative size, as well as time of year (Alaska, 2012). In freshwater Arctic char feed on benthos, plankton, and small fish. At sea, Arctic char feed on invertebrates and fish. Anadromous individuals feed little in freshwater and not at all during migrations.

DID YOU KNOW?

The heads of Arctic char have several bones that can be named after other animals, as well as items such as the butterfly and the kakkivak.

Traditional Knowledge

“Sy has asked for the cultural part of Char”

Freyhof, J. & Kottelat, M. 2008. *Salvelinus alpinus*. In: IUCN 2012. IUCN Red List of Threatened Species. Version 2012.1. <www.iucnredlist.org>. Downloaded on 03 July 2012.

IUCN REDLIST

Scott, W. B., & Crossman, E. J. (1973). *Freshwater fishes of Canada*. (3 ed., p. 966). Ottawa: Fisheries Research Board of Canada.
(Scott & Crossman, 1973)

Ferguson, A. (2006, March 11). Northern Ireland priority species. Retrieved from <http://www.habitas.org.uk/priority/species.asp?item=5010>

(Ferguson, 2006)

Alaska. (2012). Arctic char Alaska. Retrieved from <http://www.adfg.alaska.gov/index.cfm?adfg=arcticchar.main>

(Alaska, 2012)