Sandy Lake Fish Study

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Introduction

In the winter of 1998, the Nihtat Renewable Resource Council (NRRC) put forward a proposal to the Gwich'in Renewable Resource Board (GRRB) to undertake a study of Sandy lake. The proposal was to find out the various species of fish that inhabit the lake, and to determine if the fish stocks can sustain a potential sport fishing lodge. Funding was approved for work to be done during the 1999-2000 fiscal year.

The proposal was intended to identify the species of fish, with a focus on lake trout, its habitat, in terms of time of year, ages, etc. That would provide the NRRC with sufficient background information in which they may or may not support future study requirements.

Other fisheries reports that make mention of Sandy lake include the work of Stewart (1996)[1] - *This lake is visited by fly- in sport anglers, and there are a number of cabins on its shores. Residents of Inuvik have harvested burbot, inconnu, lake trout and northern pike from Sandy Lake in winter and spring for subsistence.*

This report describes the results of 2 field trips to Sandy lake in August and December of 1999.

Study Area

Sandy Lake (67° 49' N, 132° 15' W) is 51 miles Southeast of Inuvik in the Travaillant lake area, within Gwich'in private land block # 17. The lake is roughly 20 ^{2} kilometers in size, with gravel shores and lake bottom , with fine sand where creeks run into the lake. The lake is only accessible by float plane during the Summer, but can be reached overland with snowmobile during the Winter.

The people of Tsiigehtchic have traditionally used the area for hunting , fishing and trapping, and more recently Inuvik residents have also utilized the area for the same reasons.

There are 3 cabins on the lake. One shack belonging to the Department of Resources, Wildlife and Economic Development, one privately owned (Mario Lemieux) and the other the property of the Gwich'in Tribal Council (GTC). The NRRC used the GTC cabin when doing fieldwork during August and December of 1999. Mario Lemieux ^{2} offered the use of some of his equipment at the lake.

Methods

August

From the 10-14 of August , 1999, the GRRB fisheries technician (author) and 1 assistant (Harry Carmicheal) hired by the NRRC fished at Sandy Lake to determine the variety of fish species, with a focus on lake trout, and to collect age samples. A 16' Lund , with 8 horsepower outboard motor was used to transport us to fishing locations. Water temperatures, using a standard mercury thermometer, along with depth readings, using a battery operated fish finder, were taken at each location.

Rod & Reel

24 locations around Sandy lake and 2 adjoining lakes (see attached map) were fished with rod & reel. A total of 26.1 hours were spent casting , for an average of 5 hours, 15 minutes /day. 10 lake trout were caught over the 5 day period, averaging 2 per day. No other species were caught.

Gill Netting

Gill nets were set at 3 locations around Sandy lake, using 5" mesh, 25 meter nets. The set depths varied from just below the surface to 40' depth. No fish were caught.
The average size of the lake trout taken in August were;

weight – **1.33 kg** (2.95 lbs)
length - **50.3 cm** (1'11")

Catch Per Unit Effort (CPUE) 1 trout / 2 hours, 37 minute of fishing.

December

Hooks

Hooks baited with fish gut were set under the ice in the creek that runs in front of the GTC cabin (reference map) . 9 fish were caught (5 loche & 4 trout) with hooks.

Gill Netting

5" mesh, 25 meter nets at 3 locations on lake and 1 experimental net (staggered 25' panels, ranging from 1,5' to 5') beside creek that runs past the front of cabin. The nets were set just below the ice surface. The ice ranged from 14" to 20" thick at net locations. 69 fish were taken. 27 lake trout, 37 lake whitefish, 2 loche and 3 northern pike were taken in gill nets. 78 samples were taken overall in December.

All fish caught were dead sampled for future aging analysis.

The average size of the lake trout caught were:

Weight – **4.35 kg** (9.5 lb)

Length - **70.1 cm** (2' 4")

Averaged 7.4 fish (2.7 trout) per day.

Otoliths and a fin ray were collected , from all fish caught, for future aging analysis.

Results

Determine Catch Per Unit Effort (CPUE)

In August we spent 5 hours & 15 minutes fishing with rod & reel each day, and caught 2 lake trout per day. The CPUE worked out to : 1 trout / 2 hours & 37 minutes.
During December we caught 74 fish (27 trout) over a 10 day period, which worked out to 7.4 (2.7 trout) per day.

Determine % chance of catching trophy size (25 lb or bigger) Lake Trout

During 2 field trips to Sandy lake (August and December 1999), no trout over 25 lb were caught. The heaviest trout caught was with a 5" gill net in December and weighed 22 lb (10 kg). The average size of the fish caught with rod & reel were just under 3 lb (1.33 kg) and just under 2 feet (50.3 cm).

Determine the availability of other desirable sport fish

There are other species of sport fish besides lake trout in the lakes. At the mouth of every creek which runs into the lake there are schools of northern pike (jackfish), which can be caught with just about every cast. Grayling were caught casting from the shore in front of the GTC cabin (Ken Weagle, personal comm [3].). Lake whitefish (crooked back) And burbot (loche) were also caught in gill nets during the December field trip.

Collect biological and physical information of fish species and lakes

Depth readings and water temperature were recorded at all net and rod & reel locations. The average water temperature in August was 15 ^{o} celcius , and the water temperature for December net locations was just above 0 ^{o} celcius. Depth readings at each of the 24 rod & reel locations ranged from 14' to 120'.

Conclusion & Discussion

Does more work need to be done ?
Yes. The results of the study do not answer one of the main points of the proposal (Can Sandy Lake sustain a sport fishery ?). The Nihtat RRC will have to take the lead in the project. With land claim implementation near the end, the community RRC's will have to become self-sufficient. This is one way to do that.

Could better results have been expected using a larger variety of lures?
Expectations were higher than what was caught during August (2 trout/day). We used 11 different store bought lures of all shapes and sizes. We fished on the bottom (90'), at the surface, trolled at creek mouths, at all times of the day and night, during windy and calm days. The catch time was staggered. Their was no specific time of day that a larger number were caught.

More work will have to be done in order to find out if Sandy Lake can sustain a seasonal sport fishery. With the initial work being done in 1999, the Nihtat RRC can focus on more specific goals that they can benefit from.

Budget

Supplies –

Gas & Oil	(Chii Construction)		$ 242.21
Kicker Repair	(Westwind Recreation)		$ 46. 58
Propane	(Rockys Plumbing)		$ 24. 18
Food & fishing gear	(Northern Store)		$ 593.98
Food & supplies	(Arctic True Value)		$ 113.17
	Total	=	**$1020.12**

Equipment Rental – (Harry Carmicheal)

2 ski-doo's	(2 **x** 100.00/day **x** 10 days/December)		$ 2000.00
Kicker & Fish finder	(25.00/day **x** 5 days/August)		$ 125.00
	Total	=	**$ 2125.00**

Wages-

Harry Carmicheal	(150.00/day **x** 10 days/December)		$ 1500.00
Harry Carmicheal	(150.00/day **x** 5 days/July)		$ 750.00
Harry Carmicheal	(? Spring , 1999)		$ 600.00
Robert Firth	(150.00/day **x** 6 days/December)		$ 900.00
	Total	=	**$ 3750.00**

Total Expenses = $ 6895.12

Acknowledgements

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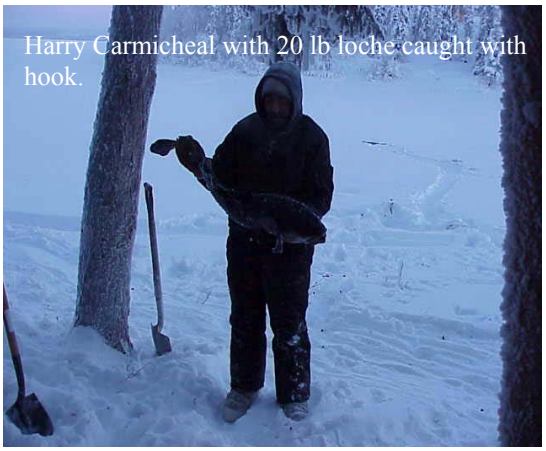
References

[1] Stewart, D.B. 1996. A Review of the Status and Harvests of Fish Stocks in the Gwich'in Settlement Area. Department of Fisheries and Oceans.

Personal Communication

[2] Lemieux, Mario. 1999. Inuvik, NT.

[3] Weagle, Ken . 1999. Inuvik, NT.



Harry Carmicheal with 20 lb loche caught with hook.