

NORTH SHORE Steelhead REPORT

A North Shore Steelhead Association Publication
Volume 18 - Spring 2020

The Most Important Lesson

By Keith Ailey



Keith Ailey demonstrates proper catch and release techniques to senior SCVI students at McVickar Creek.

As adults, we have a responsibility to pass on our knowledge and experiences to future generations. In an era of ever-increasing natural disasters, record temperatures, and environmental phenomena around the globe, perhaps the most important lesson is one focused on conservation and preservation. So, when I was asked to accompany some high school science classes from Superior Collegiate and Vocational Institute to the nearby McVickar Creek to examine natural and man-made factors facing Lake Superior steelhead on the annual spring migration, I jumped at the opportunity.

Prior to the field trips, the students in Jason Pilot's and Karen Watt's senior classes were given a brief overview of the lifecycle of steelhead in Lake Superior. These migratory rainbow trout were first introduced to the Great Lakes in the late 1800s and have since established wild populations throughout. Steelhead do not die after spawning like salmon do, but they will return to spawn year after year. Each river flowing into Superior has a genetically unique strain of steelhead and these fish have captivated north shore anglers by proving to be a great challenge to find and even more difficult to catch.

On these class trips to McVickar creek, I was joined by fellow angler Kyle Stratton, who was working on a Master's thesis involving steelhead population health

at the time. Kyle and I are part of a small team from the North Shore Steelhead Association that gather scale samples to contribute to a long-term data set used to support informed decisions regarding conservation efforts. This mark-and-recapture program is used to monitor the size and health of the migratory runs in a number of different sized streams and rivers feeding Lake Superior.

At first glance, McVickar Creek looks like it shouldn't have any fish in it. Beyond the large waterfall just above the lake, there are countless cement structures, shopping carts and lawns mowed right to the bank. Despite the numerous obstacles, there remains a healthy run of steelhead in McVickar Creek thanks to a one-fish limit and the preference of most anglers to release their fish. On each trip we made with the classes, we caught some steelhead so students were able to see how to catch these fish and how to handle them without removing them from the water. The kids learned how we gather scales to determine the age of the fish when it first left the river for Lake Superior and how many spawning runs it has completed since. They observed how we clip a fin (with a special permit from the OMNRF) to ensure we are not sampling the same fish repeatedly, and how the fish is released in good health to complete its journey. Finally,

the students learned how we record the data on a special envelope which holds the scales and is returned to the OMNRF so their biologists can analyze the findings and monitor the changes in the fish returning each year.

In addition to studying the reproductive journey of the steelhead, the students monitored several other factors to add to their data collection. They measured water flow and temperature change throughout the spring, they identified spawning areas and natural obstructions like log jams and waterfalls, and they noted the many man-made obstructions like cement weirs that the fish must jump to make it to the spawning grounds.

The Science department at Superior CVI has plans to expand the steelhead ecology study, which will provide a unique opportunity for our children to learn about the local stream, our impact on it, and mother nature's ability to adapt in an ever-changing environment.

About the author: Keith Ailey is a Visual Arts teacher at Superior Collegiate & Vocational Institute where he volunteers his time with the Outdoors Club and Travel Club as well as the cycling, skiing and XC running teams.

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The 6th Annual Fly Fishing Film Festival

The North Shore Steelhead Association proudly presented the annual Fly Fishing Film Festival at the Thunder Bay Community Auditorium on Wednesday, March 4, 2020.

IF4™ consists of short and feature length films produced by professional filmmakers from all corners of the globe, showcasing the passion, lifestyle and culture of fly-fishing. The films at this popular event are capturing the attention of anglers around the world.

Whether you are into exotic locations like the Indo-Pacific or Belize searching for the elusive Permit, or prefer destinations closer to home like B.C.'s Coho and Bull Trout fishing, there was something for every interest, desire and passion. From the Northern Lights of Alaska and charm of chasing Arctic Char to "salt water destinations, the films provided spectacular scenery, inspiring story lines and great fishing to dream about through the cabin fever months.

The event continued to grow with almost 500 attendees enjoying the Community Auditorium facilities, perusing the local vendors and socializing with like-minded patrons. Many thanks to Alan Muir and his committee of Terry Kosolowski, Jim Donaldson, Russ Desjardine, Dave Nuttall, Neil Pettigrew and Wes Bender for a job well done. Also, thanks to Gord Ellis for being the Master of Ceremonies.

While the North Shore Steelhead Association is a "non-profit organization concerned with the conservation, rehabilitation, preservation and propagation the migratory steelhead and other cold-water migratory fish in the tributaries of Lake Superior", the club also promotes the art of fishing to anglers of all ages. Starting this year, proceeds from the film night are being directed to one such venture. The fishing club at Superior high school, teaches basic fishing skills, conservation practices and an appreciation for the great outdoors to

students. We are proud to support this club and their extended educational experiences.

The Film Night committee is already looking forward to next year, and we hope to see you at the Thunder Bay Community Auditorium for another night of entertainment and "bucket list" dreams.

Bay Community Auditorium on March 4th 2020.



Dock 5 Update

Lake Superior is right at our doorstep, an inland sea of opportunity for angling adventures. Many fishers with large boats based at marinas have plied these waters with great success, yet many 'small water' anglers are reluctant to venture out on Superior, as they are intimidated by the great expanse of it all, as well as weather that can change quickly and lead to some 'interesting' boating.

Equally true is that Superior has a myriad of sheltered bays and inlets that are perfectly safe for small boats and unseasoned boaters, but it can often be a challenge for boaters to find a place to safely launch and retrieve their craft. Many existing launch locations are of poor quality and difficult to access with the family vehicle, keeping many on shore instead of on the water.

The NSSA is helping to make a difference for small water anglers wishing to access Lake Superior. At Dock 5, on Sibley Bay (also known as Squaw Bay), the parking area and boat ramp have been recently improved and expanded, thanks to Thunder Bay District MNRF. However, the existing dock at the site (which is owned by the commercial fishermen at this location) has now become unusable. At the request of NSSA member Dave Nuttall (also the Chairman of Fisheries Management Zone Council #9), the NSSA has sponsored an effort to have a new public dock installed at this site. In cooperation with Parks Canada, OMNRF and the commercial fishermen of Sibley Bay, Dave has been successful in moving the process forward, and the possibility of seeing a new floating and removeable dock at this location appears close at hand.

As well as sponsoring the new dock initiative, NSSA has offered a financial contribution to the project, if required. Many thanks go to Dave Nuttall for his efforts in wading through the process and moving this process forward. Due largely to his efforts, we may have a new facility in place as early as this summer, 2020.

Thanks, Dave!

A handwritten signature in black ink that reads "Tom Whalley". The signature is fluid and cursive, with a long, sweeping underline.

Tom Whalley, President,
North Shore Steelhead Association

DOCK 5 Proposed Upgrades



The Status of Ontario's Western Lake Superior Steelhead Populations

By Jon George (jgeorge@tbaytel.net)

A healthy wild steelhead population in Ontario waters of Lake Superior exhibits a wide variety of life history characteristics (number of stream and lake years, age at maturity, migration patterns and spawning time) plus maintains a repeat spawning rate of > 50% over one generation (four years). This enables individual tributary populations to maximize recruitment of juveniles and maintain the integrity of localized adaptations.

The "Swanson Index" uses the repeat spawning rate to index the annual mortality and an angler harvest rate from an adult steelhead population. A 50% repeat spawning (survival rate) = 50% total mortality. Annual natural mortality in Lake Superior has been calculated at 30%, therefore fishing mortality would be 20%. It is recommended that fisheries managers maintain harvest levels at or below 20%. (Swanson 1885, Clarkson and Jones 1997)

Applying Swanson's repeat spawning index to the ten tributaries listed in Table 1, most populations are well below the acceptable harvest levels. The exception being small tributary streams on Lake Shore Drive.

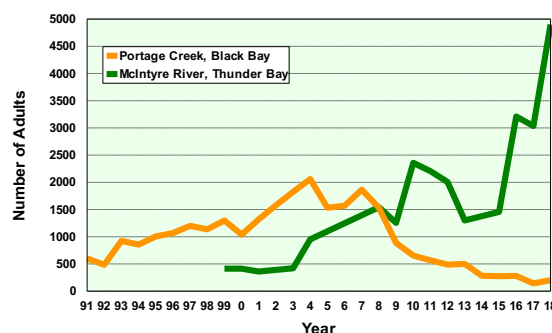
Thunder Bay tributaries (Neebing and McIntyre Rivers) not only have low harvest but an estimated adult steelhead population size greater than 3000. (Table 1) This is mainly the result of large numbers of repeat spawners and excellent survival of the stream dwelling juvenile year classes of 2013, 2014, 2015 and 2016. (steelhead spend one to three years in their home stream before migrating (smelting) to Lake Superior)

Nipigon Bay tributaries were represented by the Jackpine and Cypress Rivers. Adult steelhead populations had a high repeat spawning rate over the past four years. This in combination with sufficient annual recruitment of juveniles indicates a low angler harvest rate and healthy steelhead populations.

Black Bay tributaries (Wolf R., Coldwater R., Black Sturgeon R. and Portage Cr.) express high repeat spawning rates but have poor recruitment of juveniles. Figure 1 illustrates the contrast in population size between Thunder Bay and Black Bay using the McIntyre River (Thunder Bay) and Portage Creek (Black Bay) as "Index Streams". Portage Creek representing Black Bay has seen a 90% decline of adult steelhead over the past ten years, whereas the McIntyre River has had a dramatic increase in its population size over the same period. Changes in the Black Bay predator/prey relationships since 2004 is likely responsible for the decline of the adult steelhead abundance within the bay.

Steelhead Population Comparison

Adult Population Size 1991 to 2018



Note: Population estimate on the Neebing River is for the north branch only. On the Jackpine, and Cypress Rivers the harvest rate is low and cannot be detected using this method.

Literature Cited

Clarkson, J. and M.L. Jones. 1997. A method to estimate an Index of Mortality based on proportion of repeat spawners in rainbow trout (*Oncorhynchus mykiss*) population.

Swanson, B. 1885. Pikes Creek/Lake Superior: population dynamics, fishery and management alternatives. Wisconsin DNR. Management Report 125, 29p.

Table 1. Repeat spawning, mortality and population Size

Tributary	Repeat Spawning*	Total Mortality	Harvest Rate**	Population Size***
Whitefish R. (Thunder Bay)	60%	40%	10%	
Neebing R. (Thunder Bay)	53%	47%	17%	3668
McIntyre R. (Thunder Bay)	63%	37%	7%	4900
McVicar Cr. (Thunder Bay)	60%	40%	10%	2484
Lake Shore Drive tribs. (Thunder Bay)	45%	55%	25%	
MacKenzie R. (Thunder Bay)	54%	46%	16%	173 +- 67
Portage Cr. (Black Bay)	54%	46%	16%	201 +- 168
Jackpine R. (Nipigon Bay)	74%	26%	N/A	
Cypress R. (Nipigon Bay)	70%	30%	N/A	1600

* Four year average

** Based on 30% natural mortality (Swanson 1985)

*** 2018 adult spawning population size is based on 2019 recaptures (Petersen estimate)

Birch Beach Creek - Update

Rock pool installation

The NSSA continues to explore the opportunity to eliminate a perched culvert on the small stream located 35km east of Thunder Bay locally known as Birch Beach Creek. The remediation of this martial barrier will re-establish connectivity within the stream and provide better access to in-stream habitat.

This project was to be done in 2019 however the estimated construction costs increased, based on the final engineers' drawings from \$20,000.00 to \$54,000.00. With no funding agencies available to help share the cost, the project was put on hold.

Temperature monitoring indicated that this system has a year long temperature regime suitable for trout. Electrofishing done by the UGLMU of the Ministry of Natural Resources found 70 YOY in 30 meters of stream confirming the productivity of this small stream.



Birch Beach Creek rock pool



Boulevard Lake - Current River

Great news.

The City of Thunder Bay has purchased the hydro facility and has no current plans to operate it.

Also, the new Permit to Take water issued to the City by the MECP has eliminated the priority system for the allocation of water, which, under the previous Permit, listed fish passage as the 3rd option behind the need for the Boulevard Lake and Hydro generation.

As you might have heard, the City is planning on rehabilitating the Dam over the next two years. One of the positive changes for fish passage, is the inclusion of automated, electrically adjustable hydraulic gates designed to control water flow eliminating the need for manual manipulation of stop logs.

The NSSA is in the process of hiring a consultant to evaluate the water flow requirements for the existing fishway and to determine if changes to the physical structure might improve fish movement. Once we establish the optimum flow rate for fish passage, we will work with the MNRF, DFO and the City to implement the suggested flow rate.

Another aspect of the consultant's report will be the consideration of alterations to the river bed below the fishway to make it easier for fish to make it up to the fishway. Should the report indicate changes be made, they could be initiated in the next two years coinciding with the Dam rehabilitation project.

Twenty-nine years after the fishway was first constructed we should now have a consistent water flow in the ladder. This will also be the first spring which will not have the potential for the loss of smolts or adults during their downstream migration due to the operations of the hydro generation turbine.

The NSSA's goal of establishing a self-sustaining population of Rainbow Trout on the Current River and a new urban angling opportunity is closer than ever.

Like we said. Great news.



NORTH SHORE
Steelhead
ASSOCIATION

North Shore Steelhead Report

is a publication of the
North Shore Steelhead Association

Graphic Design • Korkola Design

Printing • Lakehead Printing

**The NSSA welcomes your
contributions, opinions and ideas.**

northshoresteelhead.com

Rationale For Size Restriction On Black Bay Streams

By Kyle Stratton

The Steelhead fishing in the McIntyre River is a great success story. During most days of the spring spawning migration you can find dozens of anglers lining the banks of the McIntyre River in hopes of catching Steelhead. It's not uncommon to see multiple hookups occurring at the same time. However, the Steelhead fishing was not always this great in the McIntyre River. In 1999, the bag limit changed from 2 Steelhead with one allowed to be less than and one allowed to be greater than 50 cm to the current bag limit of 1 Steelhead over 69 cm. Due in large part to this regulation change, the McIntyre River adult Steelhead population increased from around 414 during 1999 to slightly over 3000 as of 2018. The limit of 1 Steelhead over 69 cm is an effective management regulation along the North Shore because it allows for 99% of maiden (first time) spawning Steelhead to be protected from harvest due to their size. Therefore, this regulation ensures that nearly all Steelhead are protected from harvest for at least one spawning migration, which in turn has provided amazing Steelhead fishing opportunities, now and in the future.

In light of the above, the North Shore Steelhead Association has advocated for the implementation of a 1 over 69 cm regulation on all Black Bay tributaries where we have seen the Steelhead populations decline by approximately 90% over the last decade. This crisis is attributed to a severe decline in the number of maiden spawners. While the decline is due primarily to non-angling factors, we feel protecting the few remaining maiden spawners in Black Bay is one step we can take to set up the populations for success in the future. The NSSA's objective is to have similar angling successes on the Black Bay streams as we currently enjoy on the McIntyre and Neebing Rivers, and we ask for your support for the 1 over 69 cm limit.



Join The NSSA!

Membership is Free

Sign Up At: www.northshoresteelhead.com

The North Shore Steelhead Association (NSSA) was formed on January 13, 1973, as a non-profit organization concerned with the conservation and preservation of fisheries in the tributaries of Lake Superior.

NSSA's primary mission is the protection and enhancement of the North Shore migratory Rainbow Trout (Steelhead) fishery, however this has evolved to include all coldwater species of the Lake Superior Watershed.

The NSSA's constitution stresses public education and close collaboration with authoritative bodies (M.N.R.F., L.R.C.A., and North Shore Community Councils) as strategies for conservation.

Our financial base is developed exclusively from fundraising and donations from supporters. These activities not only generate capital for our projects, they also heighten public awareness of the need for environmental protection of Lake Superior's North Shore.

The Objects of the NSSA are:

The conservation and preservation of the coldwater fisheries of Lake Superior and Lake Superior

watershed (Ontario). This includes activities and programs that promote and achieve environmental preservation and enhancement, such as:

- Lake and stream rehabilitation
- fish habitat restoration and enhancement
- activities to combat invasive species
- data collection and analyses (including genetic, DNA, tissue, cell, molecular)
- fish population monitoring (sampling, aging, tagging, counting), restoration, and
- associated scientific research for the purpose of understanding and enhancing fish populations and habitat.

The NSSA also engages in awareness campaigns, programs, and signage consistent with, and for the purposes of pursuing, its objects.

The NSSA may from time to time make donations to other organizations whose activities are consistent with and beneficial to the NSSA's Objects.

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