

Northshore Steelhead Report

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Steel heading: Pass the Experience

by Randy Beamish



For many of us fishing is a deeply personal experience, for some it is private time to relax from the pressures of day to day life. While for others it is a social event to get out with family and friends. For me, it is the family aspect that is fundamental, this in part because of my upbringing in an outdoors family.

For as long as memory serves me, fishing has been front and center in my life, largely in part to my parents. Growing up along the south shore of Georgian Bay, this meant steelhead fishing. My family lived close to Collingwood,

in the midst of numerous great watersheds. My father took us on regular trips to watch migratory rainbows jump obstacles such as the shale steps of the "Pretty River". This only fanned the flames of interest in an eager soon to be steel header, not to mention having to wait until the last Saturday of April for the season to open. It was my late father who introduced me to fishing, but more importantly steel heading by including my brother and me on the family's annual opening weekend trip.

The "Opener" was an annual event on the Bighead River for my family and friends for over twenty consecutive years, ending for me only with my moving to Northwestern Ontario.

From the moment it ended, it was anticipated all year until the next trip, with many anxious days leading up to the big event. It was a

wondrous time for us youngsters to hang out with the adults and gain the experience and knowledge handed down; one of my favourite's relatives was my great uncle. He fostered an interest in me to chase brown trout so intense that for a time overshadowed my pursuit of steelhead.

There are far too many experiences to list, so let's just say I am indebted to my elder relatives for taking the patience and time to pass their knowledge along. In many cases, they sacrificed their personal time on the water to enrich ours,

and with their teachings we transformed from novices into seasoned anglers. It is now my turn to pass it along to my two young sons. Tristan, who is six past, and my two year old, Jordan, both love their time in the outdoors.

Tristan is a regular on trips and is fast becoming an accomplished angler. His first trip was at twenty months of age for Nipigon River steelhead, steelhead are not the easiest fish to take children along for but with the right planning they can enjoy the experience. With my boys, boat fishing and treks along the smaller streams has been successful and produced smiles all around. Tristan especially likes our brook trout outings on the Nipigon and regularly spends eight to ten hours in the boat. It is very satisfying to bring young anglers into the sport and to teach them about conservation, preservation and courtesy towards other anglers. So take the children fishing and pass the knowledge along.

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NORTH SHORE
Steelhead
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Genetic Analysis of North Shore Steelhead

by Peter Addison



This document summarizes some of my research that was supported by the NSSA which addressed the following genetic questions about steelhead from the North Shore of Lake Superior:

1) Are individual tributary steelhead populations on the North Shore genetically different from steelhead populations from Lake Ontario and stocked Kamloops strain rainbow trout?

Absolutely! Lake Superior steelhead are genetically distinct from Lake Ontario populations as well as Kamloops strain rainbow trout stocked by Minnesota.

2) Are steelhead populations along the North Shore genetically divergent from one another and if so to what extent?

Yes, all Lake Superior tributary steelhead populations are genetically different from one another. The tributary populations included in this genetic analysis included: Neebing River, McIntyre River, McVicar Creek, Portage Creek, Coldwater Creek, Wolf River, South Trout Creek, Jackpine River, Steel River, Prairie River, White Gravel River. This suggests that:

- North Shore steelhead have strong homing instincts, and transfer of genes among populations through straying is uncommon
- Tributary populations are the most appropriate biological management unit
- Genetic isolation of populations comes before adaptation of tributary populations to their specific environment. Current genetic differences among populations (and the isolation that inferences suggest that the potential for locally adapted populations of steelhead along the North Shore exists. Locally adapted populations are better suited to their environment and, simply put, are generally superior (more fit) when compared to stocked fish

The studied tributary populations fit into two large genetic groups; 1) Thunder Bay tributary populations; and 2) Black Bay, Nipigon Bay, Terrace Bay and Pukaskwa tributary populations. This suggests that:

- Movement of genes between the two groups due to straying fish is rare.
- The two groups are different enough that the genetic method used can often tell from which of the two groups an individual originated

Populations within Lake Superior are more genetically different from each other than are populations of steelhead within Lake Ontario and Lake Michigan. This suggests that:

- In contrast to very limited stocking along Lake Superior's North Shore, extensive stocking in Lakes Ontario and Michigan has had a homogenizing effect, which means that populations haven't been given the chance to become genetically different or locally adapted

Lake Superior steelhead populations are less divergent when compared to native steelhead populations in British Columbia. This is to be expected as divergence takes time; populations in British Columbia have had thousands of years in their native habitats, while steelhead have only been in Lake Superior for just over a century. This suggests that:

- Given more time without stocking, genetic differences among Lake Superior populations will probably increase as they continue to adapt to different local conditions

3) What was the ancestral stock of North Shore steelhead populations?

There may never be a direct answer to this question. However, genetic analysis showed that current populations are high in genetic diversity. This suggests that:

- More than one strain contributed to the genetic pool now found along the North Shore
- North Shore steelhead are not McCloud River, Donaldson's or Richardson's strain, they are a mix of multiple strains that have become Lake Superior strain steelhead that are well suited to the Lake Superior environment

4) What was the source of juvenile rainbow trout caught in Ferguson Creek (2002) and the Current River (2004)?

The NSSA has been working towards building a self-sustaining population of steelhead in the Current River. Part of this project was the introduction of adult steelhead from the McIntyre and Neebing Rivers and McVicar Creek (1993, 1995 and 1997), as well as eggs/fry from Portage Creek (1996) into the Ferguson Creek

For more information see:

<http://www.northshoresteelhead.com/project2.html>

Genetic analysis shows that juveniles caught in Ferguson Creek (2002) and the Current River (2004) are lower in diversity than the other wild populations sampled, including the populations from which the adult and eggs that were transferred originated. This suggests that:

- The sampled juveniles are the offspring of a limited number of adults.

Of juveniles captured in Ferguson Creek (49 fish; 2002) and the Current (4 fish; 2004), genetic analysis suggests that 74% of fish are most likely the offspring of adult fish transfers from Thunder Bay tributaries (McIntyre, Neebing and McVicar), while 36% are most likely the offspring of egg / fry transfers from Portage Creek. This suggests that:

- Both methods were successful in seeding Ferguson Creek
- The capture of juveniles in Ferguson Creek (2002) and young-of-year at the Cascades on the mainstream of the Current River (2004) five to seven years after the last transfer indicates that rainbow trout/steelhead have reproduced subsequent to the time of the transfers (1993-1997). Genetic results suggest that the fish captured were related to the populations that were the source of adults and eggs for the transfer, and therefore it is highly likely that these individuals were second generation descendants of the transferred individuals (offspring of the offspring that resulted from the transfers)
- It is unknown if the juveniles were the offspring of resident fish or of migratory fish

5) Are Kamloops strain rainbow trout that are stocked by Minnesota of concern to the genetic integrity of wild North Shore steelhead?

No, there is no genetic evidence of successful reproduction between Kamloops strain individuals and wild populations, even in tributaries where they appear to be very common (Steel River). This result is consistent with other work from Minnesota.

That concludes the major genetic findings. Any questions pertaining to the material included here can be sent via email: peter.addison@ontario.ca.

I would like to express my sincere gratitude to the NSSA for the financial and logistical assistance. I'm sure that the club's great interest in fish and fish habitat along the North Shore of Lake Superior will continue to help maintain this wonderful resource!

Regards,
Peter Addison

Portage Creek: A Partnership in Steelhead Research 1994 - 2008

By Jon George



Steelhead (*Oncorhynchus mykiss*) were introduced into Lake Superior from the North American Pacific North West in the late 1800's and early 1900's and then left to establish through natural reproduction. The resulting wild steelhead populations expressed a wide variety of life history characteristics in all suitable tributaries. Unfortunately, due to harsh environmental conditions, individual streams produced relatively small numbers making them highly vulnerable to over-fishing.

In the early 1990's, the North Shore Steelhead Association (NSSA) approached the Ontario Ministry of Natural Resources (OMNR) about the dwindling steelhead fishery. From 1991 to 1994, the NSSA and OMNR worked together in collecting the necessary science to support a steelhead management plan. When the resulting data indicated over harvest was an issue, the daily catch limit for western Lake Superior was reduced from five fish to one in the spring of 1999. In order to monitor the recovery of a wild steelhead population and better understand natural variations in population size, the Portage Creek study was initiated. One of the key components of this study was the cooperative effort of steelhead anglers (NSSA) and OMNR fisheries specialists working together on this investigation.

This successful research partnership has been operating since 1994 ... what have we learned?

Portage Creek Steelhead Adult Population Size 1991 to 2007

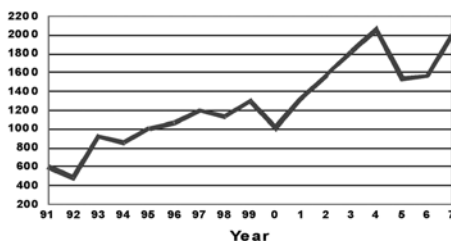


Figure 1

Following closure to fishing in 1994, the adult steelhead population slowly increased as the adult population shifted towards older fish. (Figure 1)

Many of these older fish were multiple repeat spawners with exceptional breeding potential. They produced the strong year classes of 1998 and 2000 (Figure 2). This enabled the adult

population to dramatically increase from 2002 to 2004. From 2004 to 2007, the adult steelhead population size has varied significantly. This can be mainly attributed to environmental conditions with harvest no longer an issue.

Portage Creek Steelhead Number of Age Three Adults 1991 to 2007

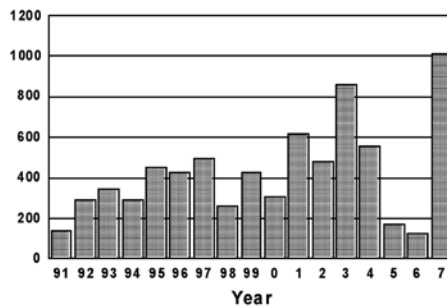


Figure 2

The two best year classes produced during this study were 2000 and 2004 (age 3 years in 2003 and 2007... Figure 2).

They were produced under ideal environmental conditions... cool, wet summers. In turn, the 2002 and 2003 year classes (age three years in 2005 and 2006) were two of the poorest recruiting years observed. Steelhead in Portage Creek spend at least one year in the stream environment prior to migrating, or smolting, to Lake Superior. Summer and winter environmental conditions have a huge impact on the survival of juvenile steelhead. The winter of 2002/03 was long and cold, with little or no snow cover. Due to limited insulation, streams froze to the bottom, and the water flow up-welled on top of the ice and into the shoreline vegetation. This had a devastating effect on the young steelhead produced in 2002. Adverse winter ice conditions may also cause a high loss in the numbers of aquatic insects required as forage for the juvenile trout that hatch in early June. This lack of food, combined with a long, hot, dry summer in 2003, may have created the back-to-back year class failure. When they occur, large year classes and poor year classes generally show up over a large geographic area (western Lake Superior). The Portage Creek research can now be used as a reference population to evaluate future strengths and weaknesses in the regional steelhead fishery. It also allows us to describe a healthy steelhead population and see how other systems compare. If environmental extremes are likely to occur in the future, we can expect to see the continuation of dramatic swings in wild steelhead year classes. Restrictive harvest will allow good year classes to be maintained in the fishery and buffer the poorer production years. In order to optimize steelhead stocks in Lake Superior tributaries, the best course of action would be to minimize harvest and maximize quality habitat.

Did You Know?

"Nothing makes a fish bigger **than almost being caught.**"

- Author Unknown

"My biggest worry is that my wife (when I'm dead) will sell my fishing gear for **what I said I paid for it.**"

- Koos Brandt

"There will be days when the fishing is better than one's most optimistic forecast, others when it is far worse.

Either is a gain over just staying home."

- Roderick Haig-Brown

"Fishing is much more than fish. It is the great occasion when we may return to the **fine simplicity of our forefathers.**"

- Herbert Hoover

"I am not against golf, since I cannot but suspect **it keeps armies of the unworthy from discovering trout...**"

- Paul O'Neil

"**Men and fish are alike.** They both get into trouble when they open their mouths."

- Author Unknown

"...of all the liars among mankind, the **fisherman is the most trustworthy.**"

-William Sherwood Fox,
Silken Lines and Silver Hooks, 1954

"**Give a man a fish and he has food for a day;** teach him how to fish and you can get rid of him for the entire weekend."

- Zenna Schaffer

"If people concentrated on **the really important things in life,** there'd be a shortage of fishing poles."

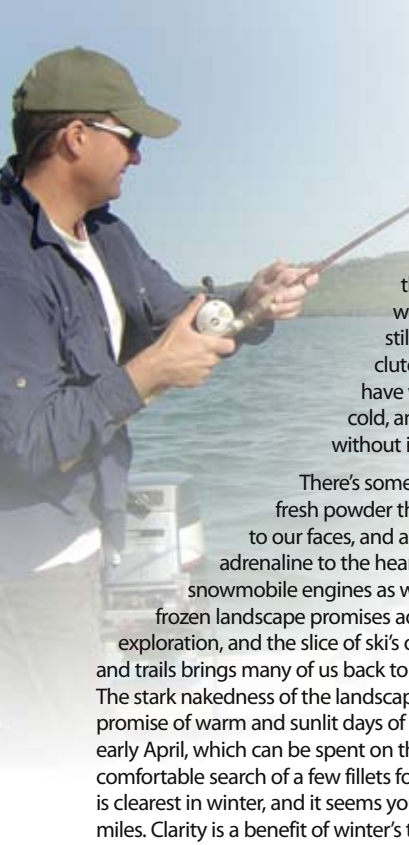
- Doug Larson

"Many men go fishing all of their lives **without knowing that it is not fish they are after.**"

- Henry David Thoreau

If you are interested, in becoming a member of the NSSA, you can contact **Frank Edgson at 475-7712**





Message from the President: The Challenge

by Tom Whalley

I'm tired of the cold. It arrived early last November, and the icy bluster of winter seems to still hold us in its clutch. But you can't have winter without cold, and winter is not without it's charms.

There's something about fresh powder that brings a smile to our faces, and a shot of adrenaline to the heart. The whine of snowmobile engines as we sail across the frozen landscape promises adventure and exploration, and the slice of ski's on nature's hills and trails brings many of us back to simpler times. The stark nakedness of the landscape belies the promise of warm and sunlit days of late March and early April, which can be spent on the ice in comfortable search of a few fillets for the pan. The air is clearest in winter, and it seems you can see for miles. Clarity is a benefit of winter's test, and time

outdoors allows us to renew our vision. We can plot our strategies for the year to come as we sit by the evening fire, away from the cold, warmed by the knowledge that spring is just around the corner.

For me, the strategy is a simple one: take care of the things you love, and they will take care of you. Corny? Maybe. But I love fishing, and fishing for Wild Trout in particular. In order to have Wild Trout and Wild Trout fishing, we must first take care of the streams and lakes they inhabit. No habitat, no trout. This seems simple, but even in this enlightened age, habitat is increasingly challenged by the activities of man, and the North Shore of Lake Superior is not immune to these challenges. The area is rich in both natural bounty and natural resources, and is increasingly the focus of those who seek to take advantage of these opportunities.

Unprecedented mining exploration, expanding forestry and demands for hydroelectric power generation will surely ensure the economic survival of the region, but will likewise test our will to protect the other values we hold dear. Of course we must build our roads and bridges, mine our minerals and harvest surplus trees. Of course we must look at

hydroelectric power in the face of less environmentally friendly alternatives. Profit is not always a dirty word, for ultimately it feeds and warms us all. We must pursue profit, but we must do so with a new sense of responsibility for those highly sensitive and important areas that are necessary for the survival of other species, not just ourselves. We need to preserve the habitats of Wild Trout, and this may mean that we will have to challenge those who do not share (or are unaware of) our concern. From time to time, we must challenge them to do better in the course of their activities: sometimes, we must challenge them to simply stay away. Therein lies the future of our fishery.

I haven't held a fishing rod since the mountains of Alberta, last August. Too long, I believe. I'm tired of the cold. Bring on the rains ...

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Dues are renewable each January. Dues paid by new members in November are applied to the following year's dues.

1 year - \$10

2 year - \$20

3 year - \$30

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