Brule River
Sportsmen's Club, Inc.
OVER 500 MEMBERS DEDICATED TO THE IMPROVEMENT AND PRESERVATION OF THE BRULE
May 2023

Brule River, Lake Superior Decided Steelhead Size

By Mike Sierszen

In our day-to-day debates on when, where, and whether to go steelhead fishing, we often base our expectations of the day's success on weather and river conditions such as water level, temperature, and clarity. We see those factors as influential in whether the fish will be there (timing of the run) and how well they might respond to our fishing efforts.

In general, our assessments can be accurate for a day's outing. But a recent scientific publication considers phenomena that operate at time scales beyond days and weeks, and it confirms that the annual returns of migrating steelhead to the Bois Brule can be governed by conditions in the river and Lake Superior years earlier. The research suggests that stream habitat is important in determining population success, but prey availability and thermal conditions in western Lake Superior are critical to in-lake growth and survival.

The paper, authored by Dr. Thomas Hrabik of the University of Minnesota-Duluth and four co-authors (cited at the end of this article and posted at www.bruleriversportsmensclub.com/category/articles/) was inspired and made possible by years of observations, data, and deliberation by Wisconsin DNR personnel, especially Dennis Pratt and Bill Blust (both now happily retired).

The peer-reviewed publication enhances DNR findings through statistical analyses of 25 years of biological and environmental data from the Bois Brule River and Lake Superior, and it discusses the usefulness of the research results toward steelhead conservation and management. This article summarizes Hrabik's paper, with supporting information from WI DNR and other studies.

Steelhead and other salmonids returning to the Brule River have been tallied since 1986 as they pass an observation window at the lamprey barrier/fishway approximately six river miles above the mouth.

The number of older steelhead returning to the Brule can be substantially reduced by mortality from anglers, which is not measured and has varied across the years due to changes in fishery regulations and angler practices. Therefore, the published analysis focused on patterns in returns of maiden steelhead (that is, first-time spawners) in response to environmental conditions.

Biologists can determine the age and spawning history of steelhead from their scales, which have annual growth rings; spawning events are indicated by "spawning checks," which

See "Steelhead" on pg. 4

BRSC Calendar: The next board meeting will be held on Monday, May 22, at the KroBar at 6:00 p.m.

Brule River Sportsmen's Club
Electronic Meeting Minutes
April 24, 2023

Vice President Ken Lundberg called the meeting to order at 6:00 p.m. at the Kro Bar.

Officers and Directors: Present - Ed Chaplinski, Glen Hill, Mick Killoren, Ken Lundberg, Mike Sierszen, Dennis Smet, Jeff Stollenwerk, Walt Swanson, Jim Waletzko, Dean Wellman, Mike Zicus and Ken Zivic.

Minutes of the February and March Meetings: The minutes as written in the March and April newsletters were approved following a motion by Tom Sklebar, a second by Mike Zicus, and unanimous approval by voice vote.

Treasurer's and Financial Secretary's Reports: Treasurer Jeff Stollenwerk reported that March's beginning balance was $22,273.77, and the ending balance was $23,658.84 with the following expenses: ProPrint (February newsletter – $30.16); Dennis Pratt (stamps and postage – $330.09); Katie Thompson (March newsletter – $200); ProPrint (March newsletter and Expo handout – $205.18); First Impression Group (250 upper river maps – $405.12). The Treasurer's report was approved following a motion by Ken Zivic, seconded by Glen Hill, and approved unanimously by voice vote. Treasurer Jeff Stollenwerk reported for Financial Secretary Dean Wellman. There were $3,005.62 in deposits into the general fund since the last meeting and the Club had 15 new members and 39 renewals. The Financial Secretary's report was approved following a motion by Mike Sierszen and a second by Ken Zivic.

Committee Reports

Legislative: Ken Lundberg – Nothing to report.

Habitat: Dennis Pratt – Tree planting project will be May 20. Dennis Pratt will send out a Constant Contact email reminder. Summer habitat projects are scheduled for July 22 and August 5. Summer projects - Swamp Angel Pond removal (now have DNR approval) and lower Beaupre Creek streamside forest improvement.

Audit: Jeff Stollenwerk – Nothing to report.

Education: Dennis Smet – This year's project is complete. Carrie Edwards will euthanize the surviving fry.

Scholarship: Mike Sierszen– College applications are starting to come in.

Membership: Jim Waletzko/Ed Chaplinski – Jim and Ed are dropping off the extra newsletter at places like the Bait Box. 199 renewals paid to date out of 382 listed members. Of these, 49 requested paper newsletters and 150 e-news. Dennis Pratt will send out a special Constant Contact dues reminder again in May.

Social Media: Mike Zicus– Couple of address changes came in. Inquiry on whether the Club ever considered an equipment swap page in the newsletter. A discussion followed.

Other Business

Spring Clean-up: Dennis Smet – Clean-up is postponed until May 13 because of lingering snow in many ditches. Will meet at 9 a.m. at the Brule Pavilion. This was approved following a motion by Glen Hill and a second by Mike Zicus.

Fly of the Month: Dean Wellman has chosen the 'Ice Straggle Nymph' for May. It's a good fly for beginners.

See "Minutes" on pg. 3

"Minutes" from pg. 2

Property Additions to Brule River State Forest: After receiving board approval, Dennis Pratt sent a letter to the Natural Resources Board regarding our Club's support for the purchase of the lakeshore parcel within the Brule River State Forest boundary. The Club will send a support letter to the Joint Finance Committee when it comes up for a vote in the State Legislature.

Brule River State Forest Motts Ravine Native Community Management Area: Dennis Pratt received an email from Brule River State Forest regarding a request for a variance to the existing Forest's master plan to expand the Motts Ravine Area of the forest. A motion to send a supporting letter was approved following a motion by Jim Waletzko and a second by Ed Chaplinski.

Wisconsin Conservation Congress Spring Hearing: Results can be found at https://dnr.wisconsin.gov/about/wcc/springhearing

Wisconsin Wildlife Federation: Tom Sklebar reported that the District banquet went well. Net proceeds were about $17,000 for the banquet. When the banquet committee meets this coming week, Tom will ask for $200 to support the BRSC family fun day in August.

Establishment of a Club Email: Mike Zicus/Walt Swanson – discussion on creating an inquiry@, no-reply@ and store@ email addresses rather than having Board Members use personal email accounts. Email accounts are $60 per year, per account. This was approved following a motion by Jim Waletzko and a second by Mike Sierszen.

Nebagamon Creek Culvert Removal Progress: All permits are in place to start this summer. Working on contracts.
Family Fun Day: To be held August 19 from 10 a.m. to 3 p.m. Still can use additional volunteers for the various activities.

Future Meeting Locations: Ed Chaplinski will check with the owner of Crafty Rooster.

Upcoming Events – Our Club Calendar should be up to date – https://bruleriversportsmensclub.com/category/club-calendar/.

The business meeting adjourned at 7:05 p.m.

Recorded by Walt Swanson

Ice Straggle Nymph

Dean Wellman, BRSC Financial Secretary – Brule, WI

There is nothing more satisfying than tying your own fly and catching a fish on it. Having beginner fly anglers catch bluegills brings smiles to everyone, especially grandmas and grandpas.

This is one of the easiest flies to tie and is also extremely effective for panfish. I highly recommend this fly as a beginner fly. It ties quickly and has the basics for beginning tiers. It's great for grandkids, all kids, and big kids too! Then, take them fishing and have them catch fish on it!

A recipe for the fly can be found at https://bruleriversportsmensclub.com/wp-content/uploads/2023/04/2023-May-fly.pdf.

"Steelhead" from pg. 1

are interruptions in growth rings caused by erosion of the scale edge during spawning. Maidens generally comprise about 80% of steelhead that climb the Bois Brule.

Fluctuating annual steelhead returns, ranging from about 3,500 to 8,500 over the 25-year time period, raise questions about what caused the variability and whether it was primarily driven by conditions in the river or the lake. To examine the effects of the river on maiden returns, researchers considered conditions that were expected to influence growth and survival of young steelhead as they prepared to emigrate the river as smolts: seasonal discharge (the average flow during spring, summer, and autumn), water temperature (taken at the lamprey barrier), and total precipitation during each of the four seasons.

Lake conditions analyzed were those expected to influence growth and survival of smolts in the lake: temperature (of surface water, as steelhead spend most of their time in the upper 20 meters of the water column), predator abundance (as lake trout, the most abundant piscivore in Lake Superior), and prey fish (abundance and biomass of rainbow smelt, cisco, bloater, kiyi, ninespine stickleback, slimy sculpin, and trout-perch). The analyses were restricted to environmental factors in the river during their first year of life and in the lake during their first lake year.

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Among the parameters considered, river conditions - in particular, spring and autumn peak flows - appeared to have a stronger effect on maiden steelhead returns than did lake conditions. The highest steelhead returns occurred when peak spring flows were less than 328 cubic feet per second (cfs) during that cohort's first year of life. The very lowest returns occurred when both spring and autumn peak flows were high, >330 cfs in spring and >300 cfs in the autumn.

As earlier work by Wisconsin DNR had predicted, during a steelhead's first year high water events can be too much to deal with, and fragile fry can get washed away. Furthermore, whereas most young Brule steelhead spend two years in-stream before outmigration, which improves survival in the lake, high water in the autumn may cause early exits by pre-smolt yearlings, leading to greater mortality.

Although stream conditions had strong effects, conditions in the lake also influenced steelhead returns. There was a positive effect of average lake surface temperature, which follows from our understanding that the temperatures in Lake Superior are often below optimal growth temperatures for rainbow trout. There was also a negative influence of the abundance of adult smelt and bloater, suggesting possible competition for food with steelhead during their first lake year. Finally, there was a slight positive effect of young-of-year smelt on returns, suggesting abundant small smelt might provide a food source that improves survival of young steelhead, especially in colder years

Anyone who has traveled the Brule recognizes its changes in personality from headwaters to mouth. The spring-fed upper river, with its smooth glides and transparent water, remains unperturbed by stormwater and snowmelt. But once the river traverses the Copper Range, it drops 328 feet in 18 miles and is a portrait of rapids and turbulence. There, the seasons, rain, and snowmelt cause dramatic changes in flow, turbidity, and temperature.

As a result, spring and autumn high water events tend not to interfere with fish productivity in the upper river, but can critically reduce or eliminate lower-river reproduction. A major focus of the Brule River Sportsmen's Club habitat program is to augment upper-river spawning habitat to improve reproduction of all salmonids and provide a buffer for lower-river losses.

There are some factors whose lack of apparent effect on steelhead returns may be surprising. No significant effect of lake trout abundance on steelhead returns was found in Hrabik's paper or in earlier work by Pratt and Blust. It's very likely predation in the lake has an effect, but intermittent years of abundant alternative prey for lakers (for example, cisco) may moderate the overall effect on steelhead through the years.

Another observation is that the abundance of spawning adult steelhead (and therefore the number of eggs deposited in the river) has not determined the size of the resulting year-class of smolts or returning adults. In fishery terms, over the measured range of steelhead abundance since 1986, Brule steelhead have not been in a stock-recruit relationship. Severe declines in steelhead numbers could change that, but because of management efforts to ensure maiden steelhead are able to spawn, environmental factors, not numbers

See "Steelhead" on pg. 5

"Steelhead" from pg. 4

of eggs laid, have so far determined population levels.

Although in-stream conditions govern numbers of maiden returns, conditions in Lake Superior might control other fish population characteristics that have not been considered. For example, lake water temperature and prey availability probably determine the condition (weight per length) of returning steelhead. In turn, fish condition could influence spawning success, post-spawn recovery, and subsequent returns of non-maiden fish.

These analyses have implications for steelhead conservation and management. The influence the river habitat has over numbers of returning fish is welcome news, because it means we have the power to affect it.

River conditions associated with the survival of juvenile trout are a product of watershed characteristics such as land use, riparian buffers, and channel structure, which can be improved through watershed and stream management. Conditions in Lake Superior, however, would be difficult to manage; abundance of forage and predatory fish could be influenced through fishery regulations, but overall biological and physical conditions in the Great Lakes are shaped by large scale food web dynamics, global climate, and regional weather patterns. Therefore, it is probably most effective to concentrate management efforts on land use and stream habitat.

For the lower Brule, efforts could include protecting tributary streams, side channels and woody debris dams that may provide refuge from high water events and improve smolt production. In the upper river, the Brule River Sportsmen's Club (in cooperation with WI DNR) has improved upper river habitat and spawning grounds with great success. Please join us in this important work. See our newsletters for dates and locations of tree planting (May 20) and habitat work (tentatively July 22 and August 5).

Further reading:

T.R. Hrabik, K.W. Olson, T.J. Kaspar, M.E. Sierszen, and B.G. Matthias. 2023. "The influence of conditions in Lake Superior and the Bois Brule River, Wisconsin on returns of migratory rainbow trout." *Journal of Great Lakes Research* 49(2): 506-514.

D. Pratt and W. Blust. 1998. "Brule River steelhead: Understanding nature's effects." WDNR Fisheries Management and Habitat Protection, Superior, WI.

D. Pratt and W. Blust. 1998. "Brule River steelhead surviving through tough times." WDNR Fisheries Management and Habitat Protection, Superior, WI.

Come join us...

TREE PLANTING

May 20 @ 9:00 a.m.
Meet at Upper St. Croix boat launch

Wear knee high rubber boots or hip boots and gloves.
Lunch will be provided as we finish up by noon.

Children are welcome.

Don't forget...

Spring Clean-up

Saturday, May 13 @ 9:00 a.m.

Meet at the Brule pavilion

Lunch is served following the clean-up

Renew your membership

(contact Dennis Pratt, prattd@charter.net with questions).

Club's Event Calendar

https://bruleriversportsmensclub.com/category/club-calendar/

BRSC Gift Store Order Form *(prices include shipping & handling)*

#	Item	Cost	Total
	Lower river map poster of Brule (36"x24")	$35	
	BRSC baseball hat	$25	
	Lower Brule River map	$10	
	Upper Brule River map	$10	
	Men's or women's baseball cap *(mesh back)*	$25	
	Framed Lower River Map (cannot be Shipped)	$125	

The Brule River Sportsmen's Club, Inc. is a tax-exempt organization

https://bruleriversportsmensclub.com/contact-us/join-the-club/

BRULE RIVER SPORTSMEN'S CLUB
P.O. BOX 100
BRULE, WI 54820

What We Do:

Fisheries Habitat Projects *— Club members and others volunteer during the summer months to restore features necessary for fish spawning, growing, and feeding.*

Clean-ups *— Keep the Brule clean and beautiful.*

Monthly Membership Meetings *— Frequently include guest speakers.*

Monthly Newsletter *— Helps generate understanding of fisheries and water quality, and keeps members and others informed about Club activities.*

Scholarship Program *— Provides financial support to students.*

Newsletter editor: Katie Thompson (goirish@cheqnet.net)

BRSC Membership Form

Name _____
Address _____
City _____
State _____ Zip _____ Phone _____
e-mail _____

Membership Type:	☐ Renewal (due January 1st)	☐ New Membership
Email newsletter only:	☐ $20 – Individual	☐ $25 – Household
Paper newsletter only:	☐ $30 – Individual	☐ $35 – Household

Donations

College Scholarship $_____ Education $_____
High School Scholarship $_____ Habitat $_____
General $_____ Multiple $_____

Visit us online at ***www.bruleriversportsmensclub.com***

All information contained herein is confidential.
All but $1.00 of your membership dues is tax deductible.
Donations are 100 percent tax deductible.