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Poster Presentation Abstracts

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1

White Perch Diet Composition and Potential Interactions with Walleye, Yellow Perch, and Lake Whitefish in Green Bay

Andrew Pothoven, UW-Stevens Point, dan.dembkowski@uwsp.edu

Co-authors Scott Hansen, Tammie Paoli, Ryan Eastman, Dan Dembkowski, and Dan Isermann

White perch are native to the North American Atlantic coast and first appeared in the Great Lakes in the 1950s, where they are considered an invasive species. White perch mature at young ages, are prolific spawners, and often display opportunistic feeding habits that can include fish eggs, larvae, and juveniles. In Green Bay, high abundance of white perch has prompted concerns over potential negative interactions with other important species including Walleye, Yellow Perch, and Lake Whitefish. Our objectives were to determine if: 1) white perch diet composition varied in relation to total length (TL; mm); and 2) relative abundance (CPE; number/trawl hour) of white perch was related to CPE of Walleye, Yellow Perch, and Lake Whitefish in Green Bay. We also evaluated white perch population age structure and assessed whether age estimates differed between dorsal spines and otoliths. Samples of white perch were obtained from experimental gill net and bottom trawl surveys conducted in southern Green Bay during spring and summer, 2025. Diets were dominated by Bythotrephes (spiny water flea) and larval chironomids. As white perch TL increased, the prevalence of Bythotrephes in diets increased, whereas the prevalence of chironomids decreased. Based on long-term bottom trawl data (1980-2023), a threshold effect was observed where CPE of Walleye, Yellow Perch, and Lake Whitefish was almost always low when white perch CPE was high. Otolith age estimates ranged 1-10 y, but > 85% of the sample was comprised of fish ≤ age 3. Dorsal spines were generally effective at replicating otolith ages based on a subsample of fish with paired spine and otolith age estimates. Results provide insight into how white perch may affect management outcomes for Walleye, Yellow Perch, and Lake Whitefish in Green Bay.

Poster presentation, student

2

Seasonal Spatial Distribution of Walleye in Big Eau Pleine Reservoir, Wisconsin

Aster Kabat UW-Stevens Point, akaba931@uwsp.edu

Co-authors Lucas Koenig, Jake Thompson, Daniel Dembkowski, Daniel Isermann

We used acoustic telemetry to assess the spatial distribution of Walleye *Sander vitreus* during their first season at large in Big Eau Pleine Reservoir, Wisconsin. Acoustic transmitters with 10-y battery life were surgically implanted in N = 30 Walleyes during April 2025 and transmitters were distributed equally between sexes and among three release locations (five males and five females at each of three release locations). Movements of Walleye were passively monitored during May-September 2025 using an array of acoustic receivers that were strategically positioned to detect movements of Walleye among three reservoir zones (upper reservoir, mid-reservoir, and lower reservoir). Detection histories of tagged Walleye were used to determine monthly residency of Walleye within each reservoir zone and whether Walleye transitioned between zones or left the study area via escapement through the dam. During each month, ≥ 60% of tagged fish resided within the mid-reservoir zone, whereas ≤ 20% of fish were located within the upper and lower reservoir zones, respectively, and we observed relatively little movement of Walleye among reservoir zones. One Walleye was detected downstream of the Big Eau Pleine dam. The spatial distribution of fish was generally reflective of where fish were captured and released; however, it may also indicate an affinity for biotic (e.g., prey abundance) or abiotic (e.g., oxythermal habitat) conditions in the mid-reservoir zone. This study represents the initial phase of understanding Walleye movement and spatial distribution in this system. Future detection data, including downloads from receivers not included in this initial study, will allow for continued and more in-depth analysis of factors influencing spatial ecology of Walleye in Big Eau Pleine Reservoir.

Poster presentation, student

3

Survival to Emigration of Stocked Steelhead in a Minnesota Tributary to Lake Superior

Bryson Kautz, UW-Stevens Point, kautzbryson@gmail.com

Co-authors Dr. Justin VanDeHey, Dylan Undlin, Nick Peterson

Steelhead *Oncorhynchus mykiss* are naturalized in Lake Superior tributaries, and the population is typically supported by natural reproduction. However, recent declines in abundance have prompted increased stocking efforts to supplement area fisheries. It is important for managers to understand how survival and emigration patterns of stocked steelhead compare to their naturally produced counterparts to improve success of stocking and understand the subsequent effects on wild steelhead. Therefore, the objectives of our research were to determine (1) survival to emigration of stocked steelhead, and (2) whether stocking location, stream temperature, and flow rates were related to emigration rates and timing of both wild and stocked fish in the Knife River, Minnesota. In May of 2024, age-1 adipose clipped steelhead were stocked at two separate locations, 4,835 in the East Branch Knife River and 4,848 in the West Branch Knife River. Additionally, PIT tags were implanted in 10% of total stocked steelhead. Emigrating steelhead smolts were sampled using the Knife River Fish Trap. Only 568 of the 9,683 stocked steelhead survived to emigrate, suggesting relatively low survival of stocked fish. Of the 48 stocked PIT tagged fish sampled at the trap, 28 were from the East Branch stocking location indicating more optimal stream rearing conditions. Emigration peaked in mid-June for both stocked and wild steelhead and corresponded with increased flows and water temperatures. Our results suggest that steelhead stocked at age-1 had relatively low survival to emigration, but that the stocked fish behaved similarly to wild fish. This information will help provide insight for managers and possible changes to future stocking programs strategies for North Shore tributary streams.

Poster presentation, student

4

Do Advances in Fishing Technology Influence Fish Catchability

Dylan Von Bargen, Wisconsin DNR, dylan.vonbargen@wisconsin.gov

Co-authors Taylor N. Preul-Stimetz, Maxwel V. Wilkinson, Zachary S. Feiner, Olaf P. Jensen, and Greg G. Sass

Improvements in fishing technology over time has the potential to influence sportfish catchability. The long-term compulsory creel census of Escanaba Lake provides an opportunity to test for changes in fish catchability over time using time periods as a proxy for the availability of certain fishing technologies (1990-2005 = 2D sonar; 2006-2015 = side scan and down scan sonar; 2016 – present = forward-facing sonar). We tested for differences in Northern Pike *Esox lucius*, Muskellunge *E. masquinongy*, Walleye *Sander vitreus*, and Yellow Perch *Perca flavescens* catchability and harvestability among these time periods of fishing technology availability in Escanaba Lake, Vilas County, Wisconsin. We hypothesized that advancements in fishing technology over time would lead to greater catchability of our study species, yet lower harvestability due to a higher prevalence of angler voluntary catch-and-release behavior. We found that catchability and harvestability of our study species did not change or declined over time with advancements in fishing technology. Our results suggest that banning advanced fishing technology (e.g., forward-facing sonar) for fish conservation purposes may be unwarranted. Ongoing research asking anglers about specific fishing technology use in relation to catch-related variables will also be presented for Escanaba Lake in 2025.

Poster presentation, professional

5

Invasive Carp Movement and Use of the Lower Wisconsin River Following Initial Invasion

Elise Bass, UW–LaCrosse, bass4700@uwlax.edu

Mark Fritts, Jordan Weeks, Jason Freund, David Schumann

Relatively little is known about the habitat use and movement behaviors of invasive bigheaded carps *Hypophthalmichthys* spp. at current invasion fronts, including the Upper Mississippi River and Great Lakes basins. Invasive bigheaded carps have recently been observed moving throughout the Lower Wisconsin River, a large tributary of the Mississippi River which may be used for spawning and could negatively impact native species. The Prairie du Sac dam is thought to be a complete barrier that prevents invasive carps from reaching the economically and culturally important upper reaches of the Wisconsin River. Further understanding the factors that influence movements of bigheaded carps into and throughout the Lower Wisconsin River will inform future management efforts in the region. Preliminary results of invasive carp movement and use of the Lower Wisconsin River will be presented. I will: (1) provide information on tagged fish within the Lower Wisconsin River (e.g., unique tags, species tagged, number of detections between years, etc.), and (2) describe the largescale movements (e.g., maximum displacement, cumulative distance moved, and movement rate) of bigheaded carps throughout the region. Knowledge of the specific movement behaviors and predictors of movement throughout the Lower Wisconsin River by bigheaded carps may identify potential spawning areas and inform future removal efforts in this system and at similar invasion fronts.

Poster presentation, student

6

Utilizing Acoustic Telemetry to Identify Juvenile Lake Sturgeon Movement Patterns and Habitat Hot Spots

Emma Millsap, UW–Milwaukee, emillsap@uwm.edu

Co-authors Katie Lowenstein, Aaron Schiller, Brandon Gerig

Historically, Lake Sturgeon *Acipenser fulvescens* populations were abundant throughout the Great Lakes. Decades of habitat loss, pollution, and overharvesting nearly extirpated these fish from the region. In recent years, reintroduction efforts have begun across the Great Lakes to restore Lake Sturgeon populations to sustainable levels. One such effort is in the Milwaukee River Estuary (MRE), where over 23,000 Lake Sturgeon have been stocked since 2003. Coincident with stocking, access to spawning and nursery grounds has been restored through barrier removal and fish passage projects. Despite restoration efforts, less attention has been paid to the habitat requirements of juvenile Lake Sturgeon in the MRE. The primary objective of this project is to assess movement, habitat use, and survival of juvenile Lake Sturgeon within the MRE using acoustic telemetry. At present, it is unclear how sturgeon use the MRE post-stocking, which habitats they select, what movement patterns they exhibit, and what their survival rates are. Juvenile Lake Sturgeon are assumed to stay within the harbor and nearshore habitats, but their ecology as juveniles is understudied relative to young of year and adult sturgeon. This poster presentation highlights our initial efforts, preliminary results, and foreshadows our future research. Sturgeon are captured via gill nets and set lines set within the MRE. Captured fish are surgically implanted with Innovasea acoustic telemetry transmitters. Additionally, an array of telemetry receivers is set throughout the area, which also contributes to the GLATOS network. Preliminary results indicate a wide range of movement behaviors and utilization of habitats previously unknown. Understanding how these juveniles behave, which habitats they primarily use, and their post-stocking survival will inform management decisions not only in the Milwaukee area but throughout the Great Lakes for population restoration efforts.

Poster presentation, student

7

Food Fight! Competitive Feeding Interactions of Mottled Sculpin (Cottus Baridii) And Slimy Sculpin (C. Cognatus)

Evan Sirianni, UW–LaCrosse, sirianni5831@uwlax.edu

Co-authors Jason G. Freund and David A. Schumann

Mottled Sculpin *Cottus bairdii* and Slimy Sculpin *C. cognatus* are benthic invertivorous fishes frequently found in the same watersheds throughout the Wisconsin Driftless Area. However, a lack of sympatric streams has been observed, and little is known about their competitive feeding interactions. I collected 200 individuals of both species from allopatric streams and observed aggressive feeding behaviors of sculpin in intraspecific and interspecific aquarium timed trials. Trials were categorized by species and size class, with 10 replicates and two additional foodless (control) trials per trial type. Prior to the experiment, two individuals were randomly selected, isolated and fasted for 24 hours, and placed into a tank with a known number of amphipods (Gammarus sp.). They were recorded for 20 minutes and the number of chases, nips, comfortable interactions (i.e., both touching each other without aggression or startles), and the number of prey items eaten were counted. Adult sculpin accounted for 84% of all aggressive interactions. Intraspecific Mottled Sculpin trials had significantly more aggressive acts than other trial assemblage types (Kruskal-Wallis rank sum test; test statistic = 10.27, $p = <0.01$). There were also significantly more aggressive acts during adult-juvenile trials compared to juvenile-juvenile trials (Kruskal-Wallis rank sum test; test statistic = 6.25, $p = 0.04$) further suggesting adult territoriality. Slimy Sculpin accounted for 81% of all amphipods consumed and on average ate 1.7 (SD = 2.1) more amphipods during interspecific trials. Our findings suggest that while sculpin territoriality is a driver of ontogenetic displacement, it does not explain the lack of sympatry between Mottled Sculpin and Slimy Sculpin in the Wisconsin Driftless Area. These findings inform reintroduction efforts of both species by ruling out a possible driver of allopatric distributional patterns observed in the Wisconsin Driftless Area.

Poster presentation, student

8

Prey Size Selection of Largemouth Bass and Walleye in Northern Wisconsin Lakes

Henry Gray, UW-Stevens Point, hgray077@uwsp.edu

Co-authors Maxwel Wilkinson, Daniel Dembkowski, and Daniel Isermann

Over the past two decades, some northern Wisconsin lakes have experienced declines in Walleye abundance with concurrent increases in Largemouth Bass abundance. Shifts in predatory species dominance from Walleye to Largemouth Bass could have important implications for prey fish abundance and size structure, but the top-down effects of shifting predator composition depend in part on whether bass and Walleye fill the same predatory niche and consume the same sizes of prey. To help understand potential effects of shifts in predator dominance, we used diets of Largemouth Bass and Walleye collected from five northern Wisconsin lakes during May-October, 2024 and 2025 to determine if: 1) sizes of predominant prey; and 2) predator-prey total length (TL; mm) relationships differed between bass and Walleye. Bluegill and Yellow Perch were most prevalent among prey fishes observed in diets. Largemouth Bass and Walleye consumed similarly sized bluegill during spring and fall but in summer, bass consumed larger bluegill than Walleye. Largemouth Bass and Walleye consumed similarly sized Yellow Perch during summer and fall but in spring, bass consumed larger perch than Walleye. Prey fish TL generally increased with predator TL for both species; however, the difference in average prey lengths consumed between Largemouth Bass and Walleye decreased as predator TL increased. When predator TL was fixed at 200 mm, the average TL of prey consumed by Largemouth Bass was approximately 30 mm larger than prey consumed by Walleye, whereas when predator length was fixed at 450 mm, the average TL of prey consumed by Largemouth Bass was only 3 mm larger than prey consumed by Walleye. Although diet overlap between Largemouth Bass and Walleye is relatively high, differences in the sizes of prey consumed suggest they may not fill the same predatory niche and could result in differences in prey fish population size structure.

Poster presentation, student

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Catfish Populations and Hoop Net Seeding Effects in the Lower Green Bay and Fox River Area of Concern, Wisconsin

Jason Lins, Wisconsin DNR, Jason.Lins@wisconsin.gov

Coauthor Sam Schaick

The Lower Green Bay and Fox River Area of Concern (AOC), Wisconsin, has native Channel Catfish *Ictalurus punctatus* and nonnative Flathead Catfish *Pylodictis olivaris* populations that are popular targets for anglers. Limited effort has been allocated to evaluating these populations, but catfish sampling has been incorporated into recent AOC fisheries monitoring. Additionally, little information exists on the effectiveness of using live Flathead Catfish as bait (seeding) to attract other Flathead Catfish, despite its established use as a sampling technique. We used hoop netting to assess channel and Flathead Catfish populations at AOC designated habitat areas (DHAs) and preliminarily investigated effects of hoop net seeding. Channel and Flathead Catfish were sampled at 12 locations among DHAs and control sites in the lower Fox River with unseeded and seeded hoop nets between June 17 and July 25, 2025. Ninety-five net-nights of effort resulted in 195 Channel Catfish (mean = 2.1/net-night, SE = 0.9; PSD (≥16 in) = 91.1) and 130 Flathead Catfish (mean = 1.4/net-night, SE = 0.3; PSD (≥20 in) = 97.0) of quality-size caught. Channel Catfish catches were highly variable (range = 0–71/net-night) and no catfish were caught for 50% of net-nights. The overall mean length for Flathead Catfish was 28.4 in (N = 132, SD = 5.5) and 25.1 in for Channel Catfish (N = 214, SD = 4.8). Seeded hoop nets had higher mean catches of Flathead Catfish (1.7/net-night, SE = 0.4) than unseeded (1.1/net-night, SE = 0.3), but Channel Catfish catch was higher in unseeded (2.6/net-night, SE = 1.4) than seeded (1.3/net-night, SE = 1.1), although differences were not statistically different. Mean Channel Catfish catches with male seeds were ~18X lower than unseeded (P = 0.006) and female seeded (P = 0.02) nets, possibly due to male flathead aggression. This study improves the understanding of catfish populations in the AOC and hoop net seeding as a method for managers to influence catfish catch rates.

Poster presentation, professional

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Using Stable Isotopes to Characterize Food Web Structure in Milwaukee Harbor with Emphasis on Juvenile Lake Sturgeon

Katie Lowenstein, UW–Milwaukee, lowenst3@uwm.edu

Co-authors Emma Millsap, Aaron Schiller, and Brandon Gerig

Lake Sturgeon *Acipenser fulvescens* populations were extirpated from the Milwaukee River due to overfishing, habitat loss, and barriers to migration. Efforts to rehabilitate Lake Sturgeon in the Milwaukee River over the past 20 years have focused on stocking and dam removal. While aspects of Lake Sturgeon biology and ecology are well studied, little is known about the habitats and resources that juvenile Lake Sturgeon use in the Milwaukee River. The main objective of this study is to determine the food web structure of the Milwaukee River estuary and identify resources that support juvenile Lake Sturgeon. Fish and invertebrates will be captured throughout the harbor using gillnets, baited set lines, petit ponar grabs, and zooplankton tows. Dorsal white muscle tissue will be collected from fish and invertebrates will be picked and sorted by taxa for stable isotope analysis of carbon (δ^13 C) and nitrogen (δ^15 N). Our preliminary results suggest distinct signatures for nearshore and harbor locations. Based on our carbon and nitrogen biplot, it appears that Lake Sturgeon are closely associated with round goby, suggesting extensive consumption. Future directions for this research will include developing stable isotope mixing models, gut content analysis, and using bioenergetics models to describe how diet influences sturgeon growth.

Poster presentation, student

11

Age-0 Walleye Growth in Relation to Water Clarity and Lake Classification in Northern Wisconsin Lakes

Kelsey Thurin, Wisconsin DNR, kelsey.thurin@wisconsin.gov

Co-authors Stephanie L. Shaw, Greg G. Sass

Previous laboratory studies have shown a negative correlation between age-0 Walleye growth rates and light intensity and water clarity. Whether laboratory age-0 Walleye growth patterns are consistent with natural age-0 Walleye growth among variable lake types (e.g., water clarity, lake classification) is unknown. We empirically tested for differences between average age-0 Walleye length to the first fall and water clarity within lake classifications in Ceded Territory of Wisconsin waterbodies during 1990-2024. Water clarity was classified as low (1-2 m), medium (2-5 m), and high (5-10 m) based on Secchi depth. Lake classification was examined using six fish-based Wisconsin lake classification types ranging from complex cool clear to complex warm dark. Statistically, we used a Welch's ANOVA to test for differences in average age-0 Walleye length to the first fall among water clarity categories within lake classifications due to unequal sample sizes among waterbody types. Our preliminary results suggested that average age-0 Walleye length was significantly higher at medium and high-water clarities in complex two-story lakes. Average age-0 Walleye length was significantly lower in high water clarity lakes within the complex warm clear lake classification. No differences were observed in age-0 Walleye length among water clarities for the other four lake classification categories examined. Our preliminary results suggest that light intensity and water clarity factors influencing age-0 Walleye growth in a laboratory setting may not translate to realized, natural age-0 Walleye growth patterns in Ceded Territory of Wisconsin lakes.

Poster presentation, student

12

Movement Behaviors and Survival of Brown Trout in Southwestern Wisconsin Driftless Streams

Kyle Kamm, UW–LaCrosse, ktkamm02@gmail.com

Co-authors Dr. David Schumann, Dr. Jason Freund, and Kirk Olson

Southwestern Wisconsin Driftless coldwater streams support abundant Brown Trout *Salmo trutta* fisheries that are highly pressured and economically important to the region (Mauldin and Hastings 2014). Knowledge of the important population parameters (e.g., population density, population growth rates, age structure, survival) and the movement behaviors of Brown Trout in the region is beneficial to fisheries managers for setting information-based harvest regulations and assessing the status of Brown Trout sport fisheries. I used Wisconsin DNR mark-recapture survey efforts at eight streams including 34 different stream reaches that were sampled five consecutive years. At each stream reach, 12 mm passive integrated transponder (PIT) tags were implanted into all Brown Trout >13 cm. Marked individuals were measured in length, weight, and capture location was recorded. During the survey, 3,651 Brown Trout were tagged and 859 were recaptured. With capture histories of Brown Trout in multiple streams, I was able to: (1) estimate annual population sizes, recruitment, population growth rates (λ), apparent survival (Ψ), and individual movements among stream systems; (2) identify relationships between trout population characteristics and both stream environmental characteristics and harvest regulations. An open system spatially explicit Jolly-Seber-Schwarz-Arnason (JSSA) mark recapture model was used to predict population dynamic parameters. By estimating Brown Trout population demographics and their patterns among Driftless Area streams, I can generalize which stream characteristics, population dynamics, and bag limits influence Brown Trout populations and individual movements within a watershed. Thus, my results will give fisheries managers the ability to predict population parameters based on stream characteristics, further understanding of Brown Trout movement, and insight to potential outcomes when selecting bag limits to manage Brown Trout.

Poster presentation, student

13

The Palatability of Formulated Diets Intended for Larval Lake Sturgeon Production

Marik Dickson, UW–LaCrosse, dickson2337@uwlax.edu

Co-authors Orey Eckes and Jadon Motquin

Effective conservation aquaculture operations and stocking programs are vital for restoring and bolstering recruitment of rare fishes such as Lake Sturgeon *Acipenser fulvescens*. Lake Sturgeon propagation relies on expensive and labor-intensive feeding regimes during larval development to reach suitable sizes that maximize post-stocking survival. Use of natural diets increases hatchery spending, limits production and stocking abilities and requires intensive care, whereas commercial diets reduce feed expenses, simplify feeding regimes, and enable more rearing and stocking capabilities. Efforts to transition Lake Sturgeon to commercially available formulated diets have generally been poorly accepted, causing slower growth and survival. This study evaluates the feeding behavior and palatability of 20 diets fed to larval Lake Sturgeon. Larvae were reared under standard hatchery procedures and fed brine shrimp nauplii (Artemia) for 4 weeks prior to the study. Feeding behaviors of individual larvae (n = 180) were observed across 20 diet treatments (n = 9), including two reference diets (i.e. brine shrimp and bloodworms), nine commercial diets, and nine diet mixing strategies using brine shrimp and the selected commercial diets. Individual fish were video recorded for 5 minutes to quantify the interaction frequency and time to first interaction with each diet. A time-to-event analysis was used to compare feeding interactions among diets. Brine shrimp had the highest interaction frequency (70%) whereas commercial diets had relatively low interaction frequencies that never exceeded 28%. The individual variability in interaction suggests differences in diet texture, smell, and composition influence diet recognition and acceptance. These findings demonstrate that diet mixing improves acceptance of commercial diets and highlights the importance of optimizing diet transition timing to increase the overall effectiveness of commercial diets used in Lake Sturgeon propagation.

Poster presentation, student

14

Beaver Dams as Barriers to Upstream Movement of Brook Trout and Brown Trout in Two Wisconsin Streams

Matthew Mitro, Wisconsin DNR, matthew.mitro@wisconsin.gov

Co-authors Kasey Yallaly, Kirk Olson, Nick Hoffman, and Spencer VanderBloemen

Beaver dams are obstacles to trout movement in streams, but data are lacking on the extent to which they preclude upstream passage. We used passive integrated transponder (PIT) tag detection arrays to study the upstream movement of tagged Brown Trout *Salmo trutta* and Brook Trout *Salvelinus fontinalis* in two Wisconsin streams with beaver dams, Cady Creek and Bohemian Valley Creek. In Cady Creek in 2023, we tagged 176 Brook Trout and 622 Brown Trout in July-August and monitored their movement in August-November with two PIT arrays, one downstream and one upstream of a series of three beaver dams. We removed the three beaver dams and repeated the PIT array monitoring in September-November 2024. In Bohemian Valley Creek in 2024, we used a post-tagging release-displacement approach and PIT-tag detection arrays to determine to what extent Brown Trout could move upstream past a beaver dam. We tagged 304 Brown Trout captured 0.7 and 2.6 km upstream of the beaver dam and released them 0.6 km downstream of the dam. In both streams, tagged trout were detected by the lower PIT arrays downstream of the beaver dams, often repeatedly moving upstream and back downstream through the arrays. None were detected by the upper PIT arrays upstream of the beaver dams under normal, low flow conditions. However, following rain events that raised the stream level, tagged trout were detected at the upper arrays, indicating upstream passage by the beaver dams had occurred. Our data showed that beaver dams on Cady Creek and Bohemian Valley Creek were barriers to Brook Trout and Brown Trout upstream movement under normal, low flow conditions. Upstream passage past beaver dams only occurred during rain events that significantly increased flow, overtopping beaver dams and creating unobstructed side channels. We conclude that beaver dams, depending on streamflow, fragment streams in terms of upstream trout movement with potential implications for spawning and recruitment.

Poster presentation, professional

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Beaver Dams and Salmonids in South Shore Lake Superior Tributaries

Spencer VanderBloemen, Wisconsin DNR, spencer.vanderbloemen@wisconsin.gov

Co-authors Matthew Mitro, Nicholas Hoffman, and Paul Piszczek

Tributaries along the south shore of Lake Superior are home to stream-resident native Brook Trout *Salvelinus fontinalis* and nonnative Brown Trout *Salmo trutta* but also serve as spawning and nursery areas for lake-run nonnative Coho Salmon *Oncorhynchus kisutch* and Steelhead *Oncorhynchus mykiss*, as well as some lake-run Brown Trout. Beavers *Castor canadensis* also occupy these streams and can alter their hydrology and instream and riparian habitat by building dams. Beaver control is used to maintain free flowing condition to allow access to spawning areas by lake-run salmonids, but questions remain as to what extent beaver dams impede upstream migration and spawning of Coho Salmon and Steelhead and whether Brook Trout would benefit from the presence of beaver dams. We removed beaver control from three Lake Superior tributaries to evaluate the effect of beaver dams on (1) spawning success of Coho Salmon and Steelhead and (2) Brook Trout abundance and size structure. After beaver control ceased in 2020, beaver began building multiple dams in Bark River and East Fork Flag River in 2022 and North Pikes Creek in 2023. Dams present in streams during autumn appeared to block the upstream migration of autumn spawners like Coho Salmon under normal, low-flow conditions. No age-0 Coho Salmon were found upstream of the first beaver dam encountered by spawners. However, dams were sometimes overtopped or breached by high flow runoff events during spring, which appeared to allow spring-run Steelhead to bypass dams and successfully spawn upstream of dams. Brook Trout size structure improved with some larger Brook Trout observed in areas ponded by beaver dams. Improvements in Brook Trout abundance and size structure appeared limited compared to potential losses of Coho Salmon and Steelhead production. Fisheries Managers will need to balance the needs of competing fisheries in deciding how to best manage beavers on Lake Superior tributaries, particularly those with dynamic stream flows and deeply incised channels.

Poster presentation, professional

16

Setting the Stage for Fish Community Rehabilitation: A Proposed Study on Franklin and Butternut Lakes

Taylor Preul-Stimetz, Wisconsin DNR, taylor.preulstimetz@wisconsin.gov

Co-authors Gregory Matzke, Michael Preul, Jake Carleen, Zachary Feiner, Greg Sass, Jake Vander Zanden

North-temperate aquatic ecosystems face increasing challenges under rapid environmental change. Systems that historically supported culturally and economically important cold- and coolwater fish species are in decline. Substantial resources have been invested in rehabilitation efforts, yet outcomes remain mixed. Recent research suggests that success may depend on suitable pre-rehabilitation ecological conditions, the use of integrated management strategies, and strong collaborations among stake- and rights-holders. When systems fall outside the safe operating space for target species, or focus only on single species, rehabilitation may fail. An opportunity to evaluate a multispecies rehabilitation effort exists for Franklin and Butternut lakes (Forest County, WI). Once highly productive Walleye fisheries, these lakes now exhibit declining adult abundance, low recruitment, and poor survival of stocked Walleye. Concurrent increases of Northern Pike, Smallmouth Bass, and centrarchid panfish have been observed, and both lakes support extant Lake Whitefish populations. A lack of drought-resilient spawning habitat for Walleye and Lake Whitefish has been identified as a potential recruitment bottleneck in Franklin Lake, and an offshore spawning reef addition is proposed for 2026–2027. Our study (2026–2030) will assess fish community interactions, identify limitations for Walleye and Lake Whitefish, and evaluate ecological and social responses to the reef addition. We will track Walleye spawning locations using ovipositor tags, evaluate egg deposition and larval success, characterize Lake Whitefish populations using non-lethal sampling, conduct oxythermal and substrate habitat surveys, and assess forage and predator abundance. Results will inform habitat rehabilitation efficacy and support decision-making to sustain tribal food security, angler opportunity, and long-term ecological productivity and resilience.

Poster presentation, professional