

Walleye Telemetry

Wellman Lake & Swan River

FEF Project 12 - 025



Swan Valley Sport Fishing Enhancement Inc.

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Summary

This study was initiated to further understand walleye spawning utilization and success on two popular fisheries in the Swan River Valley. Over the course of three years, various methods transpired in these two fisheries in order to generate significant results. The two waterbodies included the Swan River itself, and Wellman Lake. This report has been divided into three parts to simplify studies and results.

Part 1: Swan River Telemetry

Using radio telemetry, SVSFE technicians monitored the spatial variation of 5 walleye in the Swan River from October 3rd 2011, through August 22nd, 2013. With regards to this sample population and relevant spatial data, technicians aimed to understand walleye residency areas, survival, and seasonal movements emphasising on the spring spawn. Also with this data, another focus was to determine whether these habitats are compromised in any way by human or natural barriers; focusing on two specifically; the recently constructed fishway at the Honoway Ford Crossing located 9 kilometers northeast of The Town of Swan River and the Golf Course Ford Crossing which is located approximately 4 kilometres southwest of The Town of Swan River.

Results concluded the walleye tagged in the Swan River were resident fish as they all remained within the river system during the sample period. Walleye were found to overwinter in specific residency areas during the two year study and these areas were generally in near proximity of their fall tagging locations.

With regards to the spawn, it became evident that fish tagged in upper portions (upstream of the Town of Swan River) tended to move upstream to the upper reaches during spawning conditions, whereas fish tagged at lower portions (downstream of the Town of Swan River) tended to move far downstream to the lower reaches during spawning conditions. It is important to state that this was also the case during the 2009/2010 study regarding fish tagged in lower reaches. Perhaps velocities in the mid-upper reaches (Husak`s) facilitated upstream movement whereas velocities in the lower reaches (Gust`s) were too high to facilitate upstream movement.

In regards to barriers to walleye within the Swan River, results suggested one fish in 2012 was able to surpass the Honoway and Golf Course Ford Crossings because of low velocities associated with low discharge levels. The spring of 2013 resulted in much higher runoff velocities. No telemetry tagged walleye displayed passage through the newly constructed fishway although two displayed movement through the golf course ford crossing to upper reaches of the river during spawning conditions. It has been concluded that the Swan River provides viable spawning, forage, and overwintering habitat for its resident walleye population and proactive management of the viable fishery should continue.

Part 2: Honoway Fishway Monitoring

Using various methods, SVSFE technicians monitored the Honoway Fishway in the spring of 2012 and 2013 to understand fish usage and passage while focusing on walleye. The Honoway Ford crossing was constructed by the SLWCD (funded by FEF) in the winter of 2010 as the Honoway ford crossing was believed to impede on fish movement during critical spawning periods. SVSFE technicians, in correspondence to a ongoing telemetry study, monitored the fishway in the spring of 2011, 2012 and 2013.

Results found the greatest barrier restricting fish movement through the fishway was the velocity created by the two culverts separating the upstream and downstream portions of the fishway. Following minor human interference to flow within the fishway in 2013, for the first time in 2 years of operation, the Honoway Fishway proved positive results of fish passage of multiple species; white sucker, walleye, northern pike, burbot, shorthead redhorse sucker, silver redhorse sucker, and creek chub.

Recommendations following the assessment included continuing spring monitoring (although less intense) in order to better understand the effects and functions of fluctuating spring discharge levels in the fishway and on the structures within it. In addition, it was also recommended to further investigate fishway design upgrades and create more resting areas for fish within the fishway (specifically immediately upstream and downstream of culverts). It's very apparent the fishway requires ongoing future monitoring and "tweaking" in order to facilitate fish passage within the Swan River, although the efforts required to maintain the fishway far surpass the benefits the fishery within the Swan River will and has received.

Part 3: Wellman Lake Telemetry

Using radio telemetry among other methods, SVSFE technicians aimed to further understand walleye spawning behavior in Wellman Lake with two objectives. First of all, SVSFE aimed to understand if walleye were using any area in the lake, besides the enhanced reef for spawning. Secondly, SVSFE aimed to further understand spawning reef utilization and success. Various methods were used in this study including telemetry, guzzling, observation, trap-netting, and the utilization of spawning mats.

Results from telemetry locates signify walleye at some point during the study period utilized habitat within near proximity of the enhanced reef during critical spawning conditions. However, spawning assessments from 2013, correlated with past work on the reef, found reef utilization is on the decline. Overall, it has yet to be completely determined why spawning success has been so poor on the reef. Various contributing factors have been identified and short and long term recommendations were made. It was determined a minimum of 2 years of guzzling continue on the reef before any reef enhancement decisions be made and stocking and netting programs continue. Long term suggestions included various options for reef enhancement all pending future results and compilation of all past, present and future research completed on Wellman Lake. Identifying the cause of low recruitment at Wellman Lake is complex with many factors requiring consideration.

Project Objectives: With this relevant information technicians, biologists, and waterbody managers can determine proactive management techniques, including potential mitigation, changes in regulation, and habitat enhancement if required. Relevant rationale, literature review, methods, results, discussion, and suggestions for each component are identified in each section.