Ministry of Natural Resources

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BlackBay & BlackSturgeonRiver Native Fisheries Rehabilitation —

Decommissioning of the Camp 43 dam and construction of a multi-purpose sea lamprey barrier at Eskwanonwatin Lake.

Project Description - Summary

Northwest Region Planning Unit
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OVERVIEW

BlackBay was once home to the largest population of walleye in Lake Superior, supporting sizable commercial and recreational fisheries. The walleye population collapsed in 1968, due to a combination of factors, including overfishing, habitat loss, and predation of juvenile walleye by rainbow smelt. Several initiatives to rehabilitate the walleye population have been largely unsuccessful. These initiatives have included stocking of various life stages, and both recreational and commercial fishing closures.

Recent studies (e.g. Furlong et al. 2006; Biberhofer&Prokopec 2007) suggest that spawning habitat is limiting in BlackBay, and that the remnant walleye stock spawns in the BlackSturgeonRiver. The Camp 43 dam (also known as the Twin Rapids dam or the Black Sturgeon dam) was constructed on the BlackSturgeonRiver, 17 km from the mouth, in 1959/60, cutting off access to spawning habitat formerly available to migratory walleye and other native fish species, including lake sturgeon. The creation of artificial spawning shoals is untenable due to the amount of new habitat required, the extreme cost involved, and the lack of road access for the transportation of materials. Providing fish access to naturally occurring habitat is considered essential for the large scale rehabilitation of the native fish community in BlackBay and the BlackSturgeonRiver.

The Camp 43 dam is a component of the binational sea lamprey control program mandated by the Great Lakes Fishery Commission and carried out by the Canadian Department of Fisheries and Oceans on the BlackSturgeonRiver. Currently, sea lamprey chemical treatments are carried out once every five years below the dam. Removing the Camp 43 dam would necessitate increasing the frequency and magnitude of treatments, and would result in reduced treatment efficacy, resulting in higher numbers of sea lamprey in Lake Superior.

In order to address the goals of rehabilitation of the native fish community, while at the same time ensuring effective and cost-efficient sea lamprey control, the Fisheries Management Zone 9 (FMZ 9) Advisory Council was charged with reviewing options and providing the Ministry of Natural Resources with recommendations for the future of the Camp 43 dam. Their preferred option is to decommission the Camp 43 dam, and to replace it with a new sea lamprey barrier 50 km upstream at the outlet of Eskwanonwatin Lake, the site of the former Camp 1 dam (also known as Dolan's Dam) (Bobrowicz et al. 2010). This option would restore access to the full area of spawning habitat available in the BlackSturgeonRiver prior to the construction of the Camp 43 dam, but would minimize new production of sea lamprey in the river, resulting in an incremental increase in parasitic sea lamprey in Lake Superior.

The FMZ 9 Advisory Council recommendations were endorsed by the adjacent Fisheries Management Zone 6 (FMZ 6) Advisory Council in September 2010, and subsequently approved by the Minister of Natural Resources in January 2011. MNR completed an aboriginal engagement process between January 2011 and March 2012, which included ten affected or potentially affected First Nations and three Métis organizations. Responses from the aboriginal engagement process ranged from positive to neutral.

In April 2012, the Minister of Natural Resources directed MNR to initiate an EA process to further examine the recommendations of the FMZ 9 Advisory Council.As both sites are located within the boundaries of BlackSturgeonRiverProvincialPark, this EA will be carried out under the auspices of the Class Environmental Assessment for ProvincialParks and Conservation Reserves (MNR 2005).

Project Name and Location

The proposed project is titled "Decommissioning of the Camp 43 Dam and Construction of a Multi-purpose Sea Lamprey Barrier at Eskwanonwatin Lake". The project is located within BlackSturgeonRiverProvincialPark (waterway class), northwest of the Town of Nipigon.The Camp 43 site is located at the south end of the park, at 48°55'19"N 88°23'23"W. The Camp 1 site is located at the outlet of EskwanonwatinLake, at 49°09'04"N 88°36'43"W.

Identifying the Undertaking

The goals of the undertaking are to rehabilitate the self-sustaining native fish community of Black Bay and the Black Sturgeon River, while at the same time ensuring an effective and cost-efficient sea lamprey control program is maintained. Based on the finding that the Camp 43 dam is a barrier to rehabilitation of walleye in Black Bay (Furlong et al. 2006), in 2008 a multi-disciplinary group of stakeholders, the Fisheries Management Zone 9 Advisory Council, was charged with reviewing options and providing the Ministry of Natural Resources with recommendations for the future of the Camp 43 dam.

The FMZ 9 Advisory Committee preferred option was to decommission the Camp 43 dam, and to replace it with a new sea lamprey barrier 50 km upstream at the outlet of Eskwanonwatin Lake, the site of the former Camp 1 dam (also known as Dolan's Dam) (Bobrowicz et al. 2010). This option would restore access to the full area of spawning habitat available in the BlackSturgeonRiver prior to the construction of the Camp 43 dam, but would minimize new production of sea lamprey in the river, resulting in an incremental increase in parasitic sea lamprey in Lake Superior.

The FMZ 9 Advisory Council considered several options involving the dam over the course of their deliberations. Of these, four were considered impractical: Status quo/do nothing,Installation of a barrier at Shillabeer Creek, complete removal option, and redevelopment of Camp 43 dam for hydropower production. In addition, three other rehabilitation options that did not involve the Camp 43 dam were considered impractical: stocking, artificial spawning habitat, and regulatory and harvest controls.

FMZ 9 identified one alternative approach to their preferred option. A selective fish-passage structure, known as a trap-and-sort fishway, is described in Section 5.2 of the Project Description document.

Project description, scale and duration

The Project is comprised of four phases: access upgrades and associated infrastructure, construction of a multi-purpose sea lamprey barrier at the Camp 1 site, decommissioning of the Camp 43 dam, monitoring and construction of supplementary sea lamprey barriers on Shillabeer and Moseau Creeks if necessary. In addition, the Black Sturgeon River Park Management Plan (MNR 2004) contains several sections which pertain to the Project and which need to be amended. The park management plan amendment process will be carried out concurrently to this environmental assessment.

The Camp 1 site is accessed from Hwy. 11/17 via the Black Sturgeon Road and a 1km spur road. The Camp 43 site is accessed from Hwy. 11/17 via an unnamed road. It is anticipated that road maintenance, widening and resurfacing will be required for access by construction equipment. Infrastructure associated with the access upgrades is principally limited to aggregate pits and laydown areas.

Camp 1 is located at the outlet of EskwanonwatinLake on the main stem of the BlackSturgeonRiver and was the site of a timber crib dam until 1999, when the structure burnt in a forest fire. The Camp 1 site is currently used by recreationists for camping, fishing and white water paddling. A new multipurpose sea lamprey barrier will be built at this location to a height sufficient to prevent passage by all jumping fish species.

Camp 43 dam is located at the southern end of BlackSturgeonRiverProvincialPark. The preferred approach to decommissioning the Camp 43 dam involves the complete removal of the entire structure and naturalization of the site. The Camp 43 headpond will be drained in a stepwise fashion, and sediments will be removed from the upstream dam face as they are exposed.

Monitoring activities will be integral to the implementation of the project. Monitoring will track:

- Sea lamprey production in the BlackSturgeonRiver, Shillabeer Creek and Moseau Creek.
- Walleye migration and production in the BlackSturgeonRiver.
- Sturgeon migration and production in the BlackSturgeonRiver.
- Fish community status (including coaster brook trout) in the Black Sturgeon River, Shillabeer Creek and Moseau Creek.
- Fish community status in Black Bay.

Alternatives to the Project and alternative methods to carrying out the Project

Alternatives to the project, and alternative methods of carrying out the project should be considered under the ProvincialParks and Conservation Reserves Class Environmental Assessment. Where no alternatives are being considered, an explanation should be provided. The Class EA also allows for projects to be scoped within the context of previous

planning efforts that identified this specific project need. In the instance of Black Bay, a significant amount of public and inter-agency analysis of options and alternatives has been carried out and documented to date (Bobrowicz 2010; Bobrowicz et al. 2010). As such, the MNR is limiting the alternatives to those that were endorsed by both Fisheries Management Advisory Councils 6 and 9, and the Minister of Natural Resources.

Of the five options considered by the FMZ 9 Advisory Council, only one was recommended as a potential alternative to the preferred option: a trap and sort fishway.

Perhaps the most critical consideration in the evaluation of the trap-and-sort alternative is that it relies on manual sorting in order to operate the facility. A trap-and-sort facility will need to be staffed in perpetuity in order to be successful. If, at any time in the future, funding to staff this facility cannot be assured, it will cease to function. For this reason, the trap-and-sort option cannot fully address the objective of rehabilitation of self-sustaining native fish populations.

Further, the high costs associated with designing, constructing, operating and maintaining the fishway in perpetuity (Bobrowicz 2010; Smyth et al. in press) combined with the challenge associated with achieving the appropriate magnitude of fish passage to facilitate rehabilitation (Smyth et al. in press) make this option untenable.

Alternative methods of carrying on the project were considered for all components of the project. None warrant further consideration during the EA.

Preliminary evaluation: cost, feasibility, effectiveness

Preliminary cost estimate for the project, including the Environmental Assessment, construction of the new barrier and decommissioning of Camp 43, but not including post-decommissioning monitoring or the possibility of sea lamprey barriers on Shillabeer and Moseau Creeks, is $4.5 million.

Dam decommissioning and sea lamprey barrier construction are common engineering undertakings in North America. Hydrological assessment of the Camp 1 site is being undertaken as part of this environmental assessment in order to help determine the suitability of the sites.

The effectiveness of the project and of the alternatives to the project are summarized in the Options Evaluation Document (Bobrowicz 2010). In short, the project is expected to have the following effects in the long term (decades):

- An additional 50 kilometres of riverine habitat will become available to walleye, sturgeon, coaster brook trout and other native migratory species. It is recognized that to achieve long term rehabilitation, other related management actions may be necessary; these management actions are outside of the scope of this EA.
- Rehabilitation of the lake sturgeon population in BlackBay is numerically unquantifiable with available data. However, it is expected that access improvements for walleye will have a reciprocal benefit to sturgeon, albeit on a

longer time scale due to the protracted life history of this species.

- Decommissioning of the dam would provide access by brook trout to an additional 40 small tributaries between Camp 43 and Camp 1; the available spawning and nursery habitat in these tributaries has not been quantified.
- The restoration of walleye as the top predator in BlackBay has the potential to markedly reduce the rainbow smelt population, allowing cisco to exploit this niche and re-establish this species as the primary prey species in the bay.
- Additionally, the Camp 43 dam is nearing the end of its expected lifespan; a 2009 structural assessment estimated the longevity of the dam at 10-20 years. Decommissioning of Camp 43 eliminates the possibility of catastrophic failure of the structure at some point in the future.

Potential Effects and Appropriate Mitigation Measures

Long term potential positive effects are described above.

Potential negative effects associated with the footprint of the project are minor, as they are in previously disturbed areas. There are some potential negative impacts outside of the project footprint:

- Siltation of spawning areas downstream from construction sites, mitigated through appropriate timing windows and a stepwise approach to the decommissioning of the Camp 43 dam.
- Disturbance of the eagle nesting adjacent to the Camp 43 dam, mitigated through appropriate timing windows and identification of the nest tree to construction crews.
- Accidental spills of fuel and other chemicals associated with the operation of heavy machinery, mitigated by minimizing work in water, establishing a fuelling site away from the river, and establishment of a spill management plan.
- Production of sea lamprey in Shillabeer and Moseau Creeks, mitigated through post-decommissioning monitoring and, if necessary and appropriate, subsequent construction of sea lamprey barriers on these tributaries.
- Production of sea lamprey in the Black Sturgeon River, mitigated through post-decommissioning monitoring in the river (larval surveys) and Lake Superior (fish wounding rates), and enhancement of the sea lamprey control program in the Black Sturgeon River.
- Expansion of aquatic invasive species and Pacific salmonids, mitigated through appropriate design of the new Camp 1 barrier.
- TFM impacts to northern brook lamprey. Included in monitoring strategy. Likely no mitigation possible.
- Increased use of Camp 1 and Camp 43 sites,mitigated through Park Management Plan (e.g. zoning) and recreational angling regulatory controls.
- Changes to the hydraulic function of the river will be explored through hydrological modelling which will be available at the draft environmental study report stage of the class EA.

Legislative and Policy Details

Management of the fisheries in BlackBay and the lower BlackSturgeonRiver, the river above Camp 43, the dam and its surrounding lands, is a complex issue crossing many provincial and federal jurisdictions. The governments of Ontario and Canada have numerous legal and policy commitments which will affect the application of the preferred option.