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BLACK STURGEON LAKES PROPOSED SUBDIVISION FISH HABITAT ASSESSMENT

SEPTEMBER 2008

Submitted to assist in meeting the fisheries requirements of the application for subdivision placed forth by Bill Scurfield to the City of Kenora for lots 1, 7, and 9 on property located on Lower Black Sturgeon Lake.

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Introduction

This fisheries assessment has been submitted to meet the fisheries requirements for the application placed forth by Bill Scurfield to the City of Kenora for proposed lots #1, 7, and 9 located on Black Sturgeon Lakes. Ryan Haines (Natural Resource Consultant) was contracted by Mr. Scurfield to conduct the fisheries assessment on these lots to supplement the Fish Habitat Assessment conducted by DST Consultants submitted in July, 2007 (DST File #OE-KN-006875). The purpose of this fish habitat assessment is to take an intensive look at both the shoreline and substrate beneath the water and propose appropriate shoreline development locations to minimize any impact on potential critical fish spawning habitat.

Site Location

The location of the proposed subdivision lots is on the eastern shore of Lower Black Sturgeon Lake. The lots examined in this study are based upon the proposed layout of nineteen (19) waterfront lots by Ross M. Johnson Surveying LTD. (2006). The prevailing winds for the area in May and June are from the south (Environment Canada).

Methodology

The field assessment was conducted on August 30, 2008. This assessment consisted of both an aquatic and a terrestrial component.

The terrestrial component involved documentation of tree species, maturity and canopy cover for the first 20 meters (m) inland from the high-water mark. Relative soil depths and substrate characteristics were also noted. Site photographs were taken with a digital camera from the water.

The aquatic assessment was conducted from a 19-foot boat with a Vexilar FL-18 Flasher on the bow and an Eagle Cuda sonar unit on the stern to determine depths. An underwater camera (Aqua Vu Scout) was also utilized to observe and record the substrate composition and potential fisheries values. An electric motor was used to maneuver the boat and camera from the edge of the shore to a minimum depth of 2 m. Substrate composition, slope of lake bottom, and potential fisheries values were recorded for the length of shoreline on each lot. Snorkeling was conducted along the entire length of proposed lots 7 and 9 to conduct a more detailed examination of substrate composition. Fisheries values were identified for habitat requirements, particularly spawning habitat, of walleye (*Stizostedion vitreum vitreum*), white sucker (*Catostomus commersoni*), northern pike (*Esox lucius*), smallmouth bass (*Micropterus dolomieu*), largemouth bass (*Micropterus salmoides*) and lake whitefish (*Coregonus clupeaformis*).

Lot #1

Riparian – Open canopy with mature white pine, spruce and jack pine. Immature white birch, spruce and balsam fir also present. Understory has juniper bushes present.

Shoreline – Bedrock dominated with steep slope of 5 m to 20 m high cliffs along majority of lot.

Fish Habitat – The entire lot has a gradual drop off with depths of less than 1 m extending out for greater than 10 m from shore.

For the southeastern 20 m of the lot, the substrate for the initial 2 to 5 m from the water's edge is dominated by multiple layers of small to medium-sized rocks interspersed with large chunks of bedrock. The beyond the multiple layers of rock is a silt and sand bottom with aquatic vegetation dominated by rushes with small pockets of lily pads extending out to approximately 15 m from the shoreline (Figure 3).

For the remaining northwestern portion of the proposed lot, the aquatic vegetation is progressively more dense and diverse proceeding to the lot 1/lot 2 boundary (Figure 4). Aquatic vegetation along this section comprises of bulrushes (cattails), floating pond weed, wild celery, and lily pads with the vegetation density the greatest adjacent to the shoreline. The emergent aquatic vegetation is present to approximately 20 to 30 m from the shore, beyond which broad-leaved submergent macrophytes dominate.

Discussion - The 20 m along the southeastern edge of the proposed lot #1 is dominated by a moderate density of rushes on a sand and silt substrate. It is felt that this area would not have adequate submerged aquatic vegetation present during the early spring to constitute significant northern pike spawning habitat. The southeastern 20 m of lot #1 has low potential for northern pike spawning activity.

The remaining northwestern section of the lot has the diversity and density of aquatic vegetation present to provide for adequate spawning habitat for northern pike. Therefore, it is felt that the northwestern portion of proposed lot #1 has high potential for northern pike spawning activity. The multiple-layered rocks located along the eastern end of the lot have the physical characteristics of walleye, whitefish and white sucker spawning habitat. However, due to the lack of significant fetch, this area will not have adequate wave action to adequately oxygenate gestating eggs. Therefore, this section has low potential for walleye, white sucker and whitefish critical spawning habitat.



Figure 1 -View of Lot #1 from the water



Figure 2 – View of Lot #1 from east boundary looking west



Figure 3 – Looking south from lot #1 east boundary



Figure 4 – Looking south from lot #1 west boundary

Lot #7

Riparian – Moderate canopy cover with tree species dominated by mature spruce with some white birch. Juniper bushes present in the understory.

Shoreline – Gradual slope dominated by bedrock and large boulders.

Fish Habitat – The 20 m at the southern edge of the lot is dominated by slab bedrock adjacent to the shore, with sections of multiple layers of small to medium-sized rocks (Figure 6).

The remaining 30 m on the northern portion of the lot is dominated by a sand/silt substrate (Figure 7) with sections of submergent macrophytes (Figure 8), sections of scattered medium-sized rocks, and sections of a single layer of small to medium-sized rocks. Young-of-the-year fish and minnows were present in abundance in the macrophytes along this section.

Discussion – The southern 20 m of lot #7 has all of the physical characteristics of walleye, whitefish, and white sucker spawning habitat. The site has a significant fetch to the south and west to provide for adequate wind and wave action to oxygenate gestating eggs. Therefore, it is felt that the southern 20 m of lot #7 is high potential spawning habitat for walleye, white sucker and lake whitefish.

The remaining northern portion of lot #7 does not have the quality or quantity of suitable substrate to constitute significant spawning habitat. Therefore, lot #7 has low potential for spawning habitat. The presence of young-of-the-year and/or minnows along this section indicate that this section is rearing habitat for some fish species.



Figure 5 – View of Lot #7 from the water

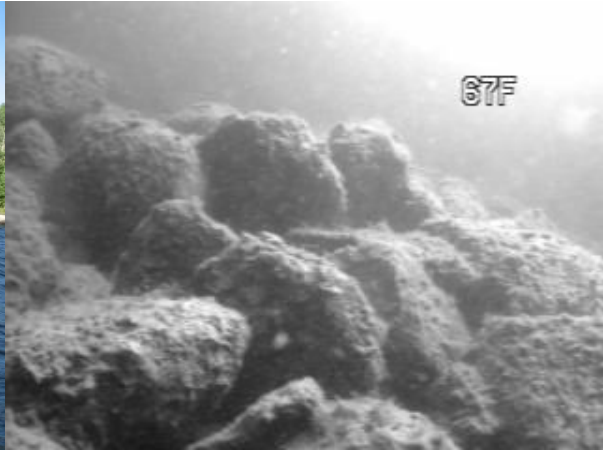


Figure 6 – Substrate along southern end of Lot #7

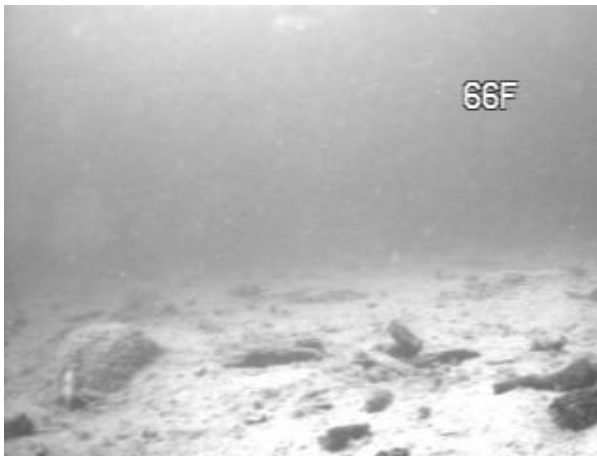


Figure 7 – Sand/silt substrate northern end of Lot #7



Figure 8 – Submergent macrophytes northern end of Lot #7

Lot #9

Riparian – Moderate canopy cover with mature balsam fir, spruce and white birch. The understory is dominated by deciduous shrubs and juniper bushes.

Shoreline – Dominated by large boulders with sections of bedrock. Proposed lot has a moderate to gradual profile.

Fish Habitat – The 5 m on the southeastern end of lot 9 adjacent to the lot 8/9 boundary is dominated by a single layer of scattered small to large rocks on a sand/silt base with scattered submergent macrophytes (Figure 10). For the 5 to 15 m to the northwest of the lot 8/9 boundary, the substrate is dominated by a bedrock point surrounded by a single layer of interspersed rock on a sand/silt base. The remainder of lot #9 is dominated by sections of multiple layers of small to medium-sized rocks (Figure 11) interspersed with large boulders, sections of medium to large rock (Figure 12), and small sections of a single layer of small to medium-sized rock on a sand base. Despite the mixing of these substrate types, the multiple layers of small to medium-sized rocks pervades throughout the northwestern portion of the lot.

Discussion – The southeastern 15 m is dominated by bedrock and a single layer of rock on a sand/silt base. Both of these substrate types lack sufficient cracks and crevices to constitute significant spawning habitat for walleye, lake whitefish, and white sucker. Therefore, this section has low potential for critical fish spawning habitat.

The remaining northwestern portion of lot #9 has multiple layers of small to medium-sized rocks present throughout. This substrate has the physical characteristics of walleye, lake whitefish, and white sucker spawning habitat. The southwestern facing profile of lot #9, in addition to the significant fetch to the south and west, indicate that this section will have sufficient wind and wave action to oxygenate gestating eggs. Therefore, it is felt that this northwestern portion of lot #9 has high potential for critical spawning habitat for walleye, lake whitefish, and white sucker.



Figure 9 – View of lot #9 from the water



Figure 10 – Southeast end of lot #9

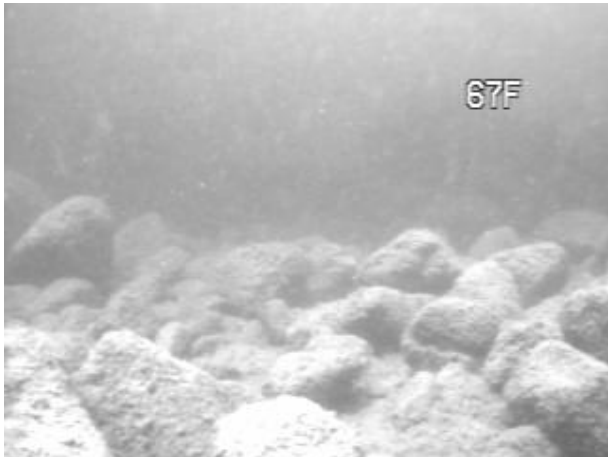


Figure 11 – NW Lot #9 -Multiple layers of small to medium-sized rocks

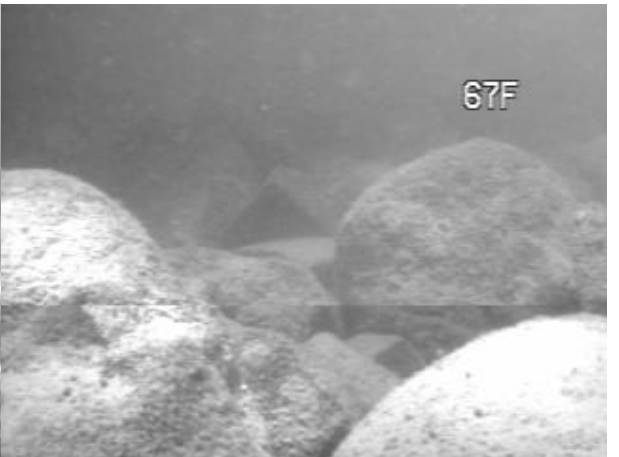


Figure 12 – NW Lot #9-Sections of large to medium-sized rocks

Overview and Recommendations

Lot # 1 was found to have high potential northern pike spawning habitat along the majority of the shoreline. The 20 m on the extreme southeast end of the lot was the exception, lacking sufficient aquatic vegetation to constitute high potential spawning habitat. Therefore, it is recommended that shoreline development be permitted only on the 10 m adjacent to the southeastern edge of lot #1 (Figure 13). The designated area is 10 m, and not 20 m, to account for boat movement and other activities along the northwestern side of any shoreline development. This 10 m buffer from identified critical habitat will help to ensure that any impacts of development on the habitat will be minimized. It is also recommended that best management practices for shoreline development are followed and that no dredging or aquatic plant removal take place along this lot to ensure that any impact upon the aquatic habitat is minimized.

Lot #7 was found to have high potential walleye, whitefish and white sucker spawning habitat along the southern 20 m of the lot. Therefore, it is recommended that there be no shoreline development along the southern 20 m of lot #7. The remainder of lot #7 was found to be absent of any significant spawning habitat. There were young-of-the-year fish and/or minnows present in the aquatic vegetation along this northern portion of lot #7. However, these small fish will not likely be adversely impacted by shoreline development, and may actually benefit from the additional cover provided by structures along the shore. Therefore, it is felt that shoreline development may occur along the northern portion of lot #7 (Figure 14) without adversely impacting upon critical fish habitat. It is recommended that best management practices for shoreline development are followed and that no aquatic plant removal take place along this lot to ensure that any impacts upon the aquatic habitat is minimized.

Lot #9 was found to have high potential walleye, whitefish, and white sucker spawning habitat along the majority of the shoreline. The exception was the 15 m on the extreme southeastern end of the lot, which lacked the appropriate substrate for high potential spawning habitat. Therefore, it is recommended, with the exception of the extreme southeastern 15 m, that there be no shoreline development along lot #9. Development along this area must take place in a manner so as to not interfere with the ability of wind and waves to act upon the identified spawning habitat to the northwest. It is felt that shoreline development may occur on the southeastern end of lot #9 (Figure 15) without adversely impacting upon identified potential critical fish habitat providing it meets the following requirements:

- the southeast corner of the dock must be located between 3 and 4 m from the lot #8/lot #9 boundary and;
- the dock must extend out from the shoreline in a northeast/southwest orientation parallel to the property line and;

- the dock must not exceed 3 m in width and must not extend more than 10 m from the high water mark.

If a dock is constructed in this manner, any impacts on identified fish spawning habitat should be minimized.





References

Environment Canada -

http://www.climate.weatheroffice.ec.gc.ca/climate_normals/results_e.html?Province=ALL&StationName=kenora&SearchType=BeginsWith&LocateBy=Province&Proximity=25&ProximityFrom=City&StationNumber=&IDType=MSC&CityName=&ParkName=&LatitudeDegrees=&LatitudeMinutes=&LongitudeDegrees=&LongitudeMinutes=&NormalsClass=A&SelNormals=&StnId=3960&&autofwd=1

Farrar, John Laird. 1997. Trees in Canada. Fitzhenry and Whiteside Limited. Markham, ON.

Scott, W.B. and E.J. Crossman. 1973. Freshwater Fishes of Canada. Bull. Fish. Res. Board. Can. No. 184