

Section 6.0 - Biodiversity

Section 6.4 - Fisheries Resources of the La Salle River Watershed (Source: Manitoba Water Stewardship)

Background:

Fishery resources are being impacted to various degrees by human activities and natural occurrences in all agro-Manitoba watersheds and the La Salle River watershed is no exception. The watershed itself is fairly void of major fish barring waterways with the exception of the La Salle River in particular the reach of the La Salle River from the Red River to the first dam located at La Barriere Park. Other waterways such as the Morris River, Elm and Meakin Creek as well as a number of drains (12) that have been investigated recently by the Department of Fisheries and Oceans (during the spring freshet) indicated the presence of a few fish species that can tolerate relatively poor aquatic habitat conditions.

Historical fishery/stream inventory data in combination with recent stream and drain inventory assessments provide a snapshot of the state of the fisheries in this watershed. In particular, the 2006 La Salle River Watershed Assessment Survey report, which was funded by the Fisheries Enhancement Initiative and coordinated by the La Salle Redboine Conservation District, provided some current information on a number of parameters affecting the health of the watershed and provides some possible mitigation solutions.

Existing Fishery Resources Conditions:

The La Salle River is the main fish barring water course found in the watershed. The majority of other waterways in this watershed are constructed drains with the exception of the Morris River and Elm and Meakin creeks. The La Salle River, being a tributary of the Red River, has the potential for numerous Red River fish species to inhabit the river in particularly lower reaches near the mouth of the river. Past fishery investigations documented in the Fisheries Inventory and Habitat Classification System (FIHCS) as well as the recent 2005 La Salle River Watershed Assessment Survey have identified 33 species in the La Salle River (bigmouth buffalo, black bullhead, black crappie, black nose dace, brown bullhead, blue gill, brook stickleback, burbot, channel cat, common shiner, creek chub, carp, central mudminnow, emerald shiner, fathead minnow, freshwater drum, northern pike, goldeye, johnny darter, quillback sucker, river darter, river shiner, rock bass, sauger, spotfin shiner, tadpole madtom, shorthead redhorse sucker, silver chub, silver redhorse sucker, walleye, white bass, white sucker, yellow perch.). It should be noted that the majority of the above species were caught in lower reaches of the river near the Red River. The bigmouth buffalo and the silver chub which are present in the river are presently listed as special concern under the federal Species at Risk Act.

During high spring freshet years, fish runs from the Red River are able to pass over a number of dams along the river (for a short period of time) and access upper reaches of the system. During low or normal spring flow years fish passage over the dams is restricted.

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Actual fish utilization of the La Salle River during the summer months in mid and upper reaches of the river appears to be limited to mostly fish species that can survive in poor habitat conditions (bullheads, sticklebacks, suckers, fathead minnows, central mudminnows, carp). The aquatic habitat in these reaches of the river are impacted by water withdrawals, excessive nutrient loading into the river, and the series of low head dams. Results from winter oxygen monitoring conducted by Fisheries Branch in 1992 along the mid and upper reaches of the river (behind the eight dams along the system) showed evidence of anoxic conditions at all sites that would result in fish kills. In contrast, fish species diversification is much greater in lower reaches of the river in proximity to the Red River.

Recent fishery inventories implemented in the spring on other waterways and drains in the watershed (Elm Creek, Morris River, Meakin Creek, King, Barnland, Boundary, Coder, Domain, Franzman, Kelvin, Kirk, Manness, Oak Bluff, 11-A drains and Scott Coulee) indicate the presence of a few tolerant fish species (brook stickleback, fathead minnow, central mudminnow, bullheads, sucker, carp). The vast majority of these waterways would be unsuitable for fish species beyond the summer months due to lack of water to sustain fish presence.

Issues/areas of concern:

As presented in the 2006 La Salle River Watershed Assessment Survey report, the La Salle River Watershed illustrates an area that is highly impacted by anthropogenic influences. The aquatic and fishery health of the La Salle River is being greatly impacted by excessive nutrient loading from agricultural, municipal, and residential sources. Furthermore, degraded riparian buffer zones along the river and associated drainage network reduces the buffering of nutrient and sediment loading into the river from upslope sources. Reduced flow in the river due to water withdrawals for domestic and irrigation purposes also greatly reduces the quality of aquatic habitat for fish species. Several fish migration blockages have been identified along the river and historical information indicates low oxygen levels and subsequent winter kill conditions occur within mid and upper reaches of the river. Similarly, other waterways in the watershed are impacted and are generally only suitable for some fish species during the spring freshet period.

Data Gaps/Future Considerations:

Further winter oxygen readings should be done along the La Salle River at sites sampled in 1992 to determine the current extent of winter kill conditions. This work should be done in mid February.

Management Recommendations:

Follow the recommendations of the 2006 La Salle River Watershed Assessment Survey Report. As far as fishery concerns in the La Salle River, it would be essential to address water quality and quantity issues along the river prior to addressing fish passage issues.

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Water quality and quantity problems would have to be improved along the river system in order to sustain fish presence in through out the year.

Summary of La Salle River Watershed Assessment Survey – With Emphasis on La Salle River, Elm River, Elm Creek, Channel, and the King Drain – 2005. (N/S)

La Salle River:

Physical and Hydrological Information:

- Low gradient stream running primarily through agricultural land.
- Variable water depths, greater than 1 meter at center channel.
- Commencing in the 1940's series of 8 provincially owned dams were constructed along the La Salle River by PFRA. Three of these dams (located at St. Norbert, Elie, and Sanford) are considered stop-log dams. – remaining are fixed crest.
- This succession of dams has changed the riverine habitat of the La Salle River to a series of impoundments which have filled with sediment and blocked fish movement.
- Low head dams, flow augmentation and irrigation play a significant part in the flow regime of the La Salle River. To provide adequate flow for domestic consumption, livestock watering and irrigation, flows of the La Salle River are augmented (0.70 m³/sec) with water drawn from the Assiniboine River (pumping station).
- There are three active pumping sites on the La Salle River (run late April/May to end of October)
- Significant irrigation withdrawals also significant water withdrawals for domestic consumption from RM of MacDonald plant located in Stanford --- servicing Sanford, Starbuck, Oakbluff, La Salle, and Brunkild.

Water Quality:

- Water from La Salle is used for a number of purposes including recreation, municipal water supply, livestock watering, and irrigation.
- Lots of water quality data available including current -- indicates a system that is stressed primarily due to point/non point anthropogenic inputs (cultivation, livestock operations, wastewater lagoon discharge, recreational sites, urban storm water drains, landscape and soils). Water quality results suggest that anthropogenic loading to the La Salle River has increased substantially over the last 25 years. In 2001, the La Salle River accounted for 1.5% of TN and 1.3% of TP in the Red River. – a eutrophic system.
- As a result heavy weed growth and duck weed growth along the river--- poor water quality.
- From study data – water quality parameters measures – dissolved oxygen met or exceeded the MB guidelines, for the protection of cool-water aquatic life in the open water season. Oxygen may decline at nights due to the amount of vegetation.

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Also a problem in winter were oxygen levels of 0.4 to 202 ppm have been recorded.

Fish Species Presence:

- As a tributary of the Red River, there is a potential for numerous Red River species to inhabit the La Salle . Most species are found in the lower reach up to the dam at Laberiere Park (blockage to fish passage except for extreme high spring flow years).
- FIHCS lists 13 fish species 3 species are special concern – listed by COSEWIC – bigmouth buffalo, silver chub, chestnut lamprey.
- Actual fish utilization of the La Salle River is restricted due to habitat suitability, water quantity and a series of low head dams that restrict movement up from the Red River. Studies on the lower reaches of the La Salle in close proximity to the Red River showed use by numerous species. See table 8. and Table 9. for NS spring and summer catches for La Salle River, King Drain, and Elm Creek
- For this study – 118 fish were caught in the La Salle River in the spring (spring spawners) pike, sucker species, carp, bullheads found through out La Salle. Five fish captured in King Drain (pike, sucker), – no fish in Elm Creek Drain. Summer catches --- 148 fish captured in La Salle River watershed --- majority were carp (66), brook stickleback (28) fathead minnow (n=25) and 1 central mudminnow. YOY carp were captured in King Drain (18).

Benthic Invertebrates:

- Macro- invertebrates collected by Collin Hughes from 1995 to 1997 indicated the biological condition of the La Salle River was moderately impaired. However in 1998 collections indicated moderately to severely impaired. Samples taken by North South showed similar results.

Aquatic Habitat Conditions (La Salle Watershed):

- 36% highly impacted, 35% moderately impacted, 25 % severely impacted, minimally impacted 3%

La Salle River Aquatic Habitat Conditions:

- Highly impacted – 44%, moderately impacted – 43%, severely impacted -10%, minimally impacted areas – 4%.

Elm River Aquatic Habitat Conditions:

- Severely impacted – 38%, highly impacted - 35%, moderately impacted – 24%, and minimally impacted areas – 4%.

Domain, Elm Creek, King, and Maness drains – Habitat Conditions:

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- Nearly the entire habitat rated was severely impacted.

Note: Drains in the areas are impacting aquatic habitat and water quality.

Potential Barriers in the watershed:

- A total of 75 potential barriers to fish movement were identified through out the La Salle Watershed (fig 16 appendixes 6 of the report). Sixty-one percent of these (46) were considered to be anthropogenic in origin (ford crossings, culverts, low head dams.), while remaining 39% were associated with natural occurring debris.

Potential Rehabilitation Sites – 119 sites identified in the report