

Fisheries

The department has reviewed the IWMP request, and shares the same objective of recovering and maintaining the integrity of the Carrot – Saskatchewan River Watershed.

The department has become increasingly aware of organizations and agencies moving towards managing water quality by means of a watershed approach. This approach will evidently include stakeholder involvement and management support in providing traditional knowledge and science technology based information.

Efforts for the development of an IWMP and our understanding of this plan are to achieve an objective that provides assessment and management of information, which would include the analyses, actions, and participant implementation.

What are the effects of water fluctuations?

Our concerns similar to public observations are surface water fluctuations. In particular, low flows in areas that exacerbate the effects of water pollution normally associated with control structures that are no longer operational. Stagnating water bodies is not the fundamental sound method by which the concentrations of contaminants are reduced. Development and implementation of criteria from technical data and scientific based recommendations needs to be in place to protect these water bodies.

What are the improvements required on water bodies for domestic, commercial and sport fishing?

We concur with the issues that were put forward from participants at your public meetings to decommission or at least provide proper maintenance of control structures in the Carrot - Saskatchewan River Watershed. Once a water body is contaminated, remediation becomes time consuming and costly. The best method for decontamination or dilution in any water body is to let nature take its course and flush out areas that have been stagnated for years. Numerous benefits can be obtained by cleaner water. The lakes that have control structures and plugs presently and would recommend being suitable for rehabilitation are listed below:

- Red Earth Lake
- Driftwood Lake
- Traders Lake
- Red Rock Lake

How can water shed stake holders improve recreational fishing?

An extensive program of drain construction, stream channelization, and diversion of the Pasquia River and Carrot River for agricultural land development resulted in the following drainage alteration:

- Altered flows- Carrot River
- Shortened natural streams- Pasquia River
- Channel erosion- Carrot River
- Eliminated aquatic habitats – Pasquia River

In regards to the industrial and agricultural development upriver, there is a need for monitoring and enforcement of the Total Maximum Daily Load - TMDL allocated to a point source of a pollutant. This must be established to ensure that this watershed will attain and maintain water quality standards. Locally, the following livestock site management practices for upstream farmers are:

- Surface runoff - manure, fertilizers etc.
- Seepage - dugouts

- Erosion - high and low water
- Animal access - rivers edge
- Riparian zones – forage

Are there any concerns of invasive species in the Water shed?

In the 1990's, Rainbow smelt (*Osmerus mordax*) were first verified in Manitoba in the South basin of Lake Winnipeg and a year later they were found in the North Basin. Rainbow smelt moved down river into the Upper Nelson and has been captured in Split Lake and Stephens' Lake. Smelt has been noted in Long Spruce and Limestone forebays and into the Hudson Bay drainage basin. Case studies indicate the species is present in several Manitoba water bodies. The only barrier restricting Smelt from entering our water system is the Grand Rapids hydro electric dam.

Commercial fishers from Chemawawin and Mosakahiken communities that fish Cedar and Moose Lake are bearing in mind the benefits of rainbow smelt in Lake Winnipeg which has increased walleye populations and have generated exceptional harvest and revenue. Some fishers have asked the department to stock the water bodies in the Northwest Region so they can benefit as well.

A 2013 bulletin reported that adult zebra mussels were found in Lake Winnipeg and the province is implementing rapid response protocol to prevent spread to other lakes and rivers.

Manitoba Conservation and Water Stewardship confirm that zebra mussels have been found in Manitoba waters. Mussels were recently found on the hull of a private boat, on a dock at Winnipeg Beach, and on some fishing boats dry docked at Gimli. Zebra mussels are an aquatic invasive species that multiply rapidly, affecting fish and other native aquatic species. Manitoba Conservation and Water Stewardship will continue to investigate where the species was established in Manitoba waters.

What are the effects of wild rice?

There is a potential impact of wild rice (*Zizania palustris*) on littoral invertebrates. Within the last 20 years wild rice has been seeded in a number of Lakes and Rivers in Manitoba without knowledge of its impacts. It is not well known whether these introductions have impacted the fish and invertebrate communities.

A study in 2002 and 2003 in the Northwest Region (Flin Flon) was completed and a thesis was submitted in 2006 comparing diversity, abundance, functional feeding groups, and water quality parameters. No significant differences were found in total numbers of invertebrates, families' present and overall diversity of the communities.

Reference: Mark Lowden and Karen Kidd, 2004. *Potential Impacts of Wild Rice (Zizania palustris) on Littoral Invertebrate Communities in Northwestern Manitoba.*

Introduction of wild rice annually to the Northwestern Manitoba lakes has developed into an environmental concern to regional fishery and fish managers, citing specifically the ecological effects this emergent grass may have on littoral fish populations. An exploratory survey was conducted to compare fish community compositions from a littoral bay with and another bay without wild rice in each three Canadian Shield Lakes. The most noticeable difference in fish habitat characteristics between the non rice and wild rice bays were plant communities species richness, diversity, and evenness. Dissolved oxygen was also different between the non rice and wild rice bays. Most fish species were similar in abundance in non rice and wild rice bays during the months of June and August.

Reference: *Christian Lavergne 2006, Introduced Wild Rice (Zizania palustris): Impacts to Littoral Fishes and Fish Habitat in The Northwestern Manitoba Boreal Lakes.*

Local experience and knowledge of the introduction of wild rice in this watershed is that the ecological effects on fish species and fauna in our river and lake environments have not been well planned out and documented. In the earlier stages of aquatic life it may perhaps provide cover in eluding predators, but it may also become problematic in periods of low flow in small and shallow landlocked water bodies when depletion of oxygen may occur (decomposition in winter). In combination with problem beavers it may become more of an issue in riverine environments. Dependant on water levels, wild rice will grow on the downstream side the width of the river below beaver dams. With no dams it will only grow on the river's edge leaving the middle passable for fish and boats.