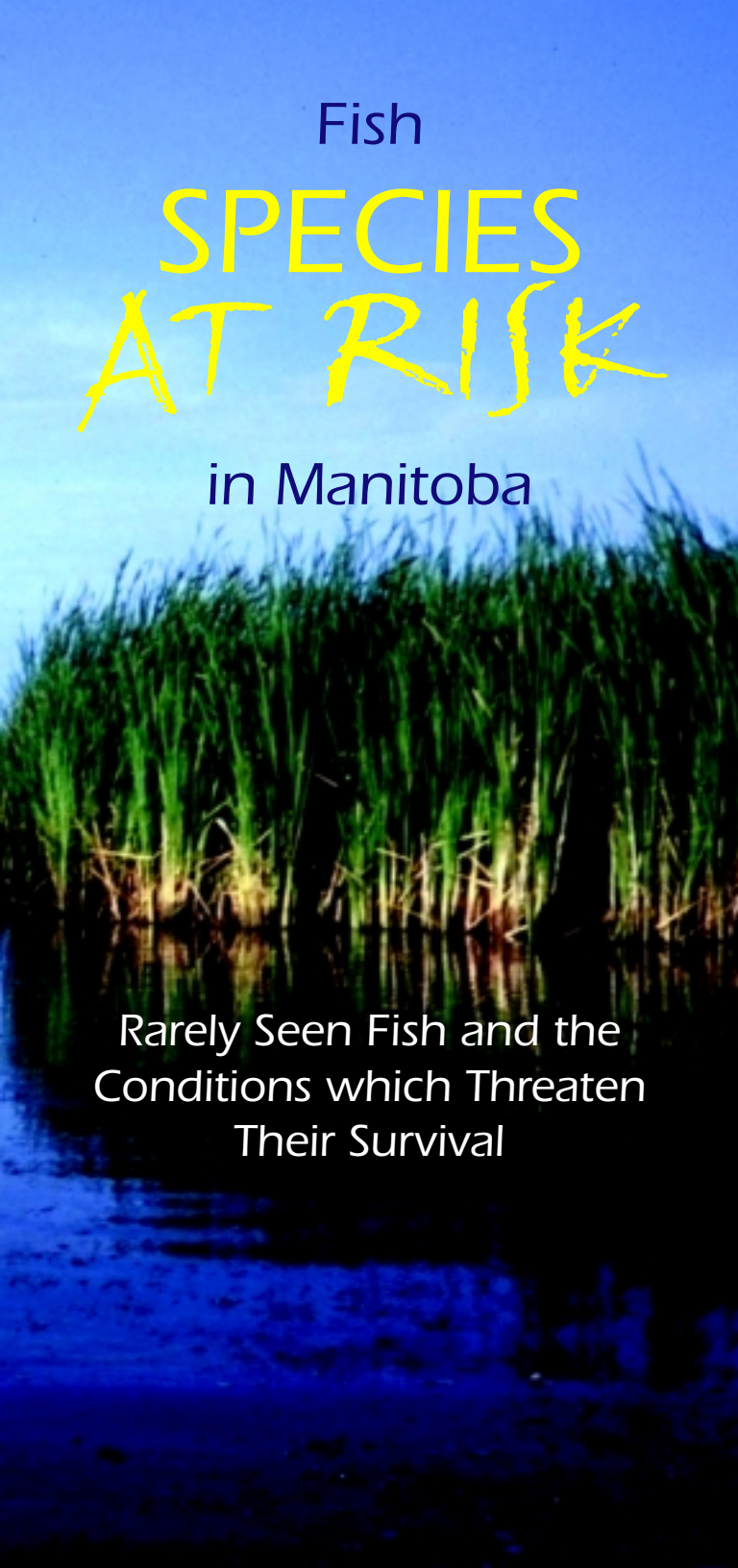
Fish SPECIES AT RISK in Manitoba



Rarely Seen Fish and the Conditions which Threaten Their Survival

Macrhybopsis storeriana

silver chub

STATUS: SPECIES OF SPECIAL CONCERN

Konrad P. Schmidt

Manitoba may be home to the only healthy and abundant population of silver chub remaining in North America. Its populations are declining in both Lake Erie and in the Upper Mississippi. It is deemed endangered in Ohio and threatened in Michigan and South Dakota.

Usually found in slow moving water over soft bottoms, the silver chub is abundant in the Red and lower Assiniboine Rivers, but rarely found in south basin Lake Winnipeg.

This minnow's diet consists largely of aquatic insect larvae and other bottom dwelling organisms. The mayfly, a pollution intolerant insect, appears to be one of its preferred preys. Caddis flies and amphipods are also important components of this chub's diet.

The silver chub has large scales, silver sides, a greyish-green back and silver-white under parts. It may grow as long as 21 cm in Manitoba and is thought to spawn in summer. Recently hatched young have been caught from the Red River south of Winnipeg in late July, however, it is unknown how or where silver chub spawn.

Silver chub can live to age 3 and may die after spawning.

Silver chub populations are adversely affected by low oxygen levels in the water and fluctuations in water temperature.

Did You Know...
The destruction of fish habitat is prohibited by the Federal Fisheries Act.

Notropis dorsalis

bigmouth shiner

STATUS: SPECIES OF SPECIAL CONCERN

Konrad P. Schmidt

Shallow gravel bottomed creeks and small rivers with fast, permanent flow and little vegetation are the most likely places to sight this silvery coloured minnow.

Growing up to 7.4 cm in length, this minnow is characterized by its triangular head, large eyes and mouth, and notable stripe along the middle of its back.

Travelling in schools, the bigmouth shiner migrates in search of food. Its diet consists largely of aquatic insect larvae but it may also eat algae.

Where studied in the United States, these fish are sexually mature at age two and die after spawning at age three. They probably spawn over gravel during the summer.

Siltation limits the amount of appropriate habitat available to this fish. High water levels during spawning may also limit reproductive success.

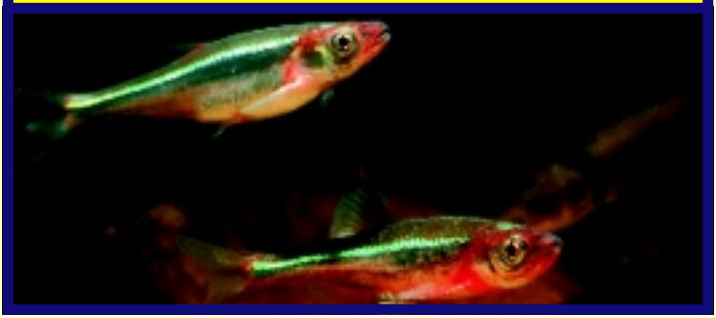
Within Canada, bigmouth shiners are known to exist only in Manitoba, where they abide in tributaries of the Red and Assiniboine Rivers as well as those of Lake Winnipegosis.

Minnows serve as important indicators of aquatic health and are the dominant food source for piscivorous fish.

Notropis rubellus

rosyface shiner

STATUS: THREATENED



Konrad P. Schmidt

The rosyface shiner and northern brook lamprey have the most limited distributions of the six fish species at risk in Manitoba. In this province both of these species are found only in the Whitemouth River watershed.

The rosyface, a graceful, slender minnow measuring up to 6 cm, is mature by age one and dead by age three. In its short life it feeds on insects, fish eggs, algae and inorganic material. It generally requires clear, fast-flowing streams with clean gravel bottoms.

As with most of the fish species at risk in Manitoba, our understanding of its spawning behaviour is derived from studies of other populations.

When the male is ready to breed it develops a bright red hue around its head and gills. This rosy coloration will remain for the rest of its life. The breeding male also develops sandpaper-like swellings on his head and body. In Wisconsin these fish were found to spawn in riffles on gravel nests built by hornyhead chubs.

Siltation and muddying of the water have brought the rosyface shiner of Ohio to the point of extirpation.

Erosion (left) & siltation threaten rosyface shiner habitat.

Ictiobus cyprinellus

bigmouth buffalo

STATUS: SPECIES OF SPECIAL CONCERN

Weighing as much as 32 kg and reaching 65 cm in length, the bigmouth buffalo is the largest of the fish species at risk in Manitoba and the largest native sucker in Canada.

A mid-water to bottom feeding sucker similar to carp in shape, the bigmouth buffalo lives in warm, large, slow-moving rivers, shallow lakes and marshes.

Both adults and juveniles require an abundance of plankton and other tiny organisms which they filter from the water and bottom material. Vegetation provides spawning habitat.

With the spring floods, the fish move into the shallow waters of small streams and marshes to spawn. Larger floods mean higher reproductive success.

Stream channelization and flood control measures limit spring flooding and thus reduce the bigmouth buffalo's opportunities to spawn. Further, siltation can smother their eggs.

Competition for habitat by the common carp (a non-native species) and by other introduced Eurasian carps, should they reach Manitoba, may have an impact on the bigmouth buffalo.

Dale Wrubleski

Bigmouth buffalo are found in the Red and Assiniboine River watersheds and less commonly in Delta Marsh (above).

Ichthyomyzon fossor

northern brook lamprey

STATUS: SPECIES OF SPECIAL CONCERN

Konrad P. Schmidt

The northern brook lamprey eats the last meal of its life before it becomes an adult. Its digestive system degenerates as it matures and it is then incapable of eating.

For the first 5-7 years of its life the northern brook lamprey larva generally remains hidden in its burrow in shallow waters along the edges of sand-silt bottomed streams. It can swim short distances to new locations and may do so especially if the substrate is disturbed or if food becomes scarce. The larval lamprey filter-feeds on algae, plankton and protozoa.

This fish transforms into an adult in the autumn of its sixth year and remains in its burrow as it sexually matures over winter. A final year larva measures up to 11.7 cm. When it emerges in spring as an adult it is up to .5 cm shorter, its eyesight is better, and it is ready to spawn and then die.

In Manitoba the lamprey abides in the Whitemouth River watershed.

Although the northern brook lamprey can undergo long periods of starvation, it is harmed by some changes to its environment. Low water levels threaten the juvenile lampreys in their burrows and pollution and siltation reduce spawning success.

Descended from some of the most ancient vertebrates known - the extinct jawless fishes whose fossil record dates from the late Ordovician period - lampreys play an important role in the biodiversity of Manitoba's fresh waters.

Ichthyomyzon castaneus

chestnut lamprey

STATUS: SPECIES OF SPECIAL CONCERN

Konrad P. Schmidt

This olive colored lamprey is a parasite for only the last year of its life. As a larva its life is spent burrowed in the sand-mud substrate of fast flowing streams and rivers where it filter-feeds on algae, plankton and protozoa.

At age 5-7 the lamprey transforms into its adult form and emerges from its burrow to feed on other fish. As an adult it can grow to a length of up to 28.2 cm. Although parasitic, this small lamprey rarely kills its host.

When sexually mature these fish migrate to gravel beds to spawn. Schools of lampreys construct nests with their oral disks and bury their eggs in gravel. The adults die after spawning.

The chestnut lamprey is found in most streams and lakes in southern Manitoba.

The chestnut lamprey faces a number of threats: dams, locks, and stream crossings inhibit its spawning migration; siltation degrades its spawning habitat; eutrophication can kill the larvae; and toxic pollution can kill both larvae and adults.

Konrad P. Schmidt

Latching onto a fish's body with its oral disk, this lamprey slowly consumes the body fluids & muscles of its prey, but rarely kills it.

Habitat Threats

Chemical & Heat Pollution

Pesticides from agriculture and urban centres enter aquatic systems where they can kill the fish and the plants, insects and aquatic organisms that are essential to the fish's diet.

Mining operations, pulp and paper mills and other manufacturing facilities release chemical or heated effluents into nearby water systems. Warmer water not only contains less oxygen but increases the fishes' need for more oxygen.

Erosion & Siltation

Running water erodes land and carries the sediment downstream. When the flow slows the fine sediment is deposited onto the bottom - a process known as siltation.

Erosion and siltation are natural processes which are accelerated by human activities that increase water speed, disturb soil or remove vegetation.

Excessive siltation can smother eggs and hamper reproductive success. So much sediment is entering Manitoba's waters that this may be the most significant threat to its fish.

Nutrient Pollution

It is normal for water bodies to become more rich in nutrients over thousands of years - a process termed eutrophication. However, it is the human induced, accelerated eutrophication that causes serious problems for aquatic life forms.

Fertilizers, manure, detergents and human waste which seep into water systems from agricultural fields, cottages, urban yards and inadequate sewage systems add nutrients to the water. An excess of nutrients (especially phosphorus) causes algae to grow in proliferation.

The resulting algal bloom becomes a problem when the algae crowd themselves out of food and space and then die. The decomposition of the dead algae uses up oxygen, essentially suffocating fish and other aquatic life. In addition, hydrogen sulfide - a chemical produced during anaerobic decomposition - can reach toxic levels.

Habitat Threats

continued...

Stream Channelization

These streams move water downstream faster than normal and as a result they may cease to flow later in the year.

While channelization of streams to move water away quickly is seen as a benefit to some land management practices, instream features such as bends, riffles and pools, which provide diverse habitat for aquatic organisms are removed.

The stream bank vegetation is also removed. These trees, shrubs and plants are necessary to filter runoff, stabilize stream banks, minimize erosion, and provide habitat, including food and shade for fish.

Water Control Structures

Poorly set culverts and ford crossings, low head dams, and weirs are examples of fish barriers. These barriers, common throughout southern Manitoba, reduce fish access to spawning, feeding, and overwintering habitats. They do this by either completely blocking fish passage or by increasing water velocities beyond the fish's swimming capability with no provision for fish passage facilities.

Large dams not only block fish passage, but can alternately flood and drain fish habitat behind the dam. The natural release of toxic chemicals such as mercury can be accelerated as water erodes the flooded land.

Six Fish Species in Manitoba are At Risk!

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) has identified six fish species in Manitoba which are at risk.

COSEWIC evaluates 'at risk' species using the most accurate scientific evidence, and community and traditional aboriginal knowledge. Risk categories are then assigned as follows:

- **Extinct** - the species no longer exists.
- **Extirpated** - the species no longer exists in the wild in Canada but occurs elsewhere.
- **Endangered** - the species is facing imminent extirpation or extinction.
- **Threatened** - the species is likely to become endangered if limiting factors are not reversed.
- **Special Concern** - the species has characteristics that make it particularly sensitive to human activities or natural events.

The Proposed Species At Risk Act

Under the proposed Species at Risk Act (SARA) COSEWIC will be legally responsible for the production of a nationwide endangered species list. The Act will be used with the COSEWIC list to protect and recover Canada's at risk species.

Canada's Habitat Stewardship Initiative

The Habitat Stewardship Initiative was created to prevent further losses of species at risk and to support activities that enhance, restore, conserve or rehabilitate their habitat.

For more information visit your local conservation data centre or the following web sites: www.speciesatrisk.gc.ca; www.cosewic.gc.ca; www.manitobafisheries.com

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