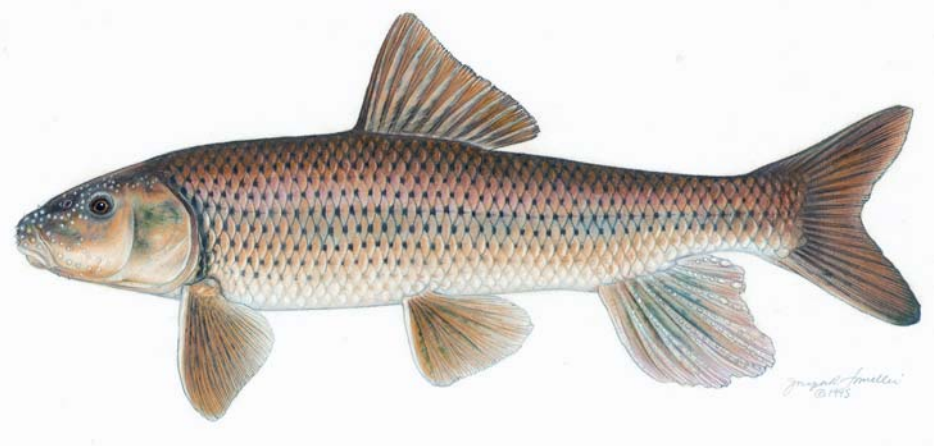
COSEWIC
Assessment and Update Status Report

on the

Spotted Sucker
Minytrema melanops

in Canada



SPECIAL CONCERN
2005

COSEWIC
COMMITTEE ON THE STATUS OF
ENDANGERED WILDLIFE
IN CANADA

COSEPAC
COMITÉ SUR LA SITUATION
DES ESPÈCES EN PÉRIL
AU CANADA

COSEWIC status reports are working documents used in assigning the status of wildlife species suspected of being at risk. This report may be cited as follows:

COSEWIC 2005. COSEWIC assessment and update status report on the spotted sucker *Minytrema melanops* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 16 pp. (www.sararegistry.gc.ca/status/status_e.cfm).

Previous report(s):

Campbell, R.R. 1994. Update COSEWIC status report on the spotted sucker *Minytrema melanops* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. 16 pp.

Parker, P. and P. McKee. 1983. COSEWIC status report on the spotted sucker *Minytrema melanops* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. 16 pp.

Production note:
COSEWIC would like to acknowledge Scott M. Reid and Nicholas E. Mandrak for writing the update status report on the spotted sucker *Minytrema melanops* prepared under contract with Environment Canada, overseen and edited by Bob Campbell, the COSEWIC Freshwater Fish Species Specialist Subcommittee Co-chair.

For additional copies contact:

COSEWIC Secretariat
c/o Canadian Wildlife Service
Environment Canada
Ottawa, ON
K1A 0H3

Tel.: (819) 997-4991 / (819) 953-3215
Fax: (819) 994-3684
E-mail: COSEWIC/COSEPAC@ec.gc.ca
http://www.cosewic.gc.ca

Également disponible en français sous le titre Évaluation et Rapport de situation du COSEPAC sur le meunier tacheté *Minytrema melanops* au Canada – Mise à jour.

Cover illustration:
Spotted sucker — Illustration by Joe Tomelleri. Used with permission from Fisheries and Oceans Canada.

Catalogue No. CW69-14/36-2005E-PDF
ISBN 0-662-40634-6
HTML: CW69-14/36-2005E-HTML
0-662-40635-4


Recycled paper

COSEWIC
Assessment Summary

Assessment Summary – May 2005

Common name
Spotted sucker

Scientific name
Minytrema melanops

Status
Special Concern

Reason for designation
This freshwater fish species is restricted to southwestern Ontario. The greatest threat to this species is habitat degradation through increased erosion and turbidity. The species is also at risk in Pennsylvania but not at risk in Michigan (where it is S3-vulnerable), making rescue effect moderate at best.

Occurrence
Ontario

Status history
Designated Special Concern in April 1983. Status re-examined and confirmed in April 1994, November 2001 and May 2005. Last assessment based on an update status report.

COSEWIC
Executive Summary

Spotted Sucker
Minytrema melanops

Species Information

A medium-sized catostomid (sucker) averaging between 230 and 380 mm in length. The dorsal surface is brown to dark green, the sides silver to bronze and the ventral surface white and silvery. Spotted suckers are distinguished from other catostomid species by the presence of 8-12 parallel rows of dark spots on the base of the scales.

Distribution

The spotted sucker is restricted to the fresh waters of central and eastern North America. In the Great Lakes basin, the spotted sucker occurs in the drainages of Lake Huron, Lake Michigan, Lake Erie and Lake St. Clair. It is also found throughout much of the Mississippi River basin and along the lower coastal plain from Texas to North Carolina. In Canada, it is restricted to the extreme southwest portion of Ontario. Less than 5% of the species' global range is found in Canada.

Habitat

The spotted sucker usually inhabits long deep pools of small to medium-sized rivers over clay, sand or gravel substrates. It has also been collected from a variety of other habitats including large rivers, oxbows and backwater areas, impoundments and small turbid creeks.

Biology

During late spring to early summer, spotted suckers spawn over clean riffle habitats. Spotted suckers in Missouri reach maturity at age 3. Descriptions of age of maturity and other demographic parameters for Canadian spotted sucker populations are lacking. Spotted suckers feed on a variety of invertebrate prey: mollusks, copepods, chironomids, and diatoms.

Population Sizes and Trends

No studies examining population size or trends have been conducted on Canadian populations. Between 1962 and 1992, 24+ spotted sucker were collected from Canadian waters. Since 1992, 67+ specimens have been collected. These collections include 4 new locations: the Canard River, Maxwell Creek (Lake St. Clair drainage), Whitebread Drain (Lake St. Clair drainage) and Bear Creek (North Sydenham River drainage).

Limiting Factors and Threats

Habitat degradation, pollution, siltation and dams are likely detrimental to the well being of the spotted sucker. In the northern portion of their range, temperature is also a probable limiting factor.

Special Significance of the Species

There is no commercial significance to the spotted sucker in Canada, nor is it an economically important forage fish. Its continued survival, along with other species at the northern edges of their ranges in Canada, is an indication of good water quality and habitat condition.

Existing Protection or Other Status Designations

The spotted sucker was recognized by COSEWIC as a vulnerable (equivalent to special concern) species in Canada in 1983 and was reconfirmed as such in 1994, and again in 2001. In Ontario, the spotted sucker was listed as vulnerable in 2000. The spotted sucker is globally secure. However, in the United States, population declines have been reported in the northern portion of its range. It is listed as a species of special concern in Kansas and Pennsylvania.

COSEWIC HISTORY

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) was created in 1977 as a result of a recommendation at the Federal-Provincial Wildlife Conference held in 1976. It arose from the need for a single, official, scientifically sound, national listing of wildlife species at risk. In 1978, COSEWIC designated its first species and produced its first list of Canadian species at risk. Species designated at meetings of the full committee are added to the list. On June 5, 2003, the *Species at Risk Act* (SARA) was proclaimed. SARA establishes COSEWIC as an advisory body ensuring that species will continue to be assessed under a rigorous and independent scientific process.

COSEWIC MANDATE

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assesses the national status of wild species, subspecies, varieties, or other designatable units that are considered to be at risk in Canada. Designations are made on native species for the following taxonomic groups: mammals, birds, reptiles, amphibians, fishes, arthropods, molluscs, vascular plants, mosses, and lichens.

COSEWIC MEMBERSHIP

COSEWIC comprises members from each provincial and territorial government wildlife agency, four federal agencies (Canadian Wildlife Service, Parks Canada Agency, Department of Fisheries and Oceans, and the Federal Biodiversity Information Partnership, chaired by the Canadian Museum of Nature), three non-government members and the co-chairs of the species specialist and the Aboriginal Traditional Knowledge subcommittees. The Committee meets to consider status reports on candidate species.

DEFINITIONS (NOVEMBER 2004)

Wildlife Species	A species, subspecies, variety, or geographically or genetically distinct population of animal, plant or other organism, other than a bacterium or virus, that is wild by nature and it is either native to Canada or has extended its range into Canada without human intervention and has been present in Canada for at least 50 years.
Extinct (X)	A wildlife species that no longer exists.
Extirpated (XT)	A wildlife species no longer existing in the wild in Canada, but occurring elsewhere.
Endangered (E)	A wildlife species facing imminent extirpation or extinction.
Threatened (T)	A wildlife species likely to become endangered if limiting factors are not reversed.
Special Concern (SC)*	A wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.
Not at Risk (NAR)**	A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.
Data Deficient (DD)***	A wildlife species for which there is inadequate information to make a direct, or indirect, assessment of its risk of extinction.

* Formerly described as “Vulnerable” from 1990 to 1999, or “Rare” prior to 1990.
** Formerly described as “Not In Any Category”, or “No Designation Required.”
*** Formerly described as “Indeterminate” from 1994 to 1999 or “ISIBD” (insufficient scientific information on which to base a designation) prior to 1994.

Environment Canada | Environnement Canada
Canadian Wildlife Service | Service canadien de la faune
Canada

The Canadian Wildlife Service, Environment Canada, provides full administrative and financial support to the COSEWIC Secretariat.

Update
COSEWIC Status Report

on the

Spotted Sucker
Minytrema melanops

in Canada

2005

TABLE OF CONTENTS

SPECIES INFORMATION 3
Name and classification 3
Description 3
Designatable units 4
DISTRIBUTION 4
Global range 4
Canadian range 4
HABITAT 4
Habitat requirements 4
Trends 6
Protection/ownership 7
BIOLOGY 7
Reproduction 7
Survival 8
Nutrition and interspecific interactions 8
POPULATION SIZES AND TRENDS 8
LIMITING FACTORS AND THREATS 9
SPECIAL SIGNIFICANCE OF THE SPECIES 10
EXISTING PROTECTION OR OTHER STATUS DESIGNATIONS 10
Canada 11
United States 11
TECHNICAL SUMMARY 12
ACKNOWLEDGEMENTS AND AUTHORITIES CONTACTED 14
LITERATURE CITED 14
BIOGRAPHICAL SUMMARY OF REPORT WRITERS 16

List of figures

Figure 1. Drawing of the spotted sucker (*Minytrema melanops*) 3
Figure 2. Global distribution of the spotted sucker (*Minytrema melanops*) 5
Figure 3. Canadian distribution of the spotted sucker (*Minytrema melanops*). 6

List of tables

Table 1. Global, American and Canadian federal, and state and provincial ranks assigned by NatureServe (2004). 10

SPECIES INFORMATION

Name and classification

Class:	Actinopterygii (ray-finned fishes)
Order:	Cypriniformes
Family	Catostomidae
Scientific name:	*Minytrema melanops* (Rafinesque, 1820)
English common name:	spotted sucker (Robins *et al*. 1991)
French common name:	meunier tacheté (Coad 1995)

Recent phylogenies of North American catostomids have consistently grouped the spotted sucker with species of the genus *Erimyzon* (Smith 1992, Harris and Mayden 2001, Harris *et al.* 2002). Harris *et al.* (2002) recommended resurrection of the Tribe: Erimyzoninim, which includes spotted sucker, lake chubsucker (*E. sucetta*), creek chubsucker (*E. oblongus*) and sharpfin chubsucker (*E. tenuis*).

Description

A medium-sized catostomid (sucker) that averages as adults between 230 and 380 mm in length. Individuals as large as 500 mm in length have also been captured. Most specimens weigh less than 1000 g, although individuals over 1300 g have been collected. Spotted suckers are distinguished from other catostomid species by the presence of 8-12 parallel rows of dark spots on the base of the scales (Dextrase et al. 2003) (Figure 1). Juvenile spotted suckers are torpedo-shaped and resemble white sucker (*Catostomus commersoni*). As they mature, spotted sucker become deep-bodied and narrow in breadth, resembling redhorse suckers (*Moxostoma* sp.) (Campbell 1994). The dorsal surface is brown to dark green, the sides silver to bronze and the ventral surface white and silvery. Breeding males have two dark lateral bands separated by a pinkish band along the midside. Tubercles are present on the snout, anal fin and both lobes of the caudal fin of males. Fewer tubercles are present around the lower cheek and eye, and on the underside of the head.

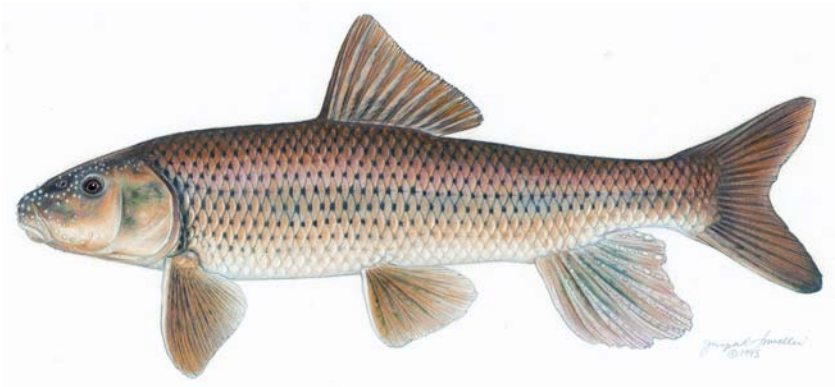


Figure 1. Drawing of the spotted sucker (*Minytrema melanops*). Illustration by Joe Tomelleri used with permission of DFO.

Designatable units

All Canadian populations are found within the Great Lakes-Western St. Lawrence ecozone of the freshwater ecozone classification adopted by COSEWIC (2003). Population structure is unknown.

DISTRIBUTION

Global range

The spotted sucker is restricted to the fresh waters of central and eastern North America (Figure 2, Lee et al. 1980). In the Great Lakes basin, the spotted sucker occurs in the drainages of Lake Huron, Lake Michigan, Lake Erie and Lake St. Clair. It is also found throughout much of the Mississippi River basin and along the lower coastal plain from Texas to North Carolina. It is known from 23 states and the province of Ontario.

Canadian range

In Canada, the spotted sucker is rare and found only in the extreme southwestern region of Ontario (Figure 3). Less than 5% of the species' global range is found in Canada (Dextrase *et al*. 2003). Its first record of capture was from Lake St. Clair in 1962 (Campbell 1994). Since 1962, the spotted sucker has also been collected from the St. Clair River, Detroit River, the lower Thames River, the Sydenham River watershed and several associated tributaries. Collections in Lake Erie are restricted to the western basin with the only specific locality identified off Point Pelee, Essex County.

HABITAT

Habitat requirements

Throughout its range, the spotted sucker usually inhabits long, deep pools of small to medium-sized rivers over clay, sand or gravel substrates. Riffle areas are used for spawning (McSwain and Gennings 1972). Spotted suckers have also been collected from a variety of other habitats including large rivers (e.g. Mississippi River), oxbows and backwater areas, impoundments and small turbid creeks (Trautman 1981, Lehnen *et al.* 1997). Canadian collections of spotted sucker reflect this range of habitats. It has been collected from small to medium- sized rivers such as the Thames and Sydenham rivers, large riverine habitats in the St. Clair and Detroit rivers, and along the shores of Lake Erie and Lake St. Clair.

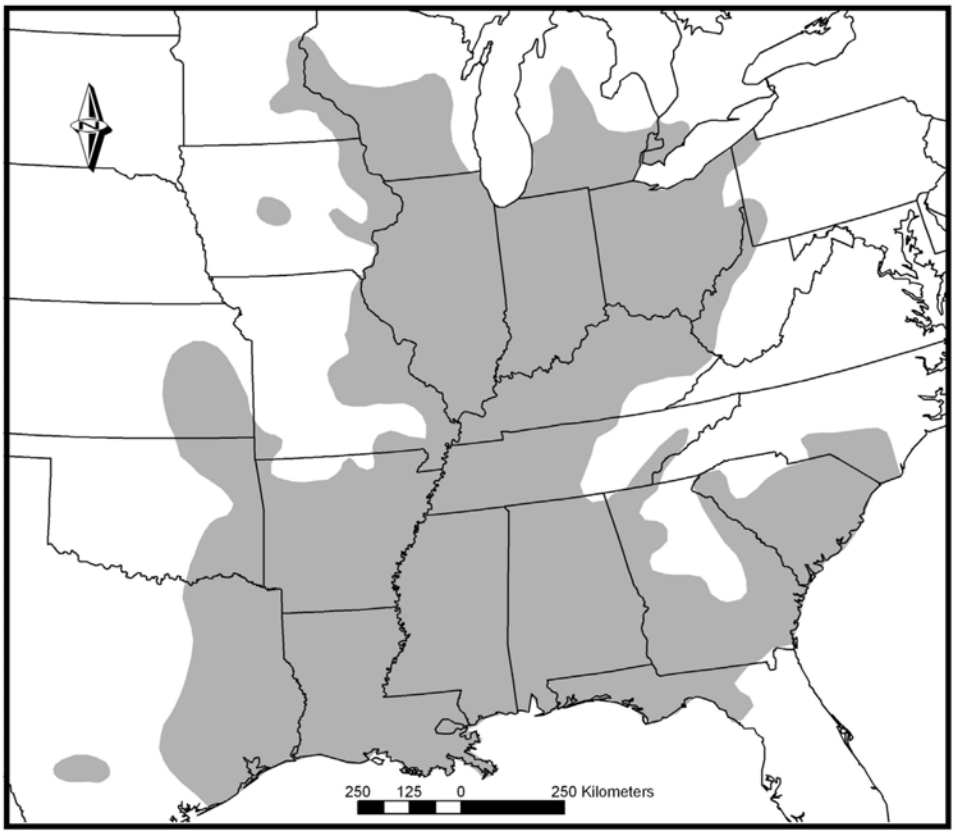


Figure 2. Global distribution of the spotted sucker (*Minytrema melanops*) (modified from Lee et al. 1980).

The spotted sucker is considered to prefer firm to hard substrates. Bottom substrates at capture sites in Ontario range from hard clays to sand, gravel and rubble (Parker and McKee 1984). Although specimens have been reported from areas with abundant aquatic macrophyte growths, records from Canadian collections lack habitat data and the relationships between this species and aquatic macrophytes cannot be substantiated (Parker and McKee 1984). In backwater and main channel habitats along the upper Mississippi River, a preference for sites with woody snags was reported by Lehnen *et al.* (1997).

The spotted sucker prefers clear, warm waters where turbidity is low (Trautman 1981). However, in Canada, it has been collected from rivers with moderate to heavy turbidity (e.g. East Sydenham River). It is considered more tolerant to siltation than other sucker species, especially if the siltation is only intermittently heavy (Parker and McKee 1984). Oxygen and temperature tolerances are not known for the spotted sucker.

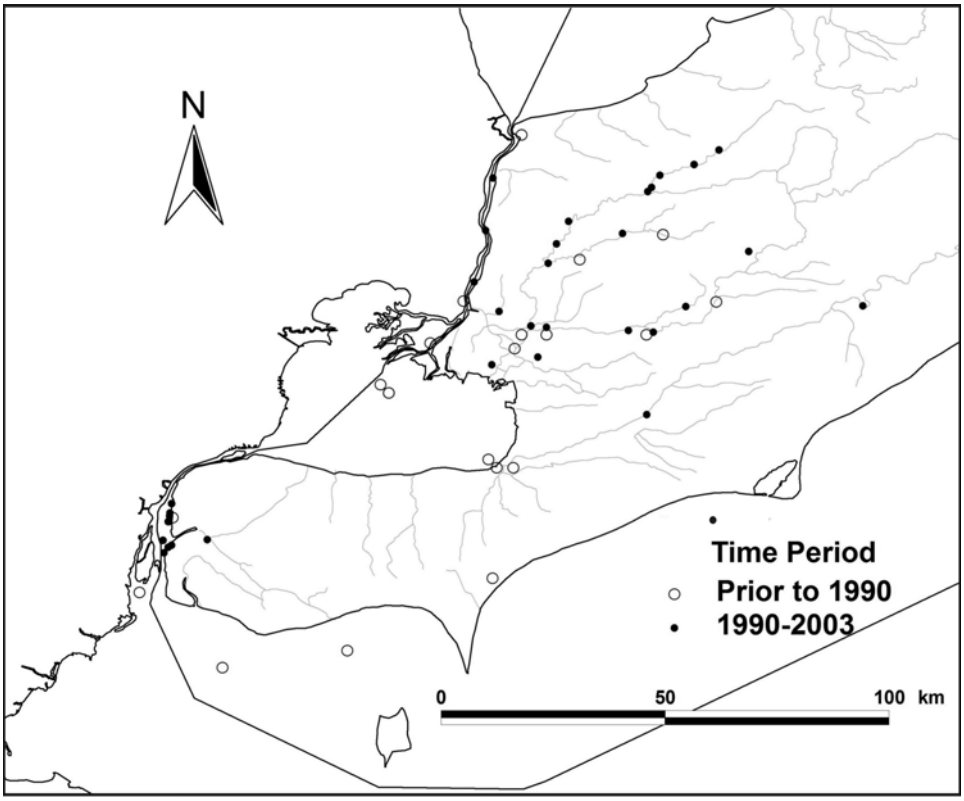


Figure 3. Canadian distribution of the spotted sucker (*Minytrema melanops*).

Trends

Aquatic habitats within the Canadian range of the spotted sucker have undergone considerable historical transformation. Loss of wetlands and riparian vegetation, shoreline alteration, dredging, stream channelization, discharges of toxic chemicals, increased sediment and nutrient loading have been linked to altered composition and lower productivity of regional fish communities (Dextrase *et al.* 2003, MacLennan *et al.* 2003, Ryan *et al.* 2003). Since the period between the first two spotted sucker status reviews (Parker and McKee 1984 and Campbell 1984), the invasion of the Great Lakes by dreissenid mussels (zebra and quagga mussels) has resulted in profound changes to primary production and the availability of rocky substrates (Ryan *et al.* 2003). Concurrent improvements to water clarity have resulted in dramatic increases in the abundance of aquatic macrophytes in Lake St. Clair and the Detroit River (Environment Canada and EPA 2003). It is not known what effect, if any, these changes have had on spotted sucker populations.

In response to these historic and ongoing stresses, Remedial Action Plans (RAP) and ecosystem recovery strategies are currently being developed and implemented. Populations of spotted sucker in the Detroit and St. Clair rivers are in two of 43 Great Lakes "Areas of Concern". A Remedial Action Plan (RAP) has been initiated to address impaired uses, including degraded fish and wildlife populations and associated habitats (Hartig et al. 1996). If successfully implemented, the RAP is expected to improve water and habitat quality and therefore benefit local spotted sucker populations. The spotted sucker is one of nine fish species addressed in the Sydenham River Aquatic Ecosystem Recovery Strategy (Dextrase et al. 2003). One of the key objectives identified in the strategy is improved water and habitat quality through reductions in sediment loads, nutrient and chemical inputs and the maintenance of base flows. The application of agricultural best management practices, such as riparian buffers, conservation tillage and restricted livestock access, was identified as a key step to achieving this objective. The spotted sucker is also addressed in the draft Thames River Aquatic Ecosystem Recovery Strategy (Thames River Recovery Team 2003). Habitat improvement goals identified for the Thames River of benefit to spotted sucker populations include reductions in sediment, nutrient and toxic chemical loadings.

Protection/ownership

Spotted sucker habitat may be protected by the Canadian Environmental Assessment Act, Canadian Environmental Protection Act, federal Fisheries Act, Canada Water Act, Ontario Environmental Protection Act, Ontario Environmental Assessment Act, Ontario Planning Act and Ontario Water Resources Act. Most of the lands adjacent to inland occurrences are privately owned and in agricultural production.

BIOLOGY

Reproduction

During late spring to early summer, spotted suckers spawn over clean riffle habitats. Eggs are semi-buoyant and hatch within 7 to 12 days after fertilization (Becker 1983). In Georgia, spotted suckers were observed to spawn at water temperatures between 12 and 19°C (McSwain and Gennings 1972). Spawning occurs earlier in the southern portions of its range (i.e. March in Georgia, May in Wisconsin). Spawning groups consisted of three individuals: one female and two males. Observations from Canadian waters have not been reported. Spotted suckers in Missouri reach maturity at age 3 (Pflieger 1975), while dwarf forms captured in Ohio are reported to mature at a length of 150 mm (Trautman 1981). Age at maturity of Canadian populations is not known. A single female in breeding condition collected from the Thames River was aged at five years (Parker and McKee 1984).

Injections of human chorionic gonadotropin (HCG) have induced spawning of captive spotted suckers at 18°C (Ludwig 1997).

Survival

Information regarding the demographics of Canadian spotted sucker populations is lacking. At the end of the first growing season in Ohio, young-of-the-year spotted suckers were between 51 and 102 mm in length. Adults were between 229 and 381 mm in length with the largest specimen 450 mm (Trautman 1981). In Oklahoma, spotted suckers attain a length of 155 mm in the first year and average 290 mm (1+), 340 mm (2+), 410 mm (3+) and 440 mm (4+) in successive years (Pflieger 1975). The maximum age reported for U.S. populations is six years (Carlander 1969). Scales from two Canadian specimens (358 mm and 373 mm total length) were aged at 7 and 8 years (McAllister *et al.* 1985).

Nutrition and interspecific interactions

Adult and juvenile spotted suckers feed on a variety of prey items such as diatoms, zooplankton, chironomids and molluscs (Pflieger 1975, White and Haag 1977). White and Haag (1977) described ontogenetic shifts in the feeding habits of Kentucky spotted sucker populations. Larval spotted suckers (12 to 15 mm total length (TL)) fed at the surface and mid-water column on zooplankton and diatoms. At 25 to 30 mm TL, individuals feed over patches of sand and in shallow backwaters of creeks. At approximately 50 mm TL they started feeding on bottom benthic organisms and sand began appearing in the gut. Individuals longer than 50 mm TL had similar feeding habits as the adults. No data on the feeding habits of Great Lakes basin populations are available.

Juvenile spotted sucker are probably preyed upon by piscivorous birds and fish (Parker and McKee 1984).

Parasites of the spotted sucker are identified in Hoffman (1967), Mackiewicz (1968) and Christensen *et al.* (1982).

POPULATION SIZES AND TRENDS

No studies examining population size or trends have been conducted on Canadian populations. Between 1962 and 1992, 24+ spotted sucker were collected from Canadian waters. Since 1992, 67+ specimens have been collected. Fifty-four of the 67+ spotted sucker collected since 1992 were collected in 2002 and 2003. Almost all specimens collected have been adults. While spotted sucker has been collected from new sites since the last update status report, its regional distribution in southwestern Ontario is unchanged as the recent records mentioned in the following paragraph are within the Canadian range previously described for this species. There have, however, been significant changes in the distribution within this area, as indicated by the large number of post-1990 records.

The comparatively large number of individuals captured in the past 2 years is considered to be the result of increased sampling effort and the use of boat and

backpack electro-fishing gear. The use of electro-fishing gear has resulted in improved distributional information for other rare catostomid species (*M. carinatum* and *M. valenciennesi*) in the Ohio (Yoder and Beaumier 1986) and Illinois rivers (Retzer and Kowalik 2002). The low number of spotted sucker records identified in previous status reports might also reflect a lack of interest by resource managers or proper species identification. For example, historical commercial fisheries records of all catostomids in Lake Erie and Lake St. Clair were simply reported as "suckers" (Baldwin et al. 2000).

The distribution of the spotted sucker in the Detroit River, St. Clair River, Sydenham River and Thames River drainages has expanded since 1990. In June of 1996, a single specimen was collected with a seine net from Maxwell Creek (Lake St. Clair drainage) which represents a new occurrence for the spotted sucker. In 1997, a single juvenile was captured from Bear Creek, North Sydenham River drainage (Dextrase and Holm, 2001). Although specimens have been collected from North Sydenham tributaries in the 1980s, this is the first spotted sucker record from the Bear Creek portion of the drainage. In 2002 and 2003, 27 spotted sucker were collected from 14 sites throughout the Sydenham River and nine from six sites along the Detroit River. In 2002, nine spotted sucker were collected from two other locations along the Canard River. In 2003, spotted sucker were caught at three sites in the Thames River drainage as far as 75 km upstream of historical records. Spotted sucker were also caught for the first time in Whitebread Drain, a tributary of the St. Clair River, in 2003.

A single spotted sucker was captured in a gill-net during the fall of 2000 from west-central Lake Erie (OMNR 2001). It was the only record from over 187 000 fish sampled during an 11 -ear monitoring period (1990-2001). There have been no recent records of spotted sucker from Lake St. Clair (last record 1984).

The potential rescue effect of neighboring United States populations is interpreted to be moderate. While nearby source populations exist in western Lake Erie and the Huron-Erie corridor, it is not a common species. The status of spotted sucker in adjacent Michigan is vulnerable (S3) and imperiled in Pennsylvania (S2) (NatureServe 2004). In Ohio, its status has not been ranked. Its abundance in Lake Erie and its tributaries is considered to be a fraction of historical abundance (Trautman 1981).

LIMITING FACTORS AND THREATS

As previously identified by Parker and McKee (1984) and Campbell (1994), there is insufficient data on Canadian populations to be able to identify these factors. It can be assumed that the continued availability of suitable habitat is vital to the survival of the spotted sucker populations. However, a lack of information on the distribution and characteristics of such habitats limits the ability of managers to protect them. Habitat degradation from siltation has been identified as the cause of the decline of some U.S. populations (Trautman 1981). Trautman (1981) interpreted the spotted sucker to be intolerant to turbid waters, industrial pollutants and river beds covered with flocculent clay and silt. Dextrase *et al.* (2003) considered increased erosion and turbidity the

greatest threat to Sydenham River populations. Dams have been widely reported to have negative impacts on catostomid species. Kelly *et al.* (1981) reported reduced spotted sucker abundance after impoundments were constructed along Shoal Creek, Alabama. Large artificial increases in discharge have also been reported to cause short-term reductions in the local abundance of stream-dwelling spotted sucker populations (Paller *et al.* 1992). It is also likely that water temperature is important in limiting this species as it is at the northern edge of its range (Dextrase *et al.* 2003). Spotted suckers are only incidentally caught in the Great Lakes basin, usually in trap nets or by hook and line. Specimens captured by commercial fishermen in Ontario are lumped with other rough fish and sold as mullet or used for agricultural purposes.

Inland populations are in an agricultural landscape with attendant issues of nutrient and sediment input. Detroit and St. Clair River populations could be at risk from toxic chemical spills in the chemical valley.

SPECIAL SIGNIFICANCE OF THE SPECIES

As reported by Parker and McKee (1984), there is no commercial significance to the spotted sucker in Canada, nor is it an economically important forage fish. In the United States, the aquaculture of spotted sucker for the baitfish industry is in development (Ludwig 1997). The spotted sucker's continued survival, along with other species at the northern edges of their ranges in Canada, will be an indication of good water quality and habitat condition. Like all sucker species, the spotted sucker plays an important role as in nutrient cycling. It transfers energy (i.e. nutrients) from the benthic food web (where it feeds) to the pelagic food web (where it is preyed upon).

EXISTING PROTECTION OR OTHER STATUS DESIGNATIONS

Conservation ranks determined by the Association of Biodiversity Information are summarized in Table 1.

Table 1. Global, American and Canadian federal, and state and provincial ranks assigned by NatureServe (2004).

Global	G5
USA	N5
Canada	N1
State/Provincial	Alabama (S5), Arkansas (S4), Florida (S?), Georgia (S5), Illinois (S3), Indiana (S4), Iowa (S3), Kansas (S3), Kentucky (S4S5), Louisiana (S5), Michigan (S3), Minnesota (S?), Mississippi (S5), Missouri (S?), North Carolina (S4), Ohio (S?), Oklahoma (S4), Pennsylvania (S2), South Carolina (S?), Tennessee (S5), Texas (S3), West Virginia (S4), Wisconsin (S5), Ontario (S2)

Canada

The spotted sucker was recognized by COSEWIC as a species of Special Concern in Canada in 1983 and was reconfirmed as such in 1994 (Campbell 1994) and again in 2001.) In Ontario, the spotted sucker was listed as Special Concern in 2000. In 1996, the spotted sucker was given an N RANK of N1 and, in 1997, a S RANK of S2.

Under the federal Species at Risk Act limited protection is conferred. Jurisdictions in which the spotted sucker occurs will be responsible for the development of a management plan for this species. The species and/or its habitat may also be protected by the Canadian Environmental Assessment Act, Canadian Environmental Protection Act, federal Fisheries Act, Canada Water Act, Ontario Environmental Protection Act, Ontario Environmental Assessment Act, Ontario Planning Act and Ontario Water Resources Act. The spotted sucker is one of nine fish species addressed in the "National Recovery Strategy for Species at Risk in the Sydenham River: An Ecosystem Approach" (Dextrase et al. 2003) and one of 10 fish species addressed in the draft Thames River Aquatic Ecosystem Recovery Strategy (Thames River Recovery Team 2003).

United States

The spotted sucker is globally secure (G5). However, over the past century, population declines have been reported in the northern portion of its range (Becker 1983). It is listed as a species of special concern in Kansas and Pennsylvania.

TECHNICAL SUMMARY

Minytrema melanops
Spotted Sucker meunier tacheté
Range of Occurrence in Canada: Ontario—Detroit River (including Canard), East Sydenham River, North Sydenham River, Lake St. Clair, St. Clair River, Thames River, Western Lake Erie basin

Extent and Area information	
• *extent of occurrence (EO)(km²)*	6,600
• *specify trend (decline, stable, increasing, unknown)*	Stable
• *are there extreme fluctuations in EO (> 1 order of magnitude)?*	No
• *area of occupancy (AO) (km²)* For rivers with multiple sites, calculated as length of river between uppermost and lowermost sites multiplied by average width.	Detroit River (+Canard) - 25 St. Clair River - 39 East Sydenham River - 14 North Sydenham River - 16 Thames River - 7.5 Lake St. Clair - 880 Lake Erie - 110 Total - 1,090
• *specify trend (decline, stable, increasing, unknown)*	Stable
• *are there extreme fluctuations in AO (> 1 order magnitude)?*	No
• *number of extant locations*	Seven
• *specify trend in # locations (decline, stable, increasing, unknown)*	Increasing
• *are there extreme fluctuations in # locations (>1 order of magnitude)?*	No
• *habitat trend: specify declining, stable, increasing or unknown trend in area, extent or quality of habitat*	Unknown
Population information	
• *generation time (average age of parents in the population) (indicate years, months, days, etc.)*	3 yrs
• *number of mature individuals (capable of reproduction) in the Canadian population (or, specify a range of plausible values)*	Unknown
• *total population trend: specify declining, stable, increasing or unknown trend in number of mature individuals*	Unknown
• *if decline, % decline over the last/next 10 years or 3 generations, whichever is greater (or specify if for shorter time period)*	
• *are there extreme fluctuations in number of mature individuals (>1 order of magnitude)?*	
• *is the total population severely fragmented (most individuals found within small and relatively isolated (geographically or otherwise) populations between which there is little exchange, i.e., ≤ 1 successful migrant / year)?*	No, but degree of migration rate between localities unknown
• *List each population and the number of mature individuals in each*	Detroit River - unknown St. Clair River - unknown East Sydenham River - unknown North Sydenham River – unknown Thames River – unknown Lake Erie – unknown Lake St Clair – unknown
• *specify trend in number of populations (decline, stable, increasing, unknown)*	unknown

• *are there extreme fluctuations in number of populations (>1 order of magnitude)?*	No
Threats (actual or imminent threats to populations or habitats)	
- habitat degradation (pollution), siltation	
Rescue Effect (immigration from an outside source)	Moderate
• *does species exist elsewhere (in Canada or outside)?*	Yes
• *status of the outside population(s)?*	Michigan (S3), Ohio (S?), Pennsylvania (S2)
• *is immigration known or possible?*	Yes
• *would immigrants be adapted to survive here?*	Yes
• *is there sufficient habitat for immigrants here?*	Yes
Quantitative Analysis	Data Not Avaialble

Existing Status

Nature Conservancy Ranks (NatureServe 2004)
Global – G5
National
US – N5
Canada N2

Regional
US – AL – S5, AR – S4, FL – SNR, GA – S5, IL – S4, IN – S4, IA – S3, KS – S3, KY – S4S5, LA – S5, MI – S3, MN – SNR, MS – S5, MO – SNR, NC – S4, OH – SNR, OK – S2, PA – S2, SC – SNR, TN – S5, TX – S3, WV – S4, WI – S5
Canada – ON – S2

Other
AFS – KS – SC, PA - SC

Wild Species 2000 (Canadian Endangered Species Council 2001**)**
Canada – 3
Ontario – 3

COSEWIC
Special Concern (May 2005)

Status and Reasons for Designation

Status: Special Concern	**Alpha-numeric code:** None apply
Reasons for Designation: This freshwater fish species is restricted to southwestern Ontario. The greatest threat to this species is habitat degradation through increased erosion and turbidity. The species is also at risk in Pennsylvania, but not at risk in Michigan (where it is S3-vulnerable) making rescue effect moderate at best.	
Applicability of Criteria **Criterion A** (Declining Total Population): This criterion does not apply because the total population trend is unknown and the EO and AO are stable. **Criterion B** (Small Distribution, and Decline or Fluctuation): Qualifies for Threatened based on EO (6,600 km^2), AO (1,090 km^2), and number of locations (7 waterbodies); but no continued decline, nor extreme fluctuations are demonstrable. **Criterion C** (Small Total Population Size and Decline): The data are not available. **Criterion D** (Very Small Population or Restricted Distribution): Not applicable – area of occupancy greater than 20 km^2. **Criterion E** (Quantitative Analysis): The data are not available.	

ACKNOWLEDGEMENTS AND AUTHORITIES CONTACTED

Acknowledgements

Jason Barnucz, Fisheries and Oceans Canada, provided unpublished data. Carolyn Bakelaar provided GIS support. Dusan Markovic prepared the global range map.

Funding for the preparation of this status report was provided by the Canadian Wildlife Service, Environment Canada.

Authorities contacted

Alan Dextrase, Species at Risk Project Co-ordinator, Ontario Ministry of Natural Resources, Peterborough, ON.

LITERATURE CITED

Baldwin, N.A., R.W., Saalfeld, M.R. Dochoda, H.J. Buettner, and R.L. Eschenroder. 2000. Commercial fish production in the Great Lakes 1867-2000. http://www.glfc.org/databases/commercial/commerc.asp [accessed October 11, 2004].

Becker, G.C. 1983. Fishes of Wisconsin. Univ. Wisconsin Press, Madison. 1052 pp.

Campbell, R.R. 1994. Updated status of the spotted sucker, *Minytrema melanops*, in Canada. Report to the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). 9 pp.

Canadian Endangered Species Council. 2001. The general status of species in Canada. Ottawa: Minister of Public Works and Government Services.

Carlander, K.D. 1969. Handbook of freshwater biology. Volume 1. Life history data on freshwater fishes of the United States and Canada, exclusive of the Perciformes. Iowa State University Press, Ames. 752 pp.

Christensen, B.M., P.K. Wellner, and L.N. Gleason. 1982. Two new species of *Lissorchis* Magath (Digenea: Lissorchiidae) from the spotted sucker, *Minytrema melanops* (Rafinesque), with a key to species. Proceedings of the Helminthological Society of Washington 49(1): 22.

Coad, B.W. 1995. Encyclopedia of Canadian fishes. Canadian Museum of Nature and Canadian Sportfishing Productions Incorporated.

COSEWIC. 2003. Guidelines for Recognizing Designatable Units Below the Species Level. Website: http://www.cosewic.gc.ca. [accessed September 27, 2004].

COSEWIC. 2004. Canadian species at risk, November 2004. Committee on the Status of Endangered Wildlife in Canada (COSEWIC), CWS, Ottawa. 58 pp.

Dextrase, A., and E. Holm. 2001. Ontario Addenda for Freshwater Fish Status Re-Evaluations-Fall 2001 COSEWIC Meeting. 2 pp.

Dextrase, A.J, S.K. Staton, J.L. Metcalfe-Smith. 2003. National Recovery Strategy for Species at Risk in the Sydenham River: An Ecosystem Approach. National Recovery Plan No. 25. Recovery of Nationally Endangered Wildlife (RENEW). Ottawa, Ontario. 73 pp.

Environment Canada and Environmental Protection Agency (EPA). 2003. Status of the Great Lakes 2003. 114 p.

Harris, P.M. and R.L. Mayden. 2001. Phylogenetic relationships of major clades of Catostomidae (Teleostei: Cypriniformes) as inferred from mitochondrial SSU and LSU rDNA sequences. Molecular Phylogenetics and Evolution 20:225-237.

Harris, P.M., R.L. Mayden, H.S. Espinosa Perez, and F. Garcia de Leon. 2002. Phylogenetic relationships of *Moxostoma* and *Scartomyzon* (Catostomidae) based on mitochondrial cytochrome *b* sequence data. Journal of Fish Biology 61:1433-1452.

Hartig, J.H., D.P. Dodge, D. Jester, J. Atkinson, R. Thomas, and K. Cullis. 1996. Toward integrating remedial action planning and fishery management planning in Great Lakes Areas of Concern. Fisheries 21 (2):6-13.

Hoffman, G.L. 1967. Parasites of North American freshwater fishes. University of California Press, Berkeley. 486 pp.

Holm, E., and D. Boehm. 1998. Sampling for fishes at risk in southwestern Ontario. Unpublished report prepared by the Centre for Biodiversity and Conservation Biology, Royal Ontario Museum, for the Ontario Ministry of Natural Resources, Southcentral Region and Aylmer District. 17 pp.

Kelly, H.D., E.D. Catchings, and V.W.E. Payne, Jr. 1981. Fish populations and water quality of an upland stream having two impoundments with coolwater releases. Warmwater Streams Symposium. Southern Division of the American Fisheries Society. March 9-11, 1980, Knoxville, Tennessee. p 168-181.

Lee, D.S., C.R. Gilbert, C.H. Hocutt, R.E. Jenkins, D.E. McAllister, and J.R. Stauffer, Jr. Editors. 1980. Atlas of North American Freshwater Fishes. North Carolina Biological Survey Publication Number 1980-12.

Lehnen, R.M., N.D., Mundahl, and J.C. Madejczyk. 1997. Autumn use of woody snags by fishes in backwater and channel border habitats along a large river. Environmental Biology of Fishes 49:7-19.

Ludwig, G.M. 1997. Induced spawning in captive white sucker, *Catostomus commersoni*, and spotted sucker, *Minytrema melanops*. Journal of Applied Aquaculture 7:7-17.

Mackiewicz, J.S. 1968. Two new caryophyllaeid cestodes from the spotted sucker, *Minytrema melanops* (Raf.) (Catostomidae). Journal of Parasitology. 54: 808-813.

MacLennan, D., and R.C. Hass, J. Braunscheidel, J. Francis, L. Halyk, D. Hector, B. Locke, R. McGregor, M. Morencie, A. Murray, E. Roseman, M.V. Thomas, G. Towns. 2003. Fish-community goals and objectives for Lake St. Clair, St. Clair River and Detroit River (St. Clair System). Great Lakes Fish Community Special Publication xx-xx. x pp.

McAllister, D.E., B.J. Parker, and P.M. McKee. 1985. Rare, endangered and extinct fishes of Canada. National Museum of Natural Sciences, National Museum of Canada, Ottawa. Syllogeus No. 54. 192 pp.

McSwain, L.E., and R.M. Gennings. 1972. Spawning behaviour of the spotted sucker, *Minytrema melanops* (Rafinesque). Transactions of the American Fisheries Society 101:738-740.

NatureServe. 2004. NatureServe Explorer: An online encyclopedia of life. Version 4.0. NatureServe, Arlington, Virginia. Website: http://www.natureserve.org/explorer. [accessed: September 26, 2004].

Ontario Ministry of Natural Resources (OMNR) 2001. Lake Erie Fisheries Report 2001. Lake Erie Management Unit. Wheatley, Ontario.
Paller, M.H., S.F. Modica, and E.G. Hofsleller. 1992. Short-term changes in a southeastern coastal plain fish assemblage following artificial increases in streamflow. Rivers 3:243-259.
Parker, B., and P. McKee. 1984. Status of the spotted sucker, *Minytrema melanops*, in Canada. Canadian Field Naturalist 98(1):104-109.
Pflieger, W.L. 1975. The Fishes of Missouri. Missouri Department of Conservation, Jefferson City, Missouri. 343 pp.
Retzer, M.E., and C.R. Kowalik. 2002. Recent changes in the distribution of river redhorse (*Moxostoma carinatum*) and greater redhorse (*Moxostoma valenciennesi*) (Cypriformes: Catostomidae) in Illinois and Comments on their Natural History. Transactions of the Illinois State Academy of Science 95:327-333.
Robins, C.R., R.M. Bailey, C.E. Bond, James R. Brooker, E.A. Lachner, R.N. Lea and W.B. Scott. 1991. A list of scientific and common names of fishes from the United States and Canada. 5th Ed. American Fisheries Society Special Publication 20.
Ryan, P.A., R. Knight, R. McGregor, G. Towns, R. Hoopes, and W. Culligan. 2003. Fish-community goals and objectives for Lake Erie. Great Lakes Fish Community Special Publication 03-02. 56 pp.
Smith, G.R. 1992. Phylogeny and biogeography of the Catostomidae, freshwater fishes of North America and Asia. In Systematics, Historical Ecology and North American Freshwater Fishes (Mayden, R.L. ed.) pp. 778-813. Stanford University Press.
Thames River Recovery Team. 2003. The Thames River Aquatic Ecosystem Recovery Strategy: 2004-2009. Draft Recovery Strategy submitted to RENEW Secretariat.
Trautman, M.B. 1981. The fishes of Ohio with illustrated keys. Ohio State University Press, Columbus, Ohio. Revised Edition. 782 pp.
White, D.S., and K.H. Haag. 1977. Food and feeding habitats of the spotted sucker, *Minytrema melanops* (Rafinesque). American Midland Naturalist 98(1):137-146.
Yoder, C.O. and R.A. Beaumier. 1986. The occurrence and distribution of the river redhorse (*Moxostoma carinatum*) and greater redhorse (*Moxostoma valenciennesi*) in the Sandusky River, Ohio. Ohio Journal of Science 86(1): 18-21.

BIOGRAPHICAL SUMMARY OF REPORT WRITERS

Scott M. Reid is a Ph.D. candidate at Trent University, Peterborough, Ontario. His research interests include riverine fish ecology, the effects of dams on freshwater fish, and the effects of pipeline water crossing construction on aquatic biota. Scott is also a co-author of COSEWIC reports on river redhorse (*Moxostoma carinatum*) and black redhorse (*M. duquesnei*).

Nicholas E. Mandrak is a Research Scientist with the Canadian Department of Fisheries and Oceans in Burlington, Ontario. His research interests are the biodiversity, biogeography and conservation of Canadian freshwater fishes. Nick has co-authored six COSEWIC reports.