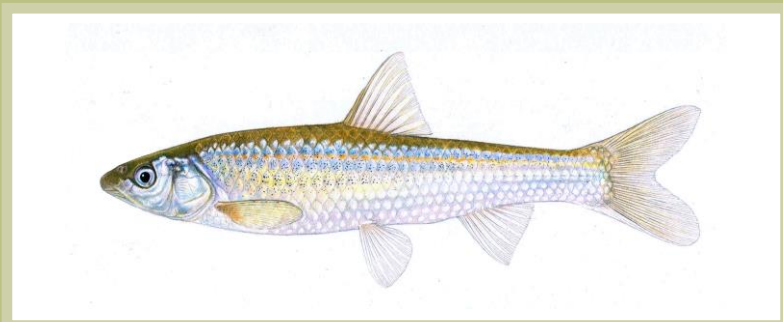


Report on the Progress of Recovery Strategy
Implementation for the Western Silvery Minnow
(*Hybognathus argyritis*) in Canada for the Period 2008 -
2013

Western Silvery Minnow



2016

Recommended Citation:

DFO. 2016. Report on the Progress of Recovery Strategy Implementation for the Western Silvery Minnow (*Hybognathus argyritis*) in Canada for the Period 2008 - 2013 *Species at Risk Act* Recovery Strategy Report Series. Fisheries and Oceans Canada, Ottawa. iv+14p.

For copies of the progress report, or for additional information on species at risk, including COSEWIC Status Reports, residence descriptions, action plans, and other related recovery documents, please visit the [SAR Public Registry](#) .

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Également disponible en français sous le titre

Rapport sur les progrès de la mise en œuvre du programme de rétablissement du méné d'argent de l'Ouest (*Hybognathus argyritis*) au Canada pour la période 2008-2013

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ISBN 978-0-660-04812-3

Catalogue no. En3-4/41-1-2016E-PDF

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Preface

Section 46 of the *Species at Risk Act* (SARA) requires the competent Minister to report on the implementation of the recovery strategy for a species at risk, and on the progress towards meeting its objectives within five years of the date when the recovery strategy was placed on the Species at Risk Public Registry.

Reporting on the progress of recovery strategy implementation requires reporting on the collective efforts of the competent Minister, provincial organizations and all other parties involved in conducting activities that contribute towards the species' recovery.

Acknowledgements

Fisheries and Oceans Canada would like to thank the members of the Milk River Fish Species at Risk Recovery Team for their support in the development of this progress report.

Executive Summary

In June 2003, the Western Silvery Minnow (*Hybognathus argyritis*) was officially listed on Schedule 1 of the SARA as Threatened, when the SARA came into force. The Recovery Strategy for Western Silvery Minnow (*Hybognathus argyritis*) in Canada (hereafter referred to as the “Recovery Strategy”) was posted on the Species at Risk Public Registry in 2008. The following document fulfills Fisheries and Oceans Canada’s (DFO) commitment to report every five years on the progress of recovery strategy implementation and covers the period from 2008 to 2013.

A number of threats to the Western Silvery Minnow have been identified throughout its range. The most significant threats may be those that substantially alter the existing flow regime of the river causing habitat loss or impairment. Such threats may include surface water removal (e.g. for irrigation and domestic use), dam construction and canal maintenance. Other threats include groundwater extraction, livestock use of the flood plain, point and non-point source pollution, anoxia, species introductions, scientific sampling and natural processes (e.g. drought and climate change).

The recovery goal for the Western Silvery Minnow is “to protect and maintain a self-sustaining population of Western Silvery Minnow within its current range in the Milk River”. The key objectives in the Recovery Strategy are to: 1) quantify and maintain current population levels of Western Silvery Minnow in the Milk River (within the population’s range of natural variation); 2) identify and protect critical habitat of the Western Silvery Minnow; 3) identify potential threats from human activities and ecological processes and develop plans to avoid, eliminate or mitigate these threats.

The following is a list of some of the activities that have been completed since the publication of the Recovery Strategy that provide important progress of implementation:

- In 2011, DFO held a science advisory meeting to assess the recovery potential of the Western Silvery Minnow, as part of a Recovery Potential Assessment (RPA).
- A research study was initiated to identify seasonal habitat selection and movement potential of Western Silvery Minnow and habitat suitability in the Milk River.
- Population abundance recovery targets were modelled for the Western Silvery Minnow RPA.
- Interpretive signage has been developed and will be installed along the Milk River.
- DFO presented and participated in multiple workshops with respect to Western Silvery Minnow and its status as a species at risk. Promotional items and information materials were developed and distributed to increase awareness of the species.

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1. Background

1.1. COSEWIC Assessment Summary

2001 COSEWIC Assessment Summary

Assessment Summary – November 2001

Common name : Western Silvery Minnow

Scientific name : *Hybognathus argyritis*

Status: Threatened

Reason for designation: This species is known in Canada from two rivers in Alberta, one of which flows through short-grass prairie that is subject to continuous erosion leading to increased siltation.

Occurrence: Alberta

Status history: Designated Special Concern in April 1997. Status re-examined and designated Threatened in November 2001. Last assessment based on an existing status report with an addendum

2008 COSEWIC Assessment Summary

Assessment Summary – April 2008

Common name: Western Silvery Minnow

Scientific name: *Hybognathus argyritis*

Status: Endangered

Reason for designation: This small minnow species is restricted to the Milk River in Southern Alberta, a region characterized by drought conditions of increasing frequency and severity. While the future of flow regimes associated with the St. Mary's diversion canal and proposed water storage projects are uncertain, consequences of these activities have the potential to significantly affect the survival of the species. Rescue effect from U.S. populations is not possible.

Occurrence: Alberta

Status history: Designated Special Concern in April 1997. Status re-examined and designated Threatened in November 2001. Status re-examined and designated Endangered in April 2008. Last assessment based on an updated status report.

ALBERTA SUMMARY

Common Name: Western Silvery Minnow

Scientific Name: *Hybognathus argyritis*

Rank: Threatened

Designated: 2003

Reason for Designation: This species is moderately abundant, but its distribution is very restricted. The only location in Canada where this species is found is in the Milk River of southern Alberta.

1.2. Threats

1.2.1. Threats to the Species at Risk

A number of threats to the Western Silvery Minnow have been identified throughout its range, including those believed to be responsible for its extirpation from some systems. The following is a list of the threats identified for the species and the level of threat significance.

- Habitat Loss/Degradation
 - Changes in flow – High threat significance
 - Canal maintenance – High threat significance
 - Dam construction and operation – High threat significance
 - Groundwater extraction – Low threat significance (uncertain as it is difficult to evaluate)
 - Surface water extraction – High threat significance
 - Livestock use of flood plain – moderate threat significance
- Pollution
 - Point source – moderate threat significance
 - Non-point source – low threat significance
 - Anoxia – unknown threat significance
- Species Introductions – Low to high threat significance
- Scientific sampling – low threat significance
- Natural processes
 - Drought – high threat significance
 - Climate change – unknown threat significance

1.2.2. Activities Likely to Destroy Critical Habitat

Critical habitat was not identified in the 2008 Recovery Strategy, due to limited knowledge of the biology, life history and habitat requirements of the Western Silvery Minnow. Subsequent research and scientific review have provided a description of the essential functions, features and attributes critical for each life stage of Western Silvery Minnow. This information was used to inform the identification of critical habitat in a revised Recovery Strategy (draft). The following are the activities likely to destroy critical habitat, as summarized from the revised draft Recovery Strategy.

Changes in flow regulation (Diversion Canal) - Increase in flow, especially during high spring and summer flows, may increase larval drift downstream into unsuitable habitats (*e.g.*, reservoirs downstream) or increase erosion of stream banks and impact spawning, larval development and feeding activities.

Canal maintenance - Temporary or premature closure of the canal for maintenance activities, especially during low flow periods can severely reduce the flow of the river or result in isolated pools and habitat fragmentation.

Dam construction (water impoundment or reservoir creation) and operation (flow modification) - Impoundments can alter the habitat type, flow regime, sediment load, microbiota, water temperature and increase the risk of introduced species successfully inhabiting the altered habitat.

Surface water extraction (non-irrigation) - Temporary Diversion Licenses issued during low flow periods could reduce Western Silvery Minnow habitat.

Release of harmful substances - Stormwater and sewage releases, accidental spills and gas leaks at river and tributary crossings, river crossing at bridges or pipelines, contamination of water from seismic or drilling activities could affect habitat.

2. Recovery

2.1. Recovery Goals and Objectives

Please click [here](#) for a link to sections 5.2 Recovery Goal and section 5.3 Recovery Objectives in the Recovery Strategy.

The recovery goal for the Western Silvery Minnow is:

“To protect and maintain a self-sustaining population of Western Silvery Minnow within its current range within the Milk River in Canada.”

A number of recovery objectives are proposed to meet the recovery goal and address any threats to the survival of the species. The recovery objectives are to:

Objective 1: Quantify and maintain current population levels of Western Silvery Minnow in the Milk River (within the population’s range of natural variation) ;

Objective 2: Identify and protect critical habitat of the Western Silvery Minnow;

Objective 3: Identify potential threats to the Western Silvery Minnow from human activities and ecological processes and develop plans to avoid, eliminate, or mitigate these threats.

2.2. Performance Measures

The outcomes of the recommended recovery approaches listed in the recovery strategy will be used to report on the progress towards achieving the recovery goals and objectives.

The recovery approaches include:

1. Research
2. Monitoring
3. Management and regulatory actions
4. Education and outreach

Please click [here](#) for a link to section 5.4 Recovery Approaches and Strategies in the Recovery Strategy.

3. Progress Towards Recovery

Please click [here](#) for a link to the studies required to identify critical habitat table and recovery objectives table in the Recovery Strategy.

3.1. Activities from the Schedule of Studies to Identify Critical Habitat

Table 1. Activities that have been completed or are in progress since the completion of the Recovery Strategy and that are associated with the Schedule of Studies to Identify Critical Habitat.

Activity	Status ¹	Timeline	Details	Recovery Objectives Addressed	Recovery Approaches Addressed ²	Organizations Involved ³
Description of life history characteristics	In progress	2011 – 2015	Research is underway to examine the seasonal habitat selection and movement of Western Silvery Minnow in the Milk River. Specific points of interest include habitat availability, movement potential for the species. Data from this project will be used to develop habitat suitability models across various life stages of the species.	Objective 2	R1	University of Alberta Alberta Environment and Parks (AEP) Fisheries and Oceans Canada (DFO)
Description of habitat use by life stage	In progress	2011 - 2015	Same as above.	Objective 2	R2	Same as above.

Identification, location and inventory of habitat	In progress	2011 - 2015	Same as above.	Objective 3	M2	Same as above.
Movement studies	In progress	2011 - 2015	Same as above.	Objective 2, 3	N/A	Same as above.
Population viability analysis/ modelling	Completed	2011	DFO held a science advisory meeting to assess the recovery potential of the species. As part of this assessment, a population abundance recovery target was estimated, based on an objective of demographic sustainability. Modelling results showed that the population abundance recovery target necessary for persistence of a stable Western Silvery Minnow population over the long term could range from 12 000 – 236 000 adults, requiring 25 - 497 ha of suitable habitat.	Objective 1	R3	DFO AEP Montana State University
Rationalization of potential critical habitat	Completed	2011-2013	Essential functions, features and attributes critical for each life stage were identified. This information was used to inform the identification of critical habitat in the revised Recovery Strategy (draft)	Objective 2	R2	DFO Milk River Fish Species at Risk Recovery Team

¹Status categories: Completed, in progress, not started, no longer required/carried out

²Refers to all relevant recovery approaches from the recovery strategy in Section 5.4.

³lead organization is shown in bold

3.2. Research and Monitoring Activities

Table 2. Research and monitoring activities that have been completed or are in progress since the completion of the Recovery Strategy. Note that the progress of activities/strategies R1,R2, R3 and M1 are described in Table 1 of this document.

Activity/ strategy	Status ¹	Timeline	Details	Recovery Objectives Addressed	Recovery Approaches Addressed ²	Organizations Involved ³
Identify limiting factors	In progress	2011-2015	Research is underway to examine the seasonal habitat selection and movement of Western Silvery Minnow in the Milk River. Habitat availability under various flow conditions and movement potential for the species will be used to develop habitat suitability models across various life stages of the species.	Objective 3	R4	University of Alberta AEP DFO
Habitat monitoring	In progress	2007 - Ongoing	Routine and opportunistic monitoring of environmental parameters including flow conditions, turbidity, water temperature, dissolved oxygen has been completed. These environmental parameters should continue to be monitored to track water quality.	Objective 3	M2	DFO AEP University of Alberta

¹Status categories: Completed, in progress, not started, no longer required/carried out

²Refers to all relevant recovery approaches from the recovery strategy in Section 5.4.

³lead organization is shown in bold

3.3. Management Activities

Table 3. Management activities that have been completed or are in progress since the completion of the Recovery Strategy.

Activity	Status ¹	Timeline	Details	Recovery Objectives Addressed	Recovery Approaches Addressed ²	Organizations Involved ³
Water management and conservation	In progress	Ongoing	In Alberta, a license must be obtained under the province’s Water Act, before ground or surface water can be diverted. Temporary diversion licenses are approved by AEP. DFO will provide advice for TDLs when impacts to species at risk may occur. Recommended sources are: surface runoff dugouts, sloughs and non-fish- bearing lakes and creeks. Fish-bearing lakes and creeks are least recommended. This activity is ongoing and should continue to occur.	Objective 2	MR1	AEP DFO

Development impact mitigation	In progress	Ongoing	Impact mitigation for development projects is reviewed on a case-by-case basis and is ongoing. DFO has arrangements with federal agencies and provincial governments who conduct an initial review of projects, under their respective jurisdictions, to determine if they require permits under the SARA or DFO review under the fisheries protection provisions of the <i>Fisheries Act</i> . The focus, for any development project, is the elimination or mitigation of any potential adverse impacts on the Western Silvery Minnow or its habitat. This activity is ongoing and should continue to occur.	Objective 2	MR2	DFO AEP
Stocking program rationalization	In progress	Ongoing	The intention of this activity is to reduce the potential for species introductions and stocking-related impacts to Western Silvery Minnow. In Alberta, stocking programs are provincially managed. Lakes, reservoirs and ponds are stocked throughout province with brook trout, rainbow trout, brown trout or cutthroat trout; however, Western Silvery Minnow are not typically found in these lacustrine environments, as these areas do not provide suitable habitat for the species. Additionally, AEP would consult with DFO prior to stocking in waters where species at risk are found.	Objective 2	MR3	AEP DFO

International cooperation	In progress	Ongoing	The Milk River watershed is shared between Canada and the United States (US) and as such, it is subject to provisions in the Boundary Waters Treaty of 1909 between Canada and the US. The treaty is administered by a binational organization called the International Joint Commission (IJC), which has appointed members from by both Canada (including DFO) and the US government. The treaty provides the principles and mechanisms to resolve disputes concerning shared water. Alberta AEP has been working with United States (US) agencies to avoid unscheduled flow interruptions in the Milk River during flow augmentation. This is an ongoing activity that should continue to occur.	Objective 2	MR4	DFO US agencies AEP
Data conservation	In progress	Ongoing	All samples and information (current and future) are appropriately preserved and archived. Information collected from AEP, Universities, and SARA permit holders is shared between DFO and AEP and archived. This activity is ongoing and should continue to occur.	Objective 2	MR5	DFO AEP Universities

¹Status categories: Completed, in progress, not started, no longer required/carried out

²Refers to all relevant recovery approaches from the recovery strategy in Section 5.4.

³lead organization is shown in bold

3.4. Education and Outreach Activities

Table 4. Education and outreach activities that have been completed or are in progress since the completion of the Recovery Strategy.

Activity/ Strategy	Status ¹	Timeline	Details	Recovery Objectives Addressed	Recovery Approaches Addressed ²	Organizations Involved ³
Improve awareness of the species	In progress	Ongoing	<p>Various groups and organizations, including AEP, have been involved in events and/or developed informational material related to improving awareness of Western Silvery Minnow.</p> <p>Promotional items and information materials were developed and distributed to increase awareness of the species. In 2012-2013, DFO participated and presented information about the Western Silvery Minnow at the following conferences and workshops:</p> <ul style="list-style-type: none"> •National Fish and Wildlife Conservation Congress, Ottawa, Ontario, May 2012 •Prairie Conservation and Endangered Species Conference, Red Deer, Alberta, February 2013 •Great Plains Fisheries Workshop Association Annual Meeting, Winnipeg, Manitoba, February 2013 •Cumulative Environmental Management Association, Fort McMurray, Alberta, February 2013 <p>This activity is ongoing and should continue to occur.</p>	Objective 2	E1	<p>DFO</p> <p>AEP</p>

Encourage stakeholder participation	In progress	Ongoing	Interpretative signage has been developed in co-operation with the Milk River Fish Species at Risk Recovery Team and local municipalities and will be installed along the Milk River. Signage includes information related to the Western Silvery Minnow and the SARA.	Objective 2	E2	DFO Milk River Fish Species at Risk Recovery Team Town of Milk River Cardston County County of Warner No. 5
Facilitate information exchange	In progress	Ongoing	See Table 3, Management activities, Data conservation.	Objective 2	E3	DFO AEP Universities
Discourage species introductions	Completed	This activity was completed prior to 2008, but regulations are currently in effect.	Provincial regulations are in place to prevent species introductions that may reduce the potential for damage to Western Silvery Minnow populations from introduced predators and competitors. Under the Alberta General Sportfishing Regulations, it is unlawful to: <ul style="list-style-type: none"> • Release live fish or live fish eggs into any waters except back to the waters from which they were caught; • Possess live bait fish and use live fish for bait. 	Objective 2	E4	AEP

¹Status categories: Completed, in progress, not started, no longer required/carried out

²Refers to all relevant recovery approaches from the recovery strategy in Section 5.4.

³lead organization is shown in bold

3.5. Summary of Progress Towards Recovery

The goal and objectives of the Recovery Strategy are still being met (goal and objectives do not need to be amended and a change in the approach to recovery is not warranted). There have been no known instances of population or habitat decline in the Milk River and there is no information to suggest that the population has declined since the Recovery Strategy was published, which suggest that there is maintenance of the population of Western Silvery Minnow in the Milk River. Some progress has been made on the research and monitoring activities, management activities, and education and awareness activities but further progress on research and monitoring activities, in particular, current population levels and regular monitoring of Western Silvery Minnow should be further investigated in order to fully understand whether the population is self-sustaining. Additionally, it is important to maintain existing partnerships and to establish new ones and to conduct scientific studies to address uncertainties.

Recovery measures for Western Silvery Minnow will be included the Action Plan for the Milk River and St. Mary River Drainage Basins in Canada, which is currently under development. The multispecies approach to action planning will be used to identify recovery measures for Western Silvery Minnow and Rocky Mountain Sculpin (Eastslope populations), and may be used in the future to include other species at risk.

The Recovery Strategy is being revised to include the identification and protection of critical habitat for the Western Silvery Minnow (recovery objective 2: identify and protect critical habitat). Information from the DFO RPA is being used to inform the identification of critical habitat in the revised Recovery Strategy (draft). Defining critical habitat for Western Silvery Minnow has been challenging due to the limited information about some of the key life history characteristics of the minnow and limited sampling data. Further research should be collected to further refine what has been identified as critical habitat in order to fully achieve the recovery objectives. Studies that identify and characterize habitat use by different life stages of Western Silvery Minnow and studies that identify availability and location of habitat, as well as movement studies will aid in refining the critical habitat for the species.

The Western Silvery Minnow was assessed by COSEWIC (Committee on the Status of Endangered Wildlife in Canada) as Threatened in 2001 and in 2003 it was listed as Threatened under the SARA. In 2008, COSEWIC re-assessed the species as Endangered; this advice remains under consideration.

DFO is revising the Recovery Strategy and is preparing an Action Plan as part of the Government of Canada's ongoing commitment to the conservation of Species at Risk through the implementation of the SARA.

4. Reference

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