# Chapter 9
# Environment—Sustainable Fish Population Management

## 1.0 Main Points

By January 2025, the Ministry of Environment made sufficient progress on the one outstanding recommendation we first made in 2019 related to managing freshwater fish populations in a sustainable manner.

Since 2022, the Ministry hired a dedicated fisheries population specialist who researches and investigates good practice (e.g., other scientific research) for selecting fish population sustainability targets as well as assesses how other jurisdictions across North America manage the sustainability of freshwater fish populations. The Ministry used this research to begin a strategy to establish fish population sustainability targets for its fish management plans.

We found the Ministry evaluated appropriate sources of good practice to inform its planned approach to make decisions about the sustainability of Saskatchewan's fish populations (e.g., certain number of fish by size or age) and plans to base its decisions on data about key high-risk fish species in high-usage water bodies. Once finalized, the Ministry plans to use the sustainability targets to make informed management decisions about fish populations (e.g., change catch limits).

Effective fish population management in freshwater fisheries is critical to sustainable fisheries today, and for future generations.

## 2.0 Introduction

### 2.1 Background

The Ministry of Environment is responsible for managing Saskatchewan's freshwater fish populations in a sustainable manner. It monitors fish populations to detect changes resulting from harvest, environmental conditions, and stocking.[1]

In Saskatchewan, an estimated 50,000 water bodies contain fish with the majority in the northern half of the province.[2] These waters contain 69 fish species with 58 species native to Saskatchewan and 11 introduced or invasive species. Most fishing and harvesting in the province focuses on five primary species: Northern Pike, Walleye, Yellow Perch, Lake Trout, and Lake Whitefish.

[1] Ministry of Environment, *Fish Population Monitoring* (27 March 2025).
[2] Ministry of Environment, *Fisheries Management Plan (2010)*, p. 2 (27 March 2025).

The Ministry assesses high priority water bodies every 8–10 years.[3] The Ministry uses data collected during water body assessments about the health and population of fish (e.g., size, weight, maturity) to inform decisions (e.g., adjust catch limits, add fish). It annually communicates fishing rules (e.g., rules about catch and release, fish catch limits) through the Ministry's annual Anglers Guide.[4]

In 2023–24, the Ministry spent about $16.2 million on conserving fish and wildlife populations, and maintaining biodiversity, including approximately $5.5 million through the Fish and Wildlife Development Fund.[5] The purpose of this Ministry-administered Fund is to maintain natural habitats including maintaining and growing sustainable fish populations and their habitats, as well as maintaining game populations and accessible hunting.

Fish, although a renewable resource, are at risk without proper management. Each fish caught or harvested should benefit the angler while minimizing the impact to the ecosystem. In addition, sustainable fishing allows remaining fish to reproduce.

## 2.2 Focus of Follow-Up Audit

This chapter describes our second follow-up audit of management's actions on the recommendations we made in 2019.

We concluded, for the 12-month period ended July 31, 2019, the Ministry of Environment had, except for the areas of our nine recommendations, effective processes to manage freshwater fish populations in a sustainable manner.[6] By 2022, the Ministry implemented seven recommendations and we determined one recommendation was no longer relevant.[7]

To conduct this audit engagement, we followed the standards for assurance engagements published in the *CPA Canada Handbook—Assurance* (CSAE 3001). To evaluate the Ministry's progress toward meeting our recommendations, we used the relevant criteria from the original audit. Ministry management agreed with the criteria in the original audit.

To carry out our follow-up audit, we discussed actions taken with management. We assessed progress and plans toward setting sustainability targets, as well as consulted with an independent consultant with subject matter expertise in fish management.

# 3.0 Status of Recommendation

This section sets out the recommendation including the date on which the Standing Committee on Public Accounts agreed to the recommendation, the status of the recommendation at January 31, 2025, and the Ministry of Environment's actions up to that date.

[3] The Ministry of Environment determines water body priority based on the type of fish in the lake, the usage of the lake (e.g., whether used for commercial fishing), and environmental factors. At March 2025, it identified nine level-one (i.e., high) priority water bodies.
[4] *The 2024–25 Saskatchewan Anglers Guide* (27 March 2025).
[5] *Ministry of Environment Annual Report for 2023–24*, p. 14.
[6] *2019 Report – Volume 2*, Chapter 21, pp. 135–154.
[7] *2022 Report – Volume 2*, Chapter 16, pp. 183-192.

## 3.1 Sustainable Fish Population Plans Started

***We recommended the Ministry of Environment create specific management plans for key high-risk fish species and/or high-usage water bodies.*** (*2019 Report – Volume 2,* p. 147, Recommendation 6; Public Accounts Committee agreement February 9, 2021)

**Status**—Intent of Recommendation Met

The Ministry of Environment researched and developed an approach to establish fish population sustainability targets for its existing fish management plans. It drafted a formal process to make decisions about the sustainability of fish populations (e.g., certain number of fish by size or age) based on data collected about key high-risk fish species in high-usage water bodies. Once finalized, sustainability targets can be used to make appropriate management decisions about fish populations (e.g., change catch limits).

Since 2022, the Ministry hired a dedicated fisheries population ecologist who researches and investigates good practice (e.g., other scientific research) as well as how other jurisdictions across North America (e.g., Alberta, Ontario) manage the sustainability of fish populations. We found the Ministry evaluated appropriate sources of good practice.

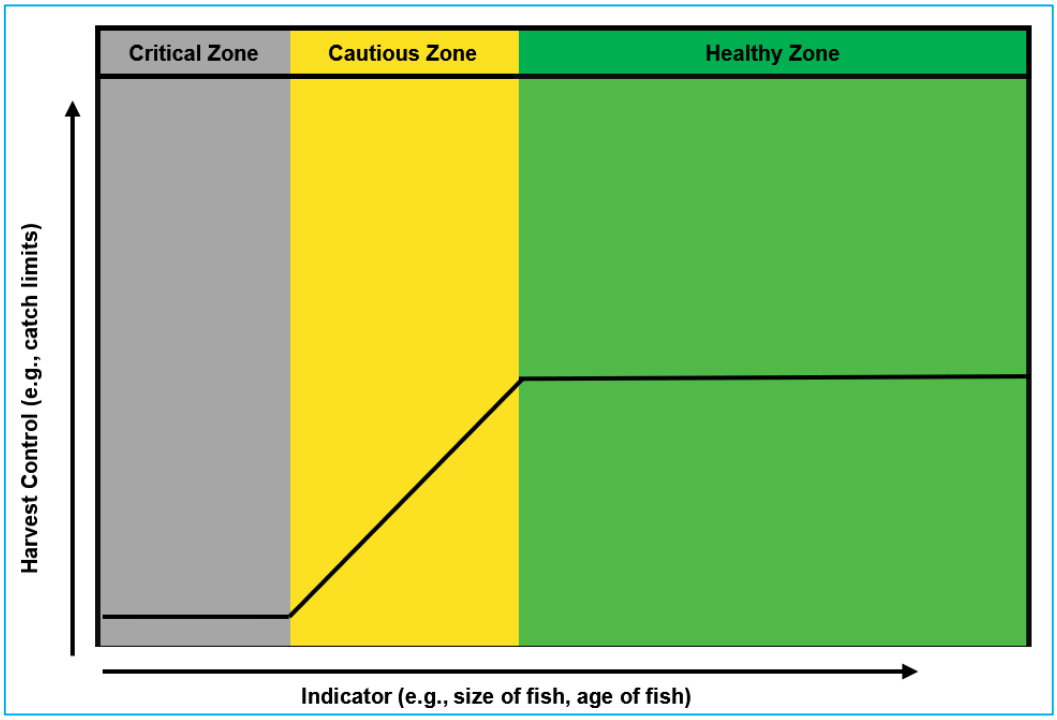
Based on this research, the Ministry planned to implement an approach to manage fish populations to help ensure they remain sustainable that includes:

- Setting desired status (i.e., objectives or sustainability targets) of fish populations for high-risk fish species in high-usage water bodies (e.g., certain number of fish of a certain size or maturity).
- Implementing fish population indicators to measure the status of the fish population (e.g., fish weight, size, age).
- Using existing processes (water body assessments) to gather fish population data for select indicators.[8]
- Comparing indicator results to sustainability targets to make fish population management decisions (e.g., change catch limits). The Ministry will use sustainability targets to establish thresholds in three zones—critical, cautious, and healthy—to direct actions needed, if any. See **Figure 1** for the zones for monitoring sustainability targets.
- Incorporating all analysis requirements into its established water body assessment templates.

[8] The Ministry of Environment completes water body assessments for high-priority water bodies every 8–10 years, or more frequently if needed (e.g., significant decrease in fish populations, significant changes in environment or in use of water body).

We found this overall approach consistent with good practice.

**Figure 1—Zones for Monitoring Fish Population Sustainability Targets**




Source: Adapted from Ministry of Environment records.

The Ministry field staff (e.g., biologists) previously used trends in fish populations (e.g., fish population by age group) from its past water body assessments to recommend changes to the rules (e.g., catch limits) in the Anglers Guide. Previously, we found the Ministry provided no guidance to staff to outline thresholds of when these changes in fish populations may be appropriate for the population and when the changes require management to take action.

By January 31, 2025, the Ministry drafted potential sustainability targets using historical data for some lakes.[9] For example, we observed the Ministry used historical information (1955–2011) from Waterhen Lake showing the impact on fishing limits using its draft approach. Water body assessments showed a decrease in populations for a fish species from the healthy zone to the cautious zone (see **Figure 1** for zones for monitoring fish population). The Ministry decreased catch limits in 1974 (i.e., from limit of three fish to one) and, by 1977, it observed the population returned to the healthy zone.

[9] At January 31, 2025, the Ministry of Environment used historical information to draft potential sustainability targets for two of nine level-one priority water bodies.

Also, at January 31, 2025, we observed the Ministry researched and identified 43 potential indicators that may be relevant to fish populations in Saskatchewan. We found the indicators (e.g., amount of fish, target length) it considered were reasonable (i.e., typical indicators used in good practice). Once the Ministry sets sustainability targets, it will then decide which indicators are best to evaluate fish populations for the targets.

Further, the Ministry has committed to making its water body assessments, including fish sustainability, public when finalized.[10]

Having clear fish population sustainability targets enable the Ministry to take informed, appropriate actions (e.g., change catch limits) to maintain the fish populations in high-usage water bodies.

[10] Standing Committee on Public Accounts Hansard Verbatim Report No. 5 – January 23, 2025, p. 9.