



Québec's 2020-2028

Brook Trout Management Plan

Summary Document



FOR GOOD QUALITY, SUSTAINABLE FISHING

Cover photo: Charles G. Summers, Jr.

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Ministère des Forêts, de la Faune et des Parcs

Introduction

A species management plan is used to review population status, identify the factors that limit its abundance and, where necessary, take steps to improve the situation. The stages leading to the adoption of the Brook Trout Management Plan were as follows:

1. Profile of brook trout population health and harvesting.
2. Identification of factors explaining the species' current status.
3. Survey of anglers to determine satisfaction levels and expectations regarding the brook trout fishing experience.
4. Definition of management guidelines and objectives.
5. Evaluation of harvesting rules that may be needed to achieve the objectives.
6. Provincial and regional consultations.

The process was carried out by the ministère des Forêts, de la Faune et des Parcs (MFFP) in collaboration with the main stakeholders with an interest in brook trout management.



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Brook Trout Ecology

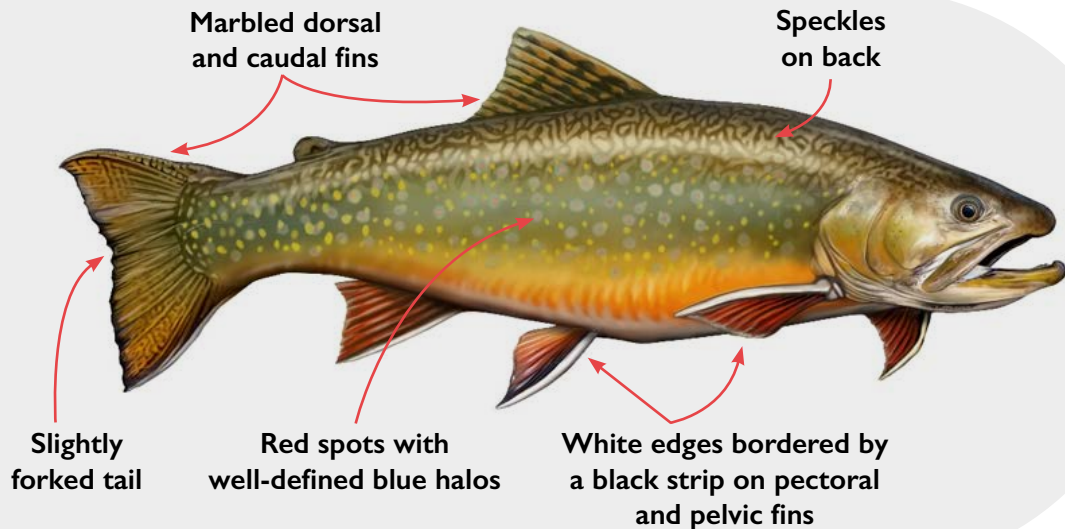
Food: A variety of organisms, including zooplankton, benthic invertebrates, insects, worms, leeches and fish.

Growth: Variable, depending on environmental conditions including temperature and availability of prey fish. Growth is generally greater in lakes than in rivers.

Reproduction: In the fall on gravel beds; in lakes or watercourses, when temperatures are between 5 and 10 °C; usually between the end of September and November, but may begin in late August in northern areas.

Habitat: A wide variety of lakes and watercourses, but more abundant in small lakes with clear, cold, well-oxygenated water. Some anadromous populations may migrate to salt water.

Limiting factors: Overfishing, introduction of species, deterioration of habitat (sedimentation, fragmentation, urbanization, etc.) and climate change.



Distribution

The brook trout (*Salvelinus fontinalis*), also known as the “brook char” or “speckled trout”, is Québec’s most widely-distributed sport fishing species. Originally found only in north-eastern North America, it was subsequently introduced to western Canada and United States, as well as South America, New Zealand, Asia and several regions of Europe.

Historically, brook trout populations have been abundant throughout Québec. Today, however, as its habitat deteriorates due to urban and agricultural development, it is less present in the St-Laurent lowlands. Several watercourses in the Nord-du-Québec, Côte-Nord, Gaspésie and Saguenay–Lac-Saint-Jean regions host anadromous brook trout (sea trout), composed of migratory fish that leave their lakes and rivers and move to brackish or salt water for a period of time before returning to the rivers to reproduce.

Québec also has some allopatric lakes containing only brook trout. These lakes, which are relics of the glacial period and unique to Québec, are usually located at altitude, at the head of catchment areas, and offer an unmatched fishing quality. Unfortunately, roughly 70% of the allopatric sectors have been lost due to deliberate or accidental introduction of competitive species, usually through the use of live bait fish. In these sectors, brook trout must now coexist with other species and the formerly outstanding fishing experience has deteriorated as a result.

Figure 1: Brook trout distribution in Québec



Status of Brook Trout Populations

Since 1970, the MFFP collects fishing data in the province's structured wildlife areas (ZECs, wildlife reserves, outfitters and parks). Analysis of the data on brook trout fishing revealed a decline in fishing yields and success between 1980 and 2010, despite a general reduction in fishing pressure. These trends appear to be related among other things to overfishing, since they were more pronounced on lakes where fishing pressure had increased.

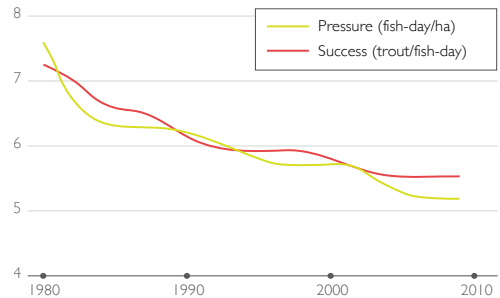


Figure 2: Fishingsuccessbetween 1980and2010

More than 180 lake inventories have been carried out, mostly in the last 15 years, to produce a profile of the brook trout populations. Analysis of the data has revealed that more than **50% of brook trout populations in lakes have been overfished** – in other words, mortality rates are higher than the population's self-renewal capacity. The situation is slightly better in structured wildlife territories than in free access territory, but is of concern everywhere.



In its early days, overfishing is often not apparent, because brook trout populations are extremely resilient to fishing. Abundance and growth may even increase in an attempt to compensate for the high mortality rates, thereby hiding the signs of overfishing. However, when overfishing continues over longer periods, the population can no longer compensate, resulting in a decline of overall abundance and the number of large fish. This has an adverse effect on fishing quality, and the fish are both smaller and less abundant. Ultimately, **spawners (mature female fish) are affected**, reducing the population's self-renewal capacity. At this stage it can be difficult for the population to recover, even if the level of fishing is reduced.

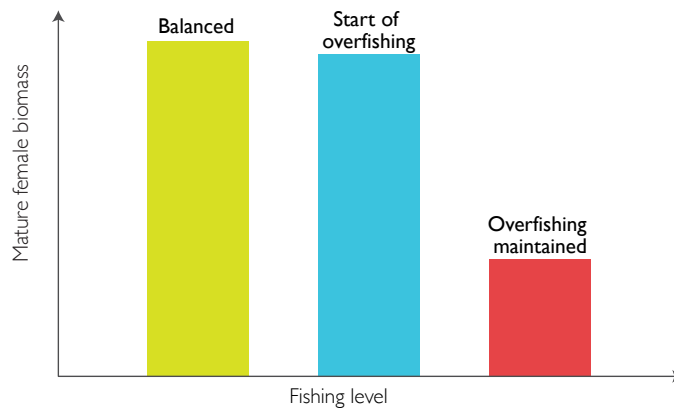


Figure 3: Impact of overfishing on reproductive potential

Although overfishing is one of the factors that may explain the decline of brook trout populations, it is not the only one. Reduced natural productivity due to habitat degradation (as a result of forest management, erosion and sedimentation, urban and agricultural development), loss of allopatric populations and climate change may also be to blame. It is now important to manage the species and protect its habitat in order to improve the quality of the fishing experience and maintain the economic spinoffs from this flagship species of recreational fishing in Québec.



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Management of Brook Trout Fishing

The purpose of managing fishing in Québec is to ensure self-sustainability of populations by maintaining a sufficient number of spawners, and at the same time to provide a high quality fishing experience. Depending on resource availability, the fish available for harvest must be allocated in the following order: 1) subsistence fishing by Aboriginal communities, 2) sport fishing, and 3) commercial fishing.

Fishing by Aboriginal communities for subsistence, ritual and social purposes

Brook trout fishing for subsistence, ritual and social purposes is extremely important to the distinctive cultures of certain Aboriginal communities and nations. Anadromous brook trout populations, with their larger fish, are particularly prized by the Aboriginal people. The Québec Government has and will continue to enter into agreements with the Aboriginal communities concerned, to reconcile their subsistence, ritual and social activities with conservation and wildlife management needs. Agreements such as this have been entered into with some Micmac communities in Gaspésie and some Innu communities in the Côte-Nord region.

Sport fishing

Brook trout is the **most prized species by sport anglers** in Québec. With 3.5 million fishing days per year, it accounts for 30% of the total fishing effort in the province. It is also the most captured species, at 16 million fish per year. Based on an estimated release rate of 25%, this means that roughly 12 million brook trout are harvested each year.

Brook trout sport fishing is an important economic motor for Québec's regions. Brook trout are predominant in eastern Québec, from Mauricie to Côte-Nord, including Saguenay-Lac-Saint-Jean and Bas-Saint-Laurent. This activity generates annual province-wide expenditures estimated at \$340 million. It is also the harvesting activity that creates the most jobs, hunting, fishing and trapping combined.

Although more than 40% of the fishing effort takes place in free access territory, the brook trout is the main fishing product available in wildlife areas (ZECs, wildlife reserves, outfitters and provincial parks). In these areas, registration and monitoring of catches are used to control harvesting by means of annual quotas.

The brook trout is also the species used most frequently as a stock fish. More than 450,000 kg are stocked per year, or roughly 4.3 million brook trout, to support sport fishing.

Some figures

Brook trout fishing is:

Sport fishing

- **700,000 anglers**
- **3.5 million fishing days per year**
 - > 16 million brook trout caught
 - > 12 million brook trout kept
- **Average success rate of**
 - > 7.2 brook trout caught/day and
 - > 5.4 brook trout retained/day
- **25% release rate**
- **\$340 million in annual expenditures**
- **3,000 jobs**
- **Stocking**
 - > 450,000 kg per year
 - > Industry of \$6 to \$8 million

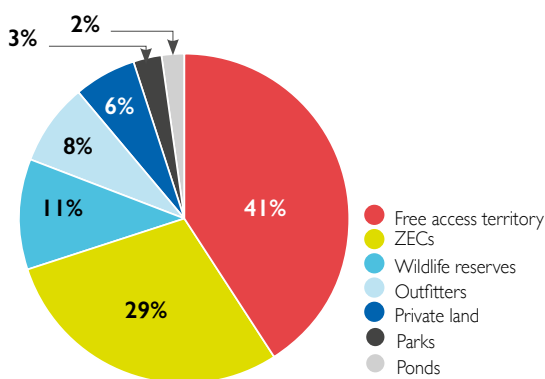


Figure 4: Distribution of brook trout recreational fishing effort

Commercial fishing

The anadromous brook trout is fished commercially in the estuary areas of the Basse-Côte-Nord region, from Pigou to Blanc-Sablon. The ministère de l'Agriculture, des Pêcheries et de l'Alimentation (MAPAQ) has monitored annual landings since 1998, and has found that they vary from 13 to 33 tons per year. Commercial fishing is carried out by approximately 60 commercial fishermen, mostly from communities. The MFFP establishes quotas for each fishing sector:

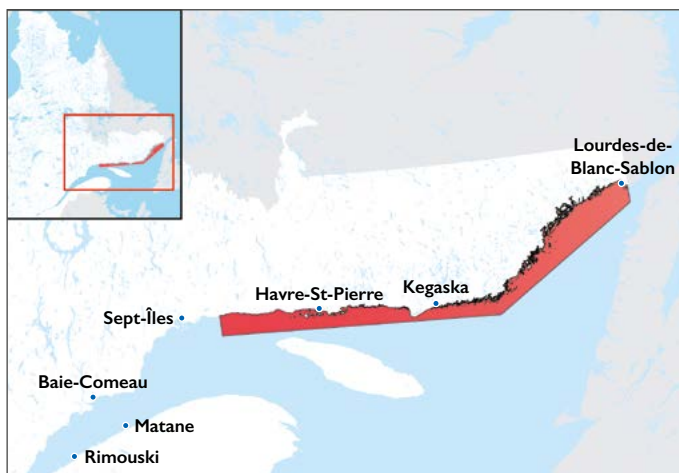


Figure 5: Commercial fishing sectors – Brook trout





Main Measures

There are a number of reasons underlying the current population status and declining fishing quality, including overfishing, habitat degradation and the introduction of competitive species. The Management Plan therefore aims to adapt fishing harvest to stock abundance, and will also act on other fronts to improve natural population productivity. As a result, regulatory amendments for sport fishing account for only some of the 70 measures set out in the 2020-2028 Brook Trout Management Plan.

Sport fishing rules in force as from April 1st, 2020

Given the large number of brook trout anglers, the importance of the species for sport fishing in Québec and the role it plays in introducing new generations of anglers to the sport, the changes made to the sport fishing rules are designed mainly to simplify the activity and bring it into line with the resource's current status. For example, the daily catch and possession limit has been reduced in some zones. In addition, in zone 21, where only anadromous brook trout are found, special rules will apply east of the western point of Kegaska Island in the Côte-Nord region (see Figure 6 on the next page).

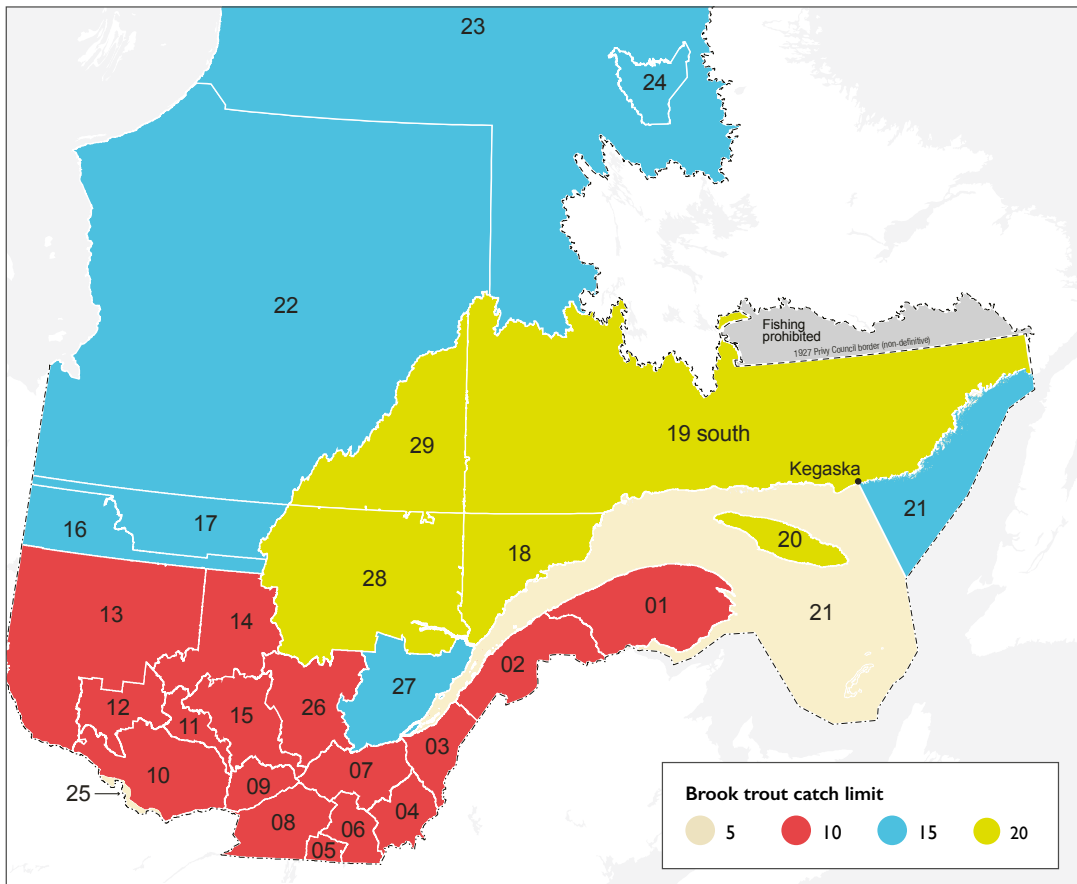


Figure 6: Brook trout catch limits by fishing zone in Québec

Open season of brook trout fishing

Zones	Brook trout fishing in 2020-2021
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 20, 26, 27, 28 and 29	From April 24 to September 13, 2020
16 and 17	From April 24 to September 7, 2020
18 and 19 south	From April 1 st to September 13, 2020 and from December 1 st , 2020 to March 31 st , 2021
21	From April 1 st , 2020 to March 31 st , 2021
22, 23 and 24	From June 1 st to September 7, 2020
25	From April 24 to September 30, 2020

The opening and closing dates for brook trout fishing have been changed slightly in some zones, to bring them into line with the dates of other zones or for other species, such as the lake trout.

For information on all the applicable rules, please see the Sport Fishing section of the Québec.ca website at: www.quebec.ca/tourisme-et-loisirs/activites-sportives-et-de-plein-air/peche-sportive/.

Reducing release mortality

According to the 2010 Survey of Recreational Fishing in Canada and the survey of brook trout sport fishing carried out by the MFFP in 2018, 25% of all brook trout caught by anglers are released voluntarily. However, the brook trout is a fragile species and release mortality can be between 35% and 50% in cases where anglers use natural bait (earthworms). This means a loss of 1.6 million fish every year.

The MFFP has proposed a number of catch-and-release best practices to reduce release mortality rates. For additional information, please see mffp.gouv.qc.ca/la-faune/peche/remise-eau-poisson.

DECLARING CATCHES: A GESTURE THAT COUNTS!

Management in structured wildlife territories

The application of annual quotas is one of the most effective ways of maintaining an acceptable harvest level, provided the quotas are consistent with productivity rates and declarations filed by anglers are accurate. To ensure sustainable fishing, a quota should be a maximum level that must not be exceeded, rather than a threshold to be attained. The MFFP and its partners would like to review the method used to determine quotas in structured wildlife territories, to ensure that they are consistent with natural productivity levels. It is also important for anglers to contribute to the process in wildlife territories, by providing the basic catch data (harvest, effort and weight) needed for sound fish management.

Conservation of special status populations

One of the features that distinguishes brook trout in Québec is the presence of allopatric populations, which offer an unparalleled fishing experience. Unfortunately, nearly 70% of formerly allopatric sectors are no longer classified as such, mainly due to human activities such as log driving, the use of live bait fish and illegal stocking. The introduction of competitive or predatory species can reduce fishing yields by between 30% and 70%, depending on the species concerned. It is vital to identify and recognize allopatric populations so that they can be protected and their economic, genetic, ecological and heritage importance can be maintained.

In sympatric sectors where brook trout coexist with other species, there are also some populations that provide high fishing yields. These bodies of water should be designated and protected, to avoid overfishing and habitat degradation and preserve fishing quality.

Habitat protection and restoration

A number of management activities have been carried out to address lower fishing yields and the degradation of habitats in urban, agricultural and forest areas, including the development of spawning grounds and sills, watercourse cleaning and restoration of original biodiversity. Although many of these actions have been effective, some have still not produced the anticipated results. Tools will therefore be proposed to evaluate the conditions for success of initiatives such as these and identify those that should be given priority in the future. Steps will also be taken to improve habitat protection on private land and in forests.





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Stocking for development

Brook trout stocking can be useful in improving the quality of sport fishing. In Québec, stocking is carried out primarily by private sector stakeholders, and forms the basis of an industry valued at between \$6 and \$8 million. A number of tools have been developed to optimize the stocking process, including a leaflet on the subject and stocking plans for wildlife territories. These tools regulate stocking activities, helping to ensure that they are effective and minimizing their impacts on indigenous fish populations.

Anadromous brook trout

There is also an anadromous form of brook trout (sea trout) that migrates from rivers to coastal areas in order to grow before returning to its freshwater environment for reproduction. The profile of anadromous brook trout, based on catch data collected from anglers and scientific monitoring of harvests since the 1980s, shows that several well-known populations have declined in both abundance and size. Anadromous brook trout are harvested by a diverse group of anglers in the estuary and coastal zones, and provides a river fishing opportunity similar to that of Atlantic salmon (*Salmo salar*).

Anadromous brook trout populations have not been included in the 2020-2028 Management Plan due to the highly distinct ecology of the resident (freshwater) form. Given the fragmentary nature of the available information and the lack of standardized provincial monitoring tools, the MFFP has opted instead for a 2019-2022 Action Plan that calls for the creation of a monitoring network specifically for anadromous brook trout, along with better information on its habitat needs. Combined with projects carried out in collaboration with local partners, this additional information will be used to manage the resource and its critical habitats for the benefit of present and future generations of anglers.

For further information on new rules for brook trout fishing:
mffp.gouv.qc.ca/la-faune/plans-de-gestion

For further information on general sport fishing rules:
quebec.ca/tourisme-et-loisirs/activites-sportives-et-de-plein-air/peche-sportive



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