



2011-2016 Québec Walleye Management Plan

Quality, Sustainable Fishing



2011-2016 Québec Walleye Management Plan

Management plans enable us to take stock of the situation in regards to a given species, identify the factors that limit its abundance and, if required, take steps to improve things. In the case of the Walleye Management Plan, the following steps preceded its implementation:

- 1- Prepare a profile of the health of the walleye population and its exploitation in Québec.
- 2- Determine which factors limit the abundance and distribution of the species.
- 3- Assess the satisfaction level of walleye fishermen.
- 4- Set procedures that could be implemented to improve the state of the fish stocks and catch quality.
- 5- Effect any desired regulatory amendments.
- 6- Monitor fish stock evolution to measure the efficiency of the implemented procedures.

This process was coordinated by the ministère des Ressources naturelles et de la Faune (MRNF) with the cooperation of various actors involved in walleye management in Québec.

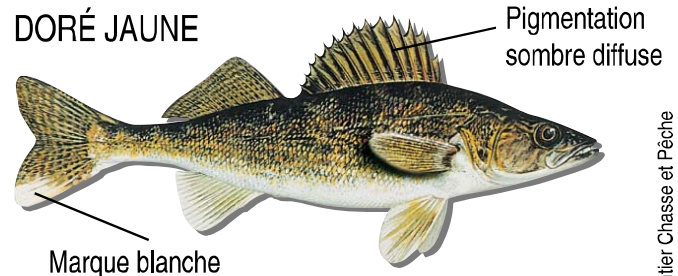
Walleye Distribution

There are two species of walleye in Québec, yellow walleye (*Sander vitreus*) and Sauger, or sand pickerel (*Sander canadense*). These two species are distinguishable by their behaviour, distribution areas and preferred habitats. Both are similar in appearance, which means that few fishermen are able to tell one from the other. In fact, historically, there has never been a species distinction in walleye management plans. Nonetheless, a number of distinguishing features do make it possible to easily recognize individuals of each species (see opposite).

Current knowledge tells us that yellow walleye is found in at least 1,578 Québec lakes that have a total area of somewhat more than 30,000 km². Sauger has a more limited distribution area, and is found in some Nord-du-Québec and Abitibi-Témiscamingue lakes, in the Ottawa River and in the St. Lawrence, up to the estuarial freshwater boundary near the Île aux Grues archipelago.

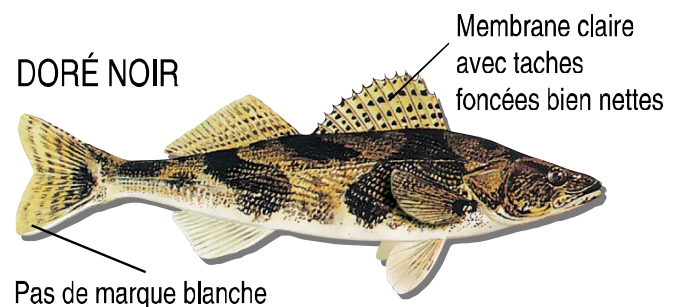
Yellow walleye are more popular among fishermen, since individuals reach an attractive size even before sexual maturity, contrary to Sauger, which remain small even at maturity. Consequently, many fishermen catch walleye before they are able to reproduce even a single time.

DORÉ JAUNE



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DORÉ NOIR



Ecology of the Walleye

Food supply: Zooplankton for young walleye and other species dominance for adults.

Growth: In Québec, walleye grow slowly in cold water and quickly in warm water.

Reproduction: Spring spawning, especially at the mouths of rivers and sometimes in lakes, when the water temperature is between 5.6 and 11.1°C. Females mature when they have reached between 35 and 45 cm in length for yellow walleye, and at least 30 cm for Sauger.

Habitat: Shallow, murky lakes of size in excess of 100 hectares.

Limiting factors: Sport and commercial fishing, lake acidification, increased water clarity, increased presence of phosphorous, alien species, sickness and pathogens.

Managing the Walleye Fishery

Managing the walleye fishery in Québec means ensuring population renewal by conserving sufficient numbers of spawners. An order of priority that starts with the subsistence needs of First Nations peoples, continues with sport fishing and ends with commercial fishing is vital to this management plan.

Subsistence Fishing

Walleye fishing is of primordial food, ritual and social importance to First Nations peoples, particularly in the Abitibi-Témiscamingue, Lanaudière, Laurentides, Mauricie, Montérégie, Nord-du-Québec, Outaouais and Saguenay-Lac-Saint-Jean regions. Aboriginal fishing practices are governed by special agreements between the MRNF and Band Councils.

Sport Fishing

According to a 2005 study of sport fishing in Canada, walleye sport fishing led to approximately 8 million fish being caught, **which made it the second largest species by volume** after brook trout. Walleye fishing is in large part practiced in inland waters (85%) and accounts for one-third of the recorded number of fishing days in Québec. Walleye fishing is a major regional economic motor force that has an estimated annual economic spin-off of some \$234 million.

The same study revealed that **77% of walleye fishermen prefer to catch a smaller number of larger fish, rather than a larger number of smaller ones**. However, current walleye fishing is predicated on catching a small number of small fish, which does not correspond to the expectations of the clientele. Moreover, in order to grasp the level of satisfaction of walleye fishermen, the MRNF surveyed them in 2010. The survey showed that 51% of these fishermen are partly or completely dissatisfied with the quality of walleye sport fishing.

Commercial Fishing

Commercial walleye fishing was formerly common on many lakes, as well as up and down the St. Lawrence River. However, this all changed suddenly at the beginning of the 1970s due to mercury contamination, which meant that the fishery no longer met fish product marketing standards. Since 1971, commercial walleye fishing is only authorized in the St. Lawrence River between the pont Laviolette and the eastern tip of Île d'Orléans. Average annual yellow walleye catch is 10 tons, while Sauger catch is 2 tons.

A Few Figures

Walleye fishing in Québec means:

Sport Fishing

300,000 fishermen

- 3 million man-days of which:
- 2.25 million in inland waters
- 450 in the St. Lawrence River
- 8 million yellow walleye caught
- \$234 M in economic spin-offs (\$65/kg)

Full time jobs: 2,143 (\$25.1 M in salaries)

Income and incidental taxation revenue:

- \$31.5 M provincial
- \$24.5 M federal

Commercial Fishing

Landings:

- 25,000 yellow walleye (10 tons)
- 5,000 Sauger (2 tons)

Landed value: \$55,000 (\$2.30/kg)

Walleye Population Status

The MRNF has been particularly concerned about the status of walleye populations for some twenty years. In 2009, a project funded by a rise in the price of hunting, fishing and trapping licences enabled an inventory network of some 60 lakes with walleye populations to be set up throughout Québec. These lakes will be inventoried every six years to monitor population evolution and measure the effect of the management program.

Walleye population assessment has been carried out in both inland waters and in the St. Lawrence River through analysis of inventory data over a period of more than 20 years.

A number of worrisome biological conclusions have emerged, especially in regard to yellow walleye. In effect, inventory data analysis has revealed a significant deterioration in population structure (few spawners) as well as a marked decline in catch quality (low success and average mass). After analysing all of the factors that limit walleye abundance, the MRNF concluded that over-fishing is chiefly responsible for the decline in the walleye population. Contrary to yellow walleye, Sauger is considered viable throughout Québec.

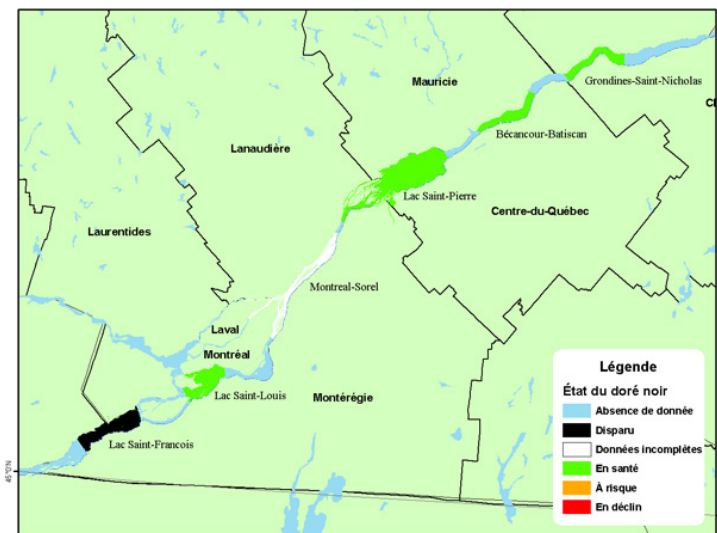
Current knowledge on walleye populations confirms that the MRNF needs to act now, before some of these populations collapse. For this reason, a proactive stance is required if the economic benefits associated with walleye fishing are to be protected.

St. Lawrence River

Sauger

Sauger, or sand pickerel, is deemed to be extinct in lac Saint-François since 1968. This highly light-sensitive species seeks deep, murky water habitats. Increased water transparency due to zebra mussel colonization of the Great Lakes-St. Lawrence River basin seems to have contributed to the disappearance of this species from lac Saint-François.

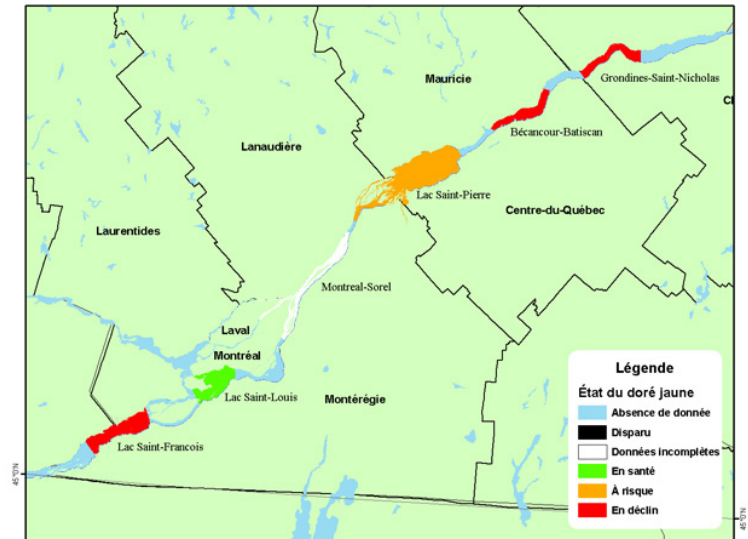
Sauger populations in lac Saint-Louis, lac Saint-Pierre and upstream from pont Laviolette are deemed healthy. Increased population abundance has even been observed in these locations.



Yellow Walleye

In lac Saint-François, yellow walleye is in decline for the same reasons as Sauger. On the other hand, walleye populations are in good shape in lac Saint-Louis. Similar to the case for Sauger, no diagnosis is available in the Montréal-Sorel sector due to insufficient data. In lac Saint-Pierre and upstream from pont Laviolette, populations are considered to be at risk or in decline, with an increase in mortality rates in the last 10 years and less abundance of mature females.

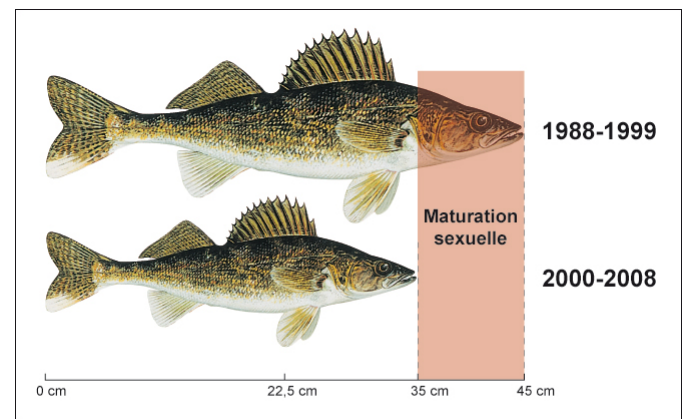
Downstream from pont Laviolette, there is a serious lack of population balance, with few generations being represented and with lower and weaker overall abundance of mature females due to higher mortality. This is the only sector where walleye stocks are subject to both sport and commercial fishing. The combined pressure in the Bécancour-Batiscan belt, coupled with habitats that are less favourable to this species, may explain the decline in stocks.



Inland Waters

Yellow Walleye

Yellow walleye is overexploited in approximately 30% of lakes that have been inventoried since 1988. It has been observed that population mortality rates have also risen by some 17% in the last two decades, indicating that there will continue to be population deterioration if catch pressure remains unchanged. Mature female abundance and fertility has also dropped by one-third in the past 20 years, and this has reduced the populations' reproductive potential. Catch quality has also been affected, since average size of fish caught has dropped by 20% during the same period of time.



Diminution de la taille moyenne des femelles matures de doré jaune entre 1988 et 2008

Sauger

Current knowledge suggests that Sauger is doing well in inland waters. This is not a prime sport fishing target species due to the small size individuals reach in lakes.



Proposed Management Procedures

With a view to meeting fishermen's expectations, and looking to implement efficient management policies, the MRNF analysed a number of potential scenarios before it adopted the new procedures:

1. Shorten the fishing season
2. Lower the daily catch limit
3. Implement limits on catch size
 - Minimum size (catch and release fish whose size is below the lower threshold)
 - Maximum size (catch and release fish whose size is above the upper threshold)
 - Range of protected sizes (catch and release fish whose size falls between two thresholds)
 - Range of managed sizes (keep fish whose size falls between two thresholds)
 - Annual catch quotas (lakes closed to fishing once quotas have been reached)

Biological observations and socio-economic information that emerged in the survey suggested that the use of minimum size, range of acceptable size and annual catch quota criteria would be the most efficient management techniques, and also the easiest to apply.

Minimum Size

This measure involves releasing all fish caught whose size is below a defined threshold. Using a minimum size criterion aims at delaying fish whose size indicates they are close to sexual maturity from entering the fishery cycle. This also enables a greater number of fish to reproduce at least once. Minimum size is an efficient way of increasing species abundance and average fish size and for ensuring catch success. However, this management technique alone would not be enough to increase species abundance and spawner size.

Range of Managed Sizes

Range of managed sizes is a management tool that allows fishermen to keep only those fish whose size falls within a specific range. This technique combines the concepts of minimum and maximum size and is efficient for fisheries that show signs of overexploitation, low recruitment and reduced average size of individuals. The range of size criterion seeks to reduce total mortality and raise the recruitment level of fish populations by protecting recruits until the time of first reproduction, and also major spawners.

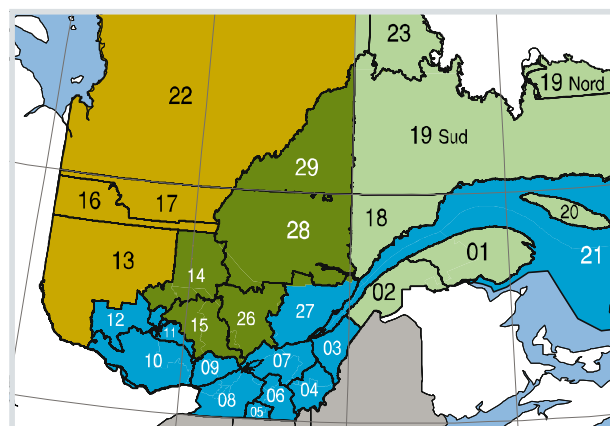
Annual Quotas

This policy is definitely one of the most efficient in reaching and maintaining optimal yield, on condition that quotas fairly represent individual lake productivity and that catch reports are reliable. Since this procedure relies on catch data (harvest, effort, weight) being compiled for each body of water, this type of measurement can only be used in structured wildlife areas such as Zecs, wildlife sanctuaries, national parks and in outfitting operations.

New Regulations (April 2011)

The state of Québec yellow walleye populations has caused the MRNF to make significant changes to the management measures for this species, with new procedures coming into effect in April 2011. These measures are intended to lower the sport and commercial fishing walleye catches in order to:

1. Foster the species' reproductive potential and ensure population renewal
2. Improve catch quality and provide a product that meets the expectations of fishermen.



Limits on Size... Throughout Québec

The defined limits on size apply to total walleye length, in centimetres. Total length means maximum fish length as measured from the tip of the snout to the extremity of the tail lobes. The MRNF recommends that fishermen check the regulations on its Internet site, since exceptions apply in some regions.

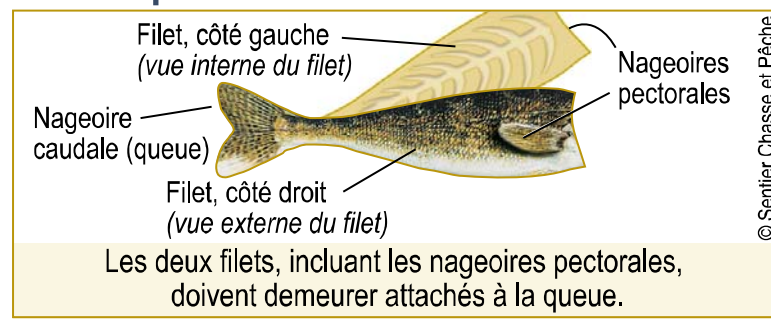
Fishing Zones	Species	Size Limit (cm)	Transport
1, 2, 18, 19, 20, 23, 24	No walleye in these zones		
14, 15, 26, 28, 29	Yellow walleye Sauger	Between 32 and 47 cm No limits	Whole walleye or butterfly fillets
3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 21, 27	Yellow walleye Sauger	Between 37 and 53 cm No limits	Whole walleye or butterfly fillets
13, 16, 17, 22	Yellow walleye and Sauger	Minimum size: 32 cm	Whole walleye or fillets of at least 20 cm

www.mrnf.gouv.qc.ca/fr/regles-faune

Transporting Walleye

In order to encourage compliance with the new regulations in zones where various sizes are permitted, fishermen will need to transport their catch either whole or as butterfly fillets so as to allow identification of the walleye species and also determine the total length of individuals.

Filet en portefeuille



In fishing zones 13, 16, 17 and 22, where the 32 cm minimum length applies, fishermen can transport their catch whole or in traditional fillets of at least 20 cm in length.

Conclusions

The management procedures that have been selected for the 2011-2016 walleye management plan will improve catch and population structures and lead to a greater abundance of spawners. This major change in walleye management in Québec will enable a sustainable, quality catch so that future generations in their turn can enjoy the delicate white flesh of this magnificent fish.

More Information

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Healthy Catch and Release Practices

Catch and release involves the risk of fish mortality. While high mortality rates can annul the benefits of the procedures that are being promoted, we know that walleye have a relatively low rate of catch and release mortality; somewhat less than 5% pour yellow walleye and around 10% for Sauger.

Nonetheless, the following healthy catch and release practices can increase fish survival rates:

1. Try to keep the fish in water and hold them gently.
2. Keep manipulation to a minimum because this removes the protective mucus.
3. Avoid touching gills.
4. Use long-nosed pliers to delicately remove hooks.
5. Revive fish prior to release using gentle movements, to allow water to reach the gills.
6. Ensure that the fish are breathing and can swim on their own prior to release.



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Québec

