

Alberta Walleye (lakes), Fish Sustainability Index

The Walleye (lakes) Fish Sustainability Index (FSI) summarizes scientific and local knowledge to assess the health of walleye in lakes in Alberta. Alberta walleye populations in rivers will be assessed separately.

Walleye FSI Maps

Adult Density (Historic and Current)

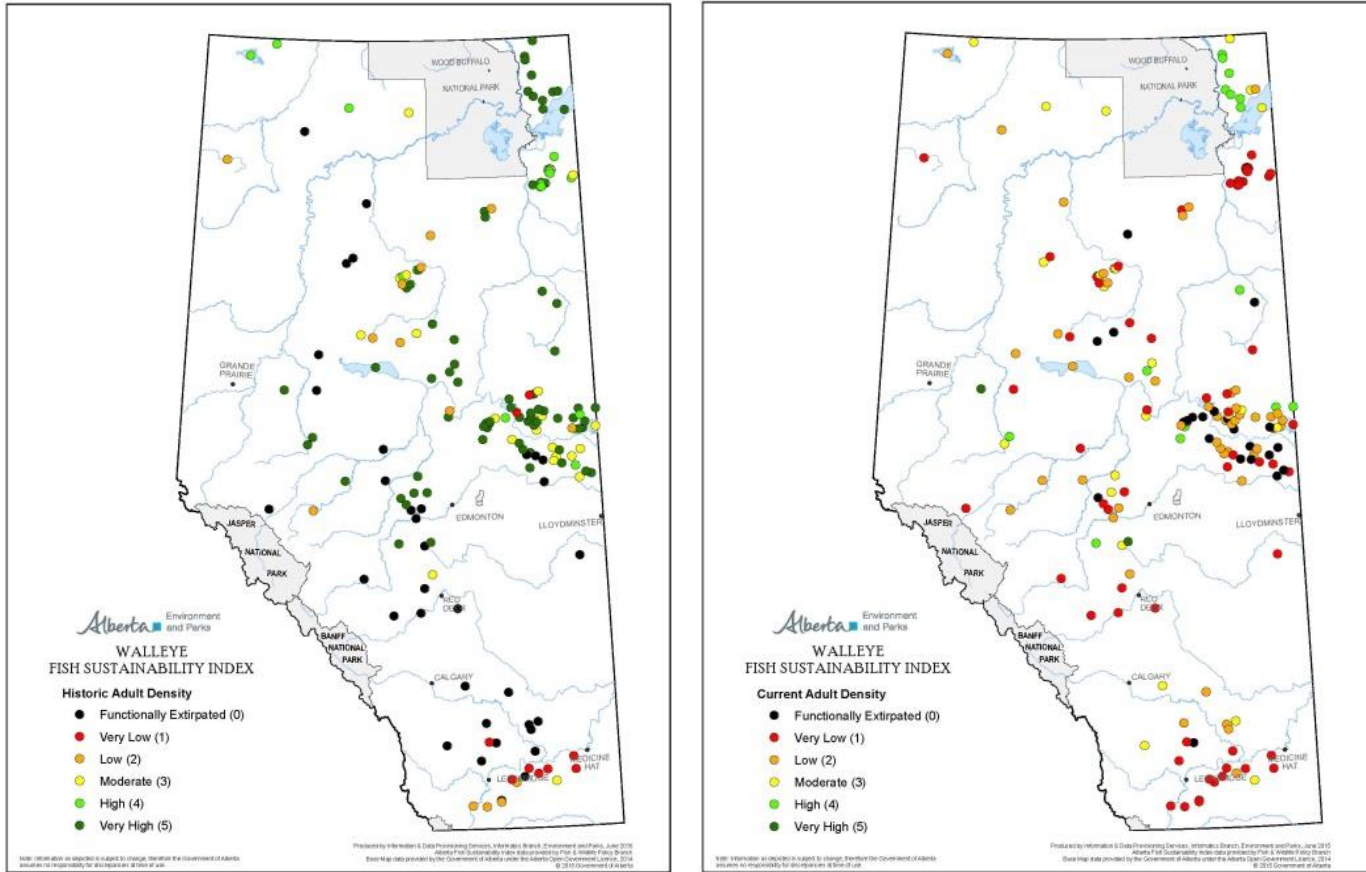


Figure 1. Historic (generally pre-1960) and current (generally 2008-2014) adult density Fish Sustainability Index (FSI) rankings for walleye in Alberta, 2015. Please note that data reliability is not currently displayed in these figures.

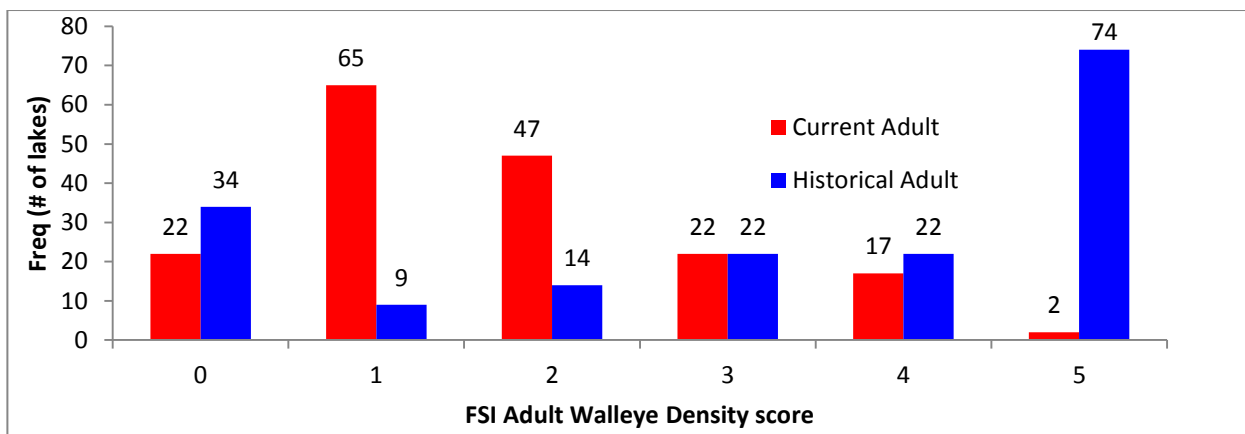


Figure 2. Frequency histogram of historic (generally pre-1960) and current (generally 2008-2014) adult density Fish Sustainability Index (FSI) rankings for walleye in Alberta, 2015

Habitat and Overharvest Protection Needs

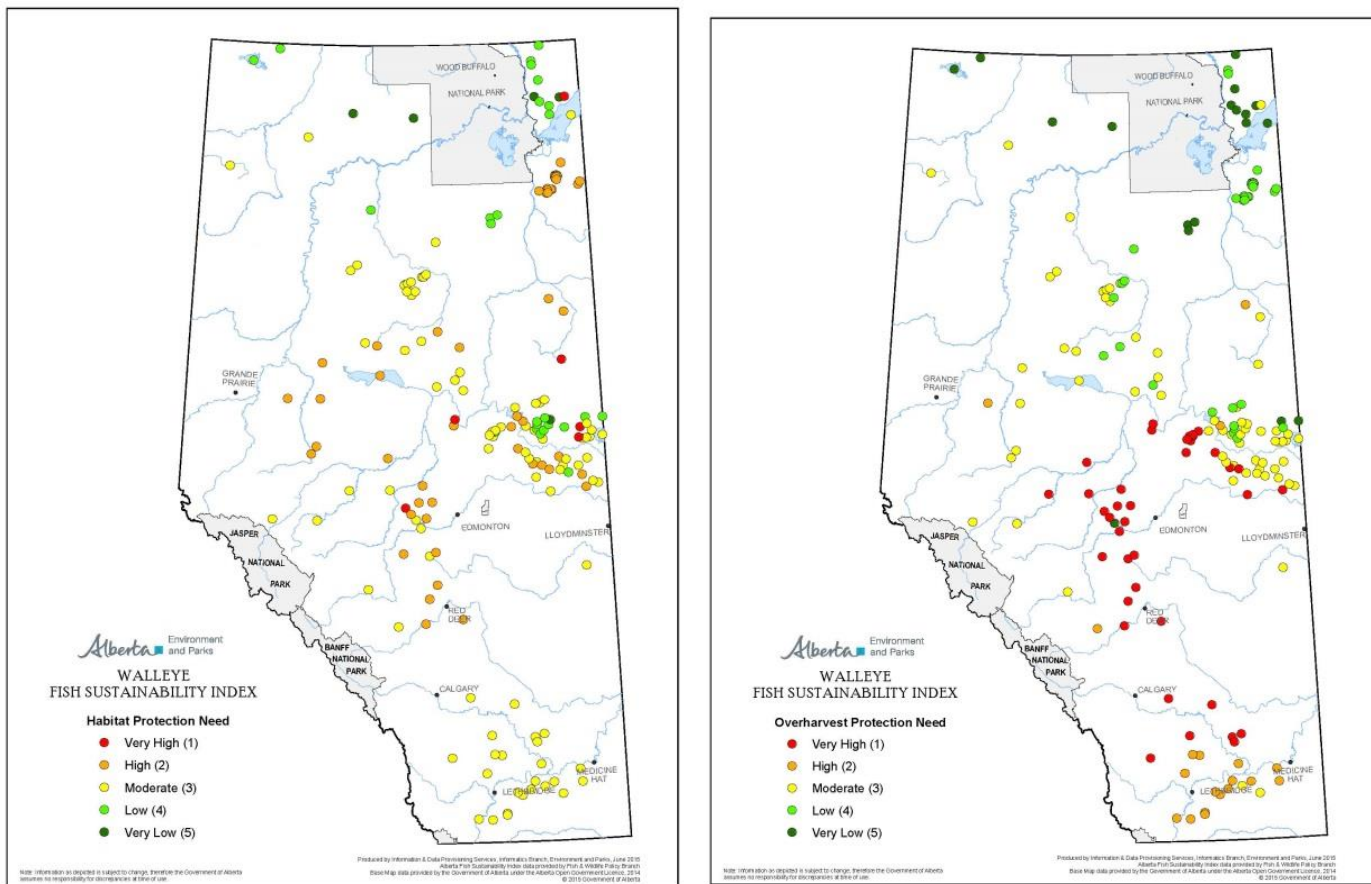


Figure 2. FSI rankings for habitat protection and overharvest protection needs for walleye populations in Alberta, 2015. Please note that data reliability is not currently displayed in these figures.

Walleye Population Status

Walleye in Alberta are located near the northern edge of this species' range, and compared to southern populations, growth rates are slower, maturity is later and consequently the fisheries are less productive. Historically, walleye were likely abundant in only about half of Alberta's fish-bearing lakes. Many Alberta lakes are naturally limited by low oxygen, small size, or high salinity and would not have supported walleye.

Collapse and Recovery

Because of their popularity as a sport and commercial fish, walleye were severely overharvested in Alberta. Surveys of sport anglers during the 1980s and 1990s showed that less than 10% of anglers at Alberta walleye lakes were successful in catching even one walleye. Even large, once-productive walleye lakes like Lesser Slave, Pigeon and Lac La Biche were effectively fished out, with no walleye being caught in some years. Widespread walleye stocking has been tried throughout the 1980s and 1990, but with little or no success in boosting natural fisheries (although stocking in newly created lakes, such as reservoirs in southern Alberta did show some notable successes). Reductions in commercial walleye quotas were widespread, but were not enough by themselves. In the late 1990s, however, responsible restrictions on sport harvest of walleye were implemented and most walleye populations responded quickly. At many lakes, angler success rates jumped to over 80%, and walleye fishing at certain Alberta lakes became famous. The 2010 Canada-wide survey of sport fishing showed that Alberta's caught more fish (mainly walleye) than did anglers in all other Canadian provinces except Ontario and Quebec!

Recovery still needs help!

Walleye numbers at many lakes have dramatically improved, but the young age and small size of the fish is still disappointing to many anglers. Even with sport harvest restrictions, few walleye have been living long enough to grow to become quality-sized fish. The closure in 2014 of Alberta commercial gill-net fisheries is expected to help with the recovery of many of these walleye fisheries. At some of our most popular fisheries, however, the numbers of sport anglers is so high that even low rates of accidental catch-and-release mortality is preventing walleye from living long enough to become old and large.

Stocking not necessarily the solution

In spite of the widespread past failures of stocked walleye to recover our natural fisheries, stocking remains the only option when populations have been lost. At our most severely overfished walleye lakes, highly concentrated stocking efforts during the late 1990s and 2000s were tried in an effort to kick-start their recovery. Stocking walleye at Pigeon Lake appears to be a notable success, while stocked walleye fisheries at Wabamun and Lac La Biche are still in the wait-and-see phase. The goal of walleye stocking in Alberta has always been to create these self-sustaining (spawning) populations. Unlike our successful rainbow trout pond stocking program, walleye grow far too slowly and have too high mortality as young to be economical for put-and-take stocking,

Walleye need clean water, too

Several important walleye lakes have been lost or damaged because of declining water quality. The watersheds around lakes such as Lac La Nonne and Lake Isle have suffered from poorly planned development, and the water quality has declined to the point where summer and winterkills of fish because of low oxygen (resulting from algae blooms) are frequent. Concerns about excessive nutrients causing algae blooms are facing many other important walleye fisheries including Lac Ste. Anne, Pigeon and Lesser Slave lakes. Effective watershed protection and planning will be essential if these lakes are to remain healthy.

We're getting there

Based on data from 2008 to 2014, biologists ranked 23% of Alberta walleye populations as healthy (low to moderate risk, Figure 2). This sounds bad, but is a considerable improvement from the 1980s and 1990s, when all road-accessible walleye fisheries were collapsed or at low densities. A large number of lakes are still at high risk (112 out of 175 lakes, or 64%, Figure 2) and will require additional conservation actions including harvest controls and watershed protection to ensure continued angling opportunities.

In summary, although lake walleye populations have shown tremendous recovery since the provincially widespread and serious collapses in the 1980s and early 90s, strong conservation efforts are needed to continue the restoration of Alberta's important walleye fisheries.

Threats to Sustainability

The main threats to sustainability of walleye in lakes were noted as:

- Nutrient runoff from development (mainly agriculture and urbanization, but also forestry and oil and gas development) into the surrounding watershed has resulted in algae blooms and declining oxygen levels, which has increased the frequency of fish summer and winter kills in lakes.
- Overharvest (including hooking mortality and poaching) continues to threaten walleye sustainability, although conservation-based regulations have resulted in the recovery of populations at numerous lakes.

Next Steps

- Continue standardized monitoring of fish in lakes using Fall Walleye Index Netting (FWIN) protocols.
- Consultation with First Nations, anglers, and Alberta's public to determine practical and desired state of the fisheries
- Recover collapsed (high risk) walleye fisheries to more sustainable levels

- Ensure watershed planning councils understand and act to conserve clean water and healthy fisheries
- Implement simple and effective sport fishing regulations, with goals of providing more sport fishing opportunities and recovering fisheries

Related Information

- [Walleye \(*Sander vitreus*\)](http://esrd.alberta.ca/fish-wildlife/wild-species/fish/perch-related/walleye/walleye.aspx)
<http://esrd.alberta.ca/fish-wildlife/wild-species/fish/perch-related/walleye/walleye.aspx>
- [Fish Sustainability Index](http://esrduat.alberta.ca/fish-wildlife/fisheries-management/fish-sustainability-index/default.aspx)
<http://esrduat.alberta.ca/fish-wildlife/fisheries-management/fish-sustainability-index/default.aspx>
- [FWIMT – Fish and Wildlife Internet Mapping Tool](https://maps.srd.alberta.ca/FWIMT_Pub/default.aspx?Viewer=FWIMT_Pub)
https://maps.srd.alberta.ca/FWIMT_Pub/default.aspx?Viewer=FWIMT_Pub
- [Land-use Framework](https://landuse.alberta.ca/Pages/default.aspx)
<https://landuse.alberta.ca/Pages/default.aspx>