

Alberta's Species at Risk Series

ALBERTA'S NATIVE TROUT



By Inside Education



Alberta's native trout include the lake trout, bull trout, Athabasca rainbow trout and westslope cutthroat trout; all but the lake trout are currently considered a threatened species under Alberta's Species at Risk designations.

Aquatic ecosystems depend on the presence of native fish populations as a part of natural food chains. By consuming insects and other fish, trout act as top-down regulators on stream ecosystems. Trout were some of the first fish species to populate the region at the end of glaciation, and because they have adapted to such particular habitat requirements, they can act as indicator species for the health of our watersheds.

Non-native trout species include the brook trout, brown trout, tiger trout, and the rainbow trout.



Lake trout

Scientific Name: *Salvelinus namaycush*

Status: Sensitive

Reproductive age: 8-10 years

Length: 60-90 cm

Diet: Young lake trout eat aquatic invertebrates, while large adults eat other fish

TROUT LIFE CYCLE



Egg

The female trout lays her eggs in a gravel bed called a redd.



Alevin

The egg hatches into an alevin. The alevin has an orange yolk sac, which contains nutrients. The yolk sac is eaten by the alevin until it has been completely ingested.

The male trout releases his sperm while swimming above the redd to fertilize the eggs.



Fry

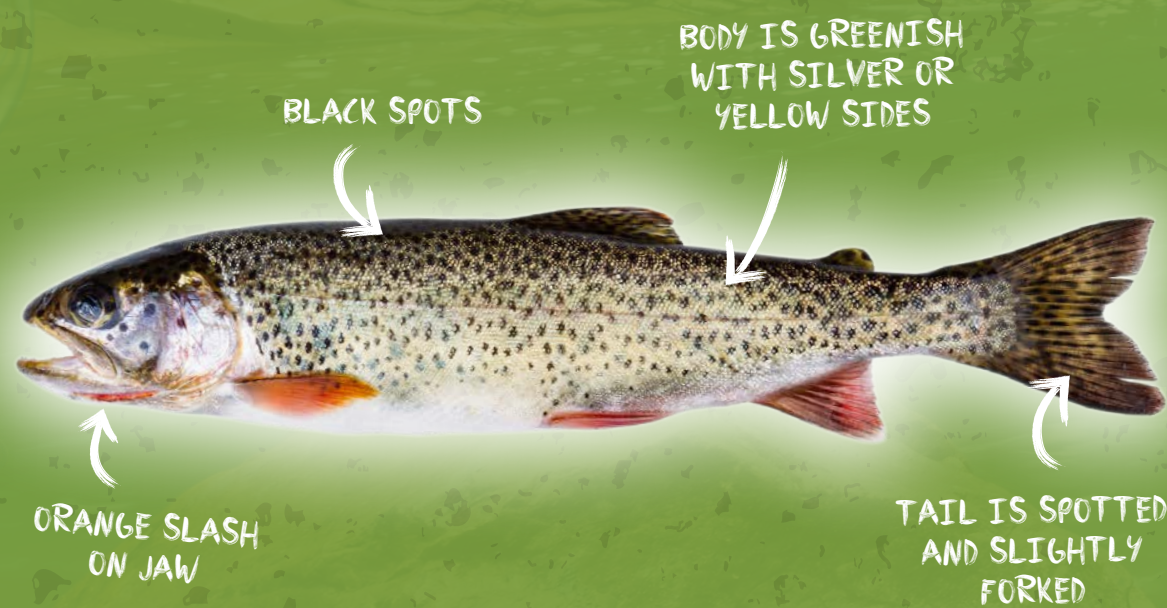
The fry eats, grows, and tries to blend in with its surroundings to evade predators.



Adult

The adult trout lays eggs and the life cycle starts again.

Westslope cutthroat trout



Scientific Name: *Oncorhynchus clarkii lewisi*

Status: Threatened

Reproductive age: Males at 2-4 years, Females at 3-5 years

Diet: Aquatic and terrestrial insects

Length: 25-30 cm

Bull trout

*THE PROVINCIAL FISH OF ALBERTA



Scientific Name: *Salvelinus confluentus*

Status: Threatened

Reproductive age: 5-7 years

Diet: Mainly piscivorous (diet of other fish), but young trout will also eat insects

Length: 30-70 cm

Athabasca rainbow trout



Scientific Name: *Oncorhynchus mykiss*

Status: Threatened / Endangered

Reproductive age: Males at 3 years, Females at 4 years

Diet: Aquatic insects, other fish and fish eggs

Length: 25-50 cm

Alberta's Native Trout



Native trout have seen large declines across Alberta, especially in the headwaters on the eastern slopes of the Rocky Mountains. Stakeholders from government, industry, academia and non-government organizations are working together to create native trout recovery programs across Alberta aimed to increase the trout populations and restore habitat.

Native Trout Recovery



Habitat restoration

Sediment going into streams can be very harmful to trout populations and aquatic habitats. Industry, conservation and government groups are reclaiming trails, improving stream crossings (*bridges & culverts*), and restoring riparian areas to reduce erosion and sediment input into streams.



Non-native trout removal

Trout that interbreed and/or compete with native trout, such as non-native rainbow trout and brook trout, are being removed from water bodies and replaced with native trout species.



Angling restrictions

Even catch and release fishing can put pressure on native trout populations, and the effects may be magnified by elements like water temperature and the way the fish are handled. This can be managed by limiting anglers' access to certain waterbodies or only allowing fishing during certain times of the year.



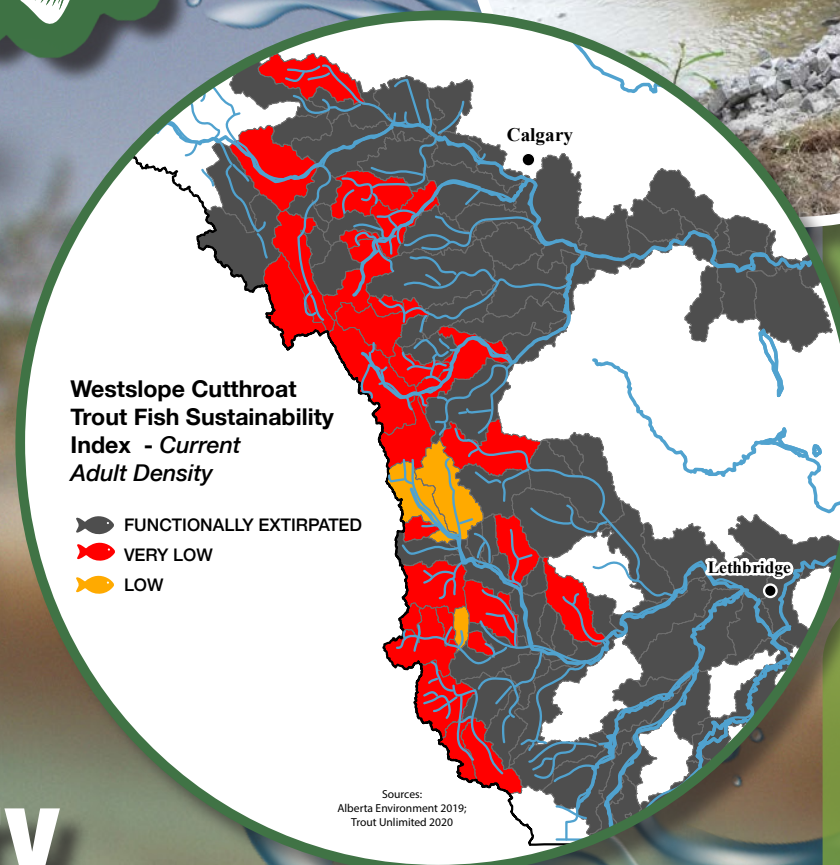
Land use planning

Land use planning that considers the habitat needs of trout can have a significant impact on their survival. Land use planning can include limiting off-highway vehicles (*OHVs*), equestrian, and hiking/biking access to certain areas, limiting development projects (*i.e. hydroelectric dams, forestry, oil & gas.*), and establishing protected areas.



Education

Have you ever heard “No Black, Put it Back!” or “Keep Your Wheels Out of Water!”? Government, conservation and industry groups coordinate education campaigns to raise awareness about fish species identification and the impact of driving OHVs across streams.



Threats To Survival

Habitat degradation & loss

Natural resource development (*forestry, oil, gas, & mining*) throughout Alberta has led to an increase in the density of roads, and more roads and water crossings (*bridges & culverts*) increase the risk of harmful sediments entering trout habitat.

More roads also allows access to remote streams and rivers that may not have been available before and can result in an increase in angling pressure, as well as increased chances of streambank erosion and increased sediment going into the streams by use of off-highway vehicles (*OHV's*).

Climate change

The health of native trout populations is highly dependent on the availability of suitable habitat. They require cold, clear water ranging from 9-17°C, and aren't found in places where the temperature regularly exceeds 22°C. Warmer stream temperatures as a result of climate change means fewer lakes, streams and rivers throughout their range provide suitable habitat.



Hybridization & competition

The introduction of non-native species of trout into native trout habitat can threaten native populations. Non-native fish species can threaten populations of native trout by competing for food, occupying similar habitat and some species can interbreed with native populations. Interbreeding creates hybridized individuals which are genetically distinct from pure, native trout populations, and may vary widely in their physical characteristics. The most common species to hybridize with native westslope cutthroat trout is non-native rainbow trout, which were previously stocked and are now naturally reproducing. The only native rainbow trout populations in the province are confined to the Athabasca River and upper Peace River basins.

Today, the stocking of trout is limited to lakes and ponds that are not connected to native trout populations.



CAREER PROFILES



LESLEY PETERSON
Alberta Provincial Biologist at Trout Unlimited Canada

What is the most exciting part of your work as a fisheries biologist?

Probably the best part of my job is that I really believe in what we are doing. I get to work with people to fix habitat that has been damaged, help people learn about fish and fish habitat, make creeks healthier and help fish populations recover.

What is the biggest challenge facing native trout species in Alberta?

I think the biggest challenge is that there are so many challenges that interact with one another. We call this cumulative effects. Some of the threats include: habitat loss and fragmentation, water quality issues, habitat degradation, impacts from fishing, and hybridization and competition with non-native species. But maybe the biggest challenge is that a lot of people don't know about native trout, their habitat needs, and the things that threaten them. If people don't know, they don't care. And if nobody cares, nobody will protect them.

What are the main things we need to consider when making a species at risk recovery plan?

A recovery plan should consider the basic needs of the species — where they live and what type of habitat do they need for different parts of their life cycle (*spawning, migration, overwintering, rearing, etc.*). It should also consider the key threats, include a clear recovery goal (*including a realistic recovery area*), and some strategies to actually recover the species. This might also include a list of studies to be completed to help guide recovery work, and opportunities to educate and get people involved in recovery.



SARA BUMSTEAD
Fisheries Biologist at Alberta Environment and Parks

How are fish populations assessed in Alberta?

Alberta's fisheries biologists use data from a variety of sources to assess fish populations, including standardized fisheries surveys, scientific literature, and local and traditional knowledge. This data is evaluated through a standardized assessment process known as the Fish Sustainability Index (*FSI*). Information from anglers such as fishing location, trip duration and the number and type of fish caught is important data to inform population status and threats.

What can young people do to protect fish species and their habitat?

There is a lot that young people can do! Learn about the different fish species in Alberta, how to identify them and the types of habitat these fish need to survive in Alberta's lakes and rivers. When around water, stay on designated trails and use bridges where possible. Never put garbage or other materials into lakes or rivers, and do not remove any vegetation, rocks or trees from banks or shorelines. When fishing, follow all sport fishing regulations, use proper fish handling techniques and minimize the time fish are out of the water. Check if there are any school groups, clubs or organizations in your community that are working on conservation projects to help fish or fish habitat. If you can't find any, start one of your own!

What Can You Do?

- 🐟 If you go fishing in Alberta, make sure you follow all regulations and know how to identify fish species
- 🐟 Keep off-highway vehicles (*OHVs*) out of waterways, and use designated crossings to cross streams and rivers
- 🐟 Clean your boat and fishing gear every time you move to a new water body to stop the spread of aquatic invasive species
- 🐟 You can help us to inventory and evaluate risks of stream crossing to fish and their habitats by downloading the citizen science app — *The Alberta watercourse crossing inventory app*



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