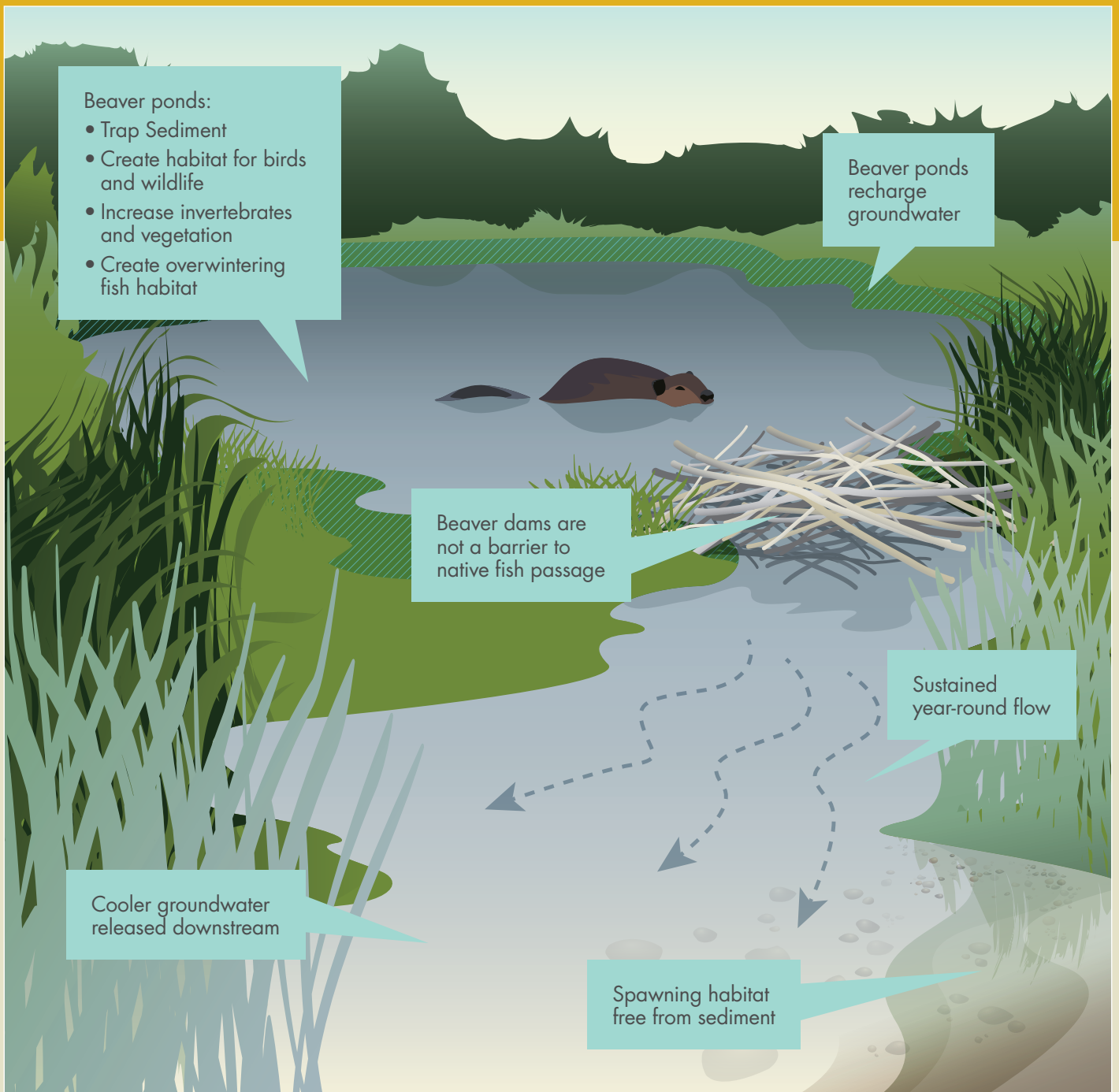


# BEAVERS AND FISH

This fact sheet outlines the general relationship between beavers and fish, along with addressing some of the common misconceptions about how beavers impact fish, including that they increase water temperature, increase sediment accumulation on spawning gravels, and create barriers to fish movement.

Beavers are significantly reduced in numbers or absent from much of their historic range and habitat in Alberta due to trapping, and habitat loss, both historic and present. Prior to the 1700's beavers were abundant in Alberta and lived harmoniously with fish, having evolved together. The beavers that exist on the landscape today are a benefit to fish species, just as they are a benefit to many other wild species.



## WATER IMPACTS

- **Beaver dams reduce stream velocity and power.**
  - This protects streambanks from erosion and decreases sediment downstream.
  - Slower water allows for more groundwater storage.
- **Increase water quantity**, resulting from water storage of beaver ponds, both above and below the surface. This means more available fish habitat and sustained water availability, supporting critical needs for fish during times of drought and low flow.
- **Improve water quality (up to 10 times greater purification)** by capturing and storing sediment and contaminants, which settle to the bottom of beaver ponds behind dams. This enhances fish habitat, providing cleaner water, resulting in less sediment accumulating downstream in spawning gravels, which otherwise can bury and smother eggs and fry.
- **Decrease water temperatures** through creation of deeper, cooler ponds, creating a refuge when water temperatures rise.
  - Native trout, whitefish, grayling, and many other sport fish species require cool water to survive.
  - Deeper pond water is less influenced by air temperatures than a stream, resulting in more stable water temperature.
  - Ground water recharge, enhanced by beaver dams and ponds, cools streams as discharged groundwater is naturally cooler than surface water, providing cooler water when warm water temperatures can impact fish.

## BIODIVERSE FISH HABITAT CREATION

- **Decrease slope gradient** creating a wider, flatter stream valley profile and connected floodplain, enhancing stream health and creating more potential fish habitat.
- **Beaver ponds create or enlarge wetlands**, resulting in increased water depths, increased food (aquatic invertebrates) for fish and more water-loving vegetation, which creates more edge habitat and overhead cover, meaning more wetland and riparian habitat that supports fish at various life stages.
  - Some fish species use beaver ponds extensively as rearing habitat (eg. cutthroat trout).
- **Beaver ponds create overwintering habitat for fish.**
- **Increase fish production** (more and/or larger fish).
  - Slower water produced by damming means fish spend less energy foraging, and since more aquatic invertebrates are available for food, there is greater fish productivity
  - Increased survivability due to more over-wintering habitat.

## BEAVER DAMS—**NOT** A BARRIER TO NATIVE FISH PASSAGE

- **Beaver dams are not barriers to native fish species**; however, some non-native fish may find dams a barrier, which is a positive impact as it could provide a competitive advantage to threatened native species such as westslope cutthroat trout.
- **Beaver dams can be temporary/seasonal barriers** but no study has ever demonstrated a detrimental, population-level effect of beaver dams on most fish species, including trout.

## ADDITIONAL FACTS

- In several U.S. states, beavers are used as tools to provide important habitat for imperiled fish species, because beavers create much needed slow-water environments, such as ponds, and increase stream habitat complexity and riparian vegetation.
- More than 80 North American fish species have been documented in beaver ponds, with 48 species commonly using them.
- Beavers are herbivores and do not eat fish.
- In an extensive review of meta-analysis of literature and expert opinion on the impacts of beaver dams on fish, experts concluded that beavers have a positive impact on fish.
- Although some people have concerns about beaver dams and ponds causing increased water temperatures or reduced flow, reduced spawning habitat, increased fish predation, and a decrease in popular angling species, these concerns are not supported by the research; instead, research shows the overwhelming benefits beavers (and their activities) provide fish.

### Information for this factsheet was primarily provided by:

Fitch L. Caring for the Green Zone: Beaver – Our Watershed Partner. Lethbridge, Alberta: Cows and Fish – Alberta Riparian Habitat Management Society; 2016. <http://cowsandfish.org/whatsnew/documents/BeaverOurWatershedPartnerforWEB.pdf>

*Additional publications were used in the production of this fact sheet and a comprehensive reference list can be viewed at [www.rockies.ca/beavers](http://www.rockies.ca/beavers)*



PHOTO: U.S. DEPARTMENT OF AGRICULTURE



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