



Salish Sucker

*The few fragile streams
in which these
inconspicuous fish live
are threatened by
urban and agricultural
development.*





Why are Salish Suckers at risk?

Salish Suckers are endangered because they have a very restricted distribution range and their habitat is rapidly being degraded by human land uses. The world distribution of this inconspicuous fish is confined to a small area in northwestern Washington state and the adjacent Fraser Valley of British Columbia. This contrasts sharply with the range of its nearest relative, the Longnose Sucker, which is found across northern North America and into Siberia.

In British Columbia, the Salish Sucker is found only in a few small streams in the heavily settled Fraser Valley south of the Fraser River, in the vicinity of Langley and Aldergrove. These watersheds have been adversely affected by forest removal and farming for many decades, and are now threatened more than ever by accelerating human population growth and land development.

Some of the streams arise in urban areas where their headwaters are very polluted. Human impacts on these fragile streams include pollution from sewage, pesticides, fertilizers and manure; removal of over-hanging streamside vegetation which provides hiding cover and prevents over-heating of the water; and alteration of streamflows by ditching, diversion, irrigation use, and expanding storm sewer systems. A common problem is flash-flooding during short periods of high rainfall in autumn and winter, and extremely low flows and high water temperatures in summer.

In recent years the Salish Sucker has apparently disappeared from at least two streams in this area and populations have declined in others. The long term outlook for these streams is very pessi-

mistic. Scientists studying the sucker have concluded that it is destined for extinction in British Columbia if action is not taken soon to protect its habitat.

What is their status?

The Salish Sucker has been found in only three sites outside of British Columbia: a reservoir, a lake and a slough, all in Washington state. Those habitats are thought to be fairly safe from development.

In 1992, BC Environment biologists, with support from the Habitat Conservation Fund, intensively surveyed 34 streams south of the Fraser River and west of Hope. Salish Suckers were found in only 5 streams. None could be located in two streams where they formerly lived – the Campbell River which flows into Semiahmoo Bay, and Salwein Creek, a tributary of the Vedder River. Very few suckers were present in the Salmon River (a tributary of the Fraser) where they were formerly common. Although suckers were detected in four small Canadian tributaries of the Nooksack River, which drains into Bellingham Bay, their status there is of some concern.

The Salish Sucker is "critically imperilled because of extreme rarity."

During the 1992 survey, only one specimen was found in Bertrand Creek, only juveniles in Cave Creek (a tributary of Bertrand), and the population in Fishtrap Creek was severely impacted by land development. Only one stream, Pepin Creek, had a healthy population of both juvenile and adult suckers, probably because a portion of its course is through protected parkland.

The small distribution range and downward trend in habitat quality and sucker numbers combine to place this

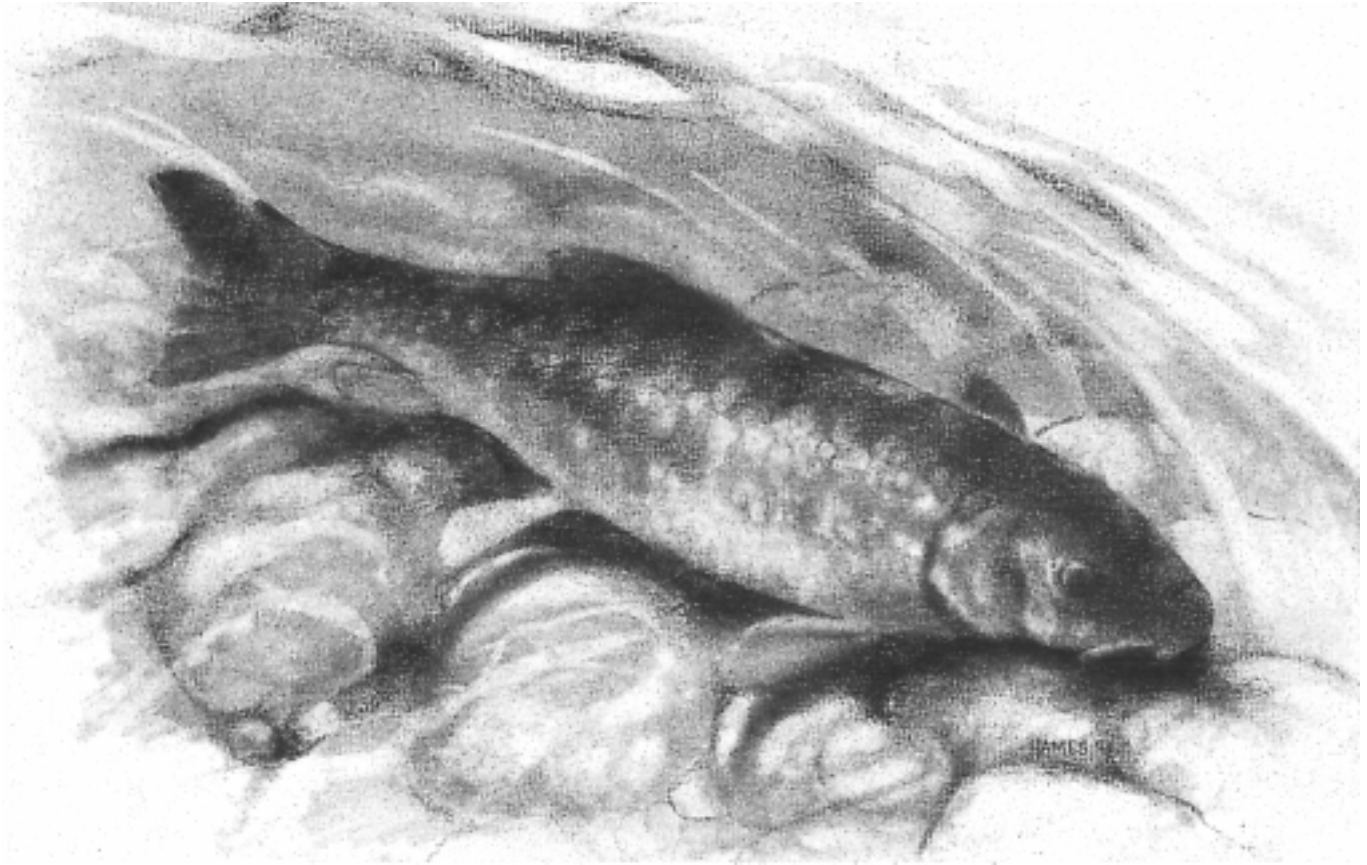
fish in the category of highest risk. The Nature Conservancy system used by the Conservation Data Centre of BC Environment ranks the Salish Sucker in Category 1, "critically imperiled because of extreme rarity," both globally and provincially. Nationally, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) classifies it as Endangered. By whatever measure, the Salish Sucker is indeed among the most threatened members of our fauna.

What do they look like?

Typically fish-shaped, the Salish Sucker has an elongated, cylindrical, torpedo-shaped body. Specimens up to 24 centimetres long have been captured in Fraser Valley streams, but the majority are much smaller. Like other members of the sucker family, these fish have a rounded toothless mouth on the underside of the head, slightly back from the tip of the nose. The mouth has fleshy lips covered with small projections called *papillae* for sensing food, and is designed for sucking up food from the streambottom.

Like its close relative the Longnose Sucker, the Salish Sucker has a fairly long snout ending in a rounded point, small scales, a moderately forked tail with rounded tips, and a large anal fin. The dorsal fin has 9 to 11 rays (supports). The usual

colouring is olive with copper tones on the back and upper sides, and cream to white on the lower sides and belly. This protective colouring helps the sucker to blend into its environment no matter what angle it is viewed from. The unpaired fins are generally dark in colour, while the paired fins have an amber tint. At breeding time, both males and females develop a broad rose- or wine-coloured band along their sides. This is most vivid in the males.



Largescale Suckers occur in the same streams as Salish Suckers but can be distinguished by their larger scales and dorsal fins with 13 to 15 rays. Trout and juvenile salmon also frequent these streams, but differ from suckers in having a mouth with jaws and teeth at the front of their head, and a small fleshy fin, the adipose fin, on the back just forward of the tail. Dace are also present, and have sucker-like mouths, but their lips do not have papillae.

What makes them unique?

The Salish Sucker is a distinctive, semi-dwarf form of the Longnose Sucker. Its distribution range is separated from that of the Longnose Sucker by a gap of 45 kilometres, which prevents any genetic contact between the two forms.

The Salish Sucker is believed to have evolved its distinctive characteristics

while isolated from other Longnose Sucker populations during the ice age. At the height of the last stage of the Pleistocene glaciation, ice completely covered the present Fraser Valley and extended south over Puget Sound to the vicinity of Olympia, Washington, and even further south in the Cascade Range. The Salish Sucker was probably

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isolated for thousands of years in a non-glaciated "refugium" between the Puget Sound ice sheet and the Columbia River. As the ice sheet melted back, the fish were able to expand northward

into the Fraser Valley through various lowland streams or lakes which were periodically interconnected. During its period of isolation, which has continued to the present day, the

Salish Sucker gradually assumed the characteristics which distinguish it from typical Longnose Suckers. These include larger scales, a deeper head, shorter snout, and a lip that is not as broad as that of the Longnose Sucker. It also became adapted to environmental conditions that are peculiar to the Lower Fraser Valley.

The Canadian population of Salish Suckers is also somewhat unusual in being entirely confined to small streams. Throughout most of their range, Longnose Suckers spend much of their life in lakes, entering streams primarily to spawn.

How do they reproduce?

Sawning activity of Salish Suckers has been seen in Fraser Valley streams mostly in April, when water temperatures were 7 to 8°C, but may also occur later in the season. Specimens in spawning condition have been seen as late as July and August. Spawning usually takes place in the upper reaches

of streams, at sites having a moderate current, a water depth of 15 to 30 cm, and a stream bottom comprised of fine gravel.

Spawning activities of Salish Suckers have not been studied in detail. However, female Longnose Suckers eject thousands of tiny white eggs a few at a time into the water. These have a sticky surface and adhere to gravel on the bottom of the creek. As the eggs are released, one or more male suckers release sperm into the water to fertilize them. Longnose Suckers produce 17 000 to 60 000 eggs per female, the number varying with the size of the fish. Salish Suckers, being smaller than average Longnose Suckers, probably have egg numbers near the bottom of that range.

Based on studies of the Longnose Sucker, eggs hatch about two weeks after spawning and the fry stay among the gravel for another one or two weeks. The Salish Sucker may have similar characteristics, but little is known about

its life history and proper studies are badly needed.

Suckers do not build a nest or care for their eggs or young. Many eggs have to be produced to ensure survival of a few to adult age. Salish Suckers probably do not breed until at least three years of age, but this also needs confirmation.

What do they eat?

Suckers have mouths designed for vacuuming up food from the bottom of streams or lakes, and their diet reflects this specialization. The papillae on the lips help to detect suitable food items. Suckers feed entirely on invertebrate life and do not prey on other fish.

In British Columbia, only 10 specimens of the Salish Sucker, all adults, have ever been examined to see what they had eaten.

All contained many remains of freshwater insect larvae called chironomids. These are the larvae of two-winged flies known as midges. The diet of young Salish Suckers is not known.

Longnose Suckers eat a variety of bottom-dwelling organisms such as snails, crustaceans, insect larvae,

worms, and occasionally fish eggs. Salish Suckers probably eat a similar variety of items, however this requires more study. Information on the diversity and abundance of food organisms in small streams inhabited by Salish Suckers is not available. Human impacts on these little creeks could have serious effects on the suckers' food supply.

Where do they live?

In British Columbia, Salish Suckers live in the upper reaches of small, gently flowing streams at an elevation of 40 to 110 metres above sea level. Headwater areas preferred by Salish Suckers, where not polluted, tend to have cooler, clearer water and faster flows than the lower reaches. This is in keeping with the preference of their

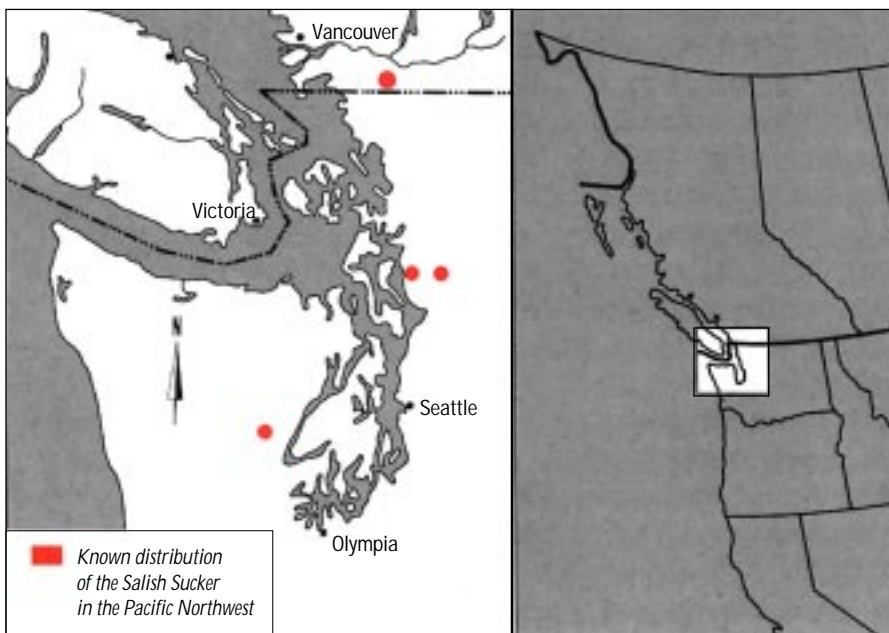
Threats to their streams are so varied that many kinds of action are needed.

nearest relative, the Longnose Sucker, for clear, cold waters. The Fraser Valley streams have high flows in winter, but

may be reduced to a mere trickle in summer. In one stream sampled in the summer of 1992, Salish Suckers were restricted to shallow pools separated by dry creekbed. Under these conditions, the likelihood of survival is poor.

Salish Sucker streams in the gently rolling Fraser Valley are mostly 2 to 7 m wide, less than one metre deep, with silt, sand or gravel bottoms and fairly slow currents. Habitats in them have been classified as *pools* (deepest areas with little or no current), *glides* (moderate depth with slow current) and *riffles* (shallow, relatively fast water). Juvenile Salish Suckers use all of these habitats while adults are found mostly in glides and pools. Riffles with fine gravel bottoms are preferred for spawning.

Salish Suckers live in the upper reaches of small, gently flowing streams.





URBAN DEVELOPMENT AND AGRICULTURE ARE MAJOR THREATS TO SALISH SUCKER POPULATIONS. BC Environment photo

The Fraser Valley streams flow mostly through farmland or small acreages which have been cleared of trees. However, tall grasses, rushes and brambles are common along the streambanks, except in grazed pastures. Pondweeds and other aquatic plants occur in some sections. During surveys in 1992, BC Environment biologists found Salish Suckers most often among instream vegetation or along streambanks where over-hanging vegetation provided some cover. This was particularly true for juvenile fish. Other fish living in Fraser Valley streams with Salish Suckers include sticklebacks, juvenile Coho Salmon and Steelhead, Cutthroat Trout, lampreys, Brassy Minnows, and the Nooksack Dace (a close relative of the Longnose Dace).

Known populations of Salish Suckers in Washington occur in

a slough, a reservoir and a lake – habitats that are quite different than in British Columbia. However, it is likely that this sucker also resides in streams in the Nooksack River system in Washington.

What can we do?

Unfortunately, most people have never heard of the Salish Sucker. Yet without strong public support for protection of its dwindling habitat it seems destined for early extinction in Canada. Even though salmonid fishes are also found in the Salish Sucker streams, habitat protection provisions in the Fisheries Act have failed to give these streams the protection they need. Laws alone will not save the Salish Sucker. The first and most urgent need is for widespread public awareness of the plight of this unique fish, and of other species such as the endangered Nooksack Dace which share its fragile and threatened habitat.

Threats to Salish Sucker streams are so many and so varied that many kinds of action are needed. Most of the land developments which affect these streams are regulated at the municipal level of government, so increased attention is needed at that level. Land

owners along the streams have a special stewardship responsibility and must become involved in habitat protection and improvement.

There is an urgent need for better control of sewage, pesticides and other pollutants and for design of stormwater systems which prevent flash flooding. Prevention of ditching, diversions and other stream alterations, and maintenance of riparian (streamside) vegetation, particularly trees and shrubs, are also priority needs. Positive activities


The streams that are home to Salish Suckers have many values.

could involve habitat acquisition, tree planting, spawning habitat development, and cooperative agreements with land-

owners. More information is also needed on the life history and ecology of Salish Suckers so that their streams can be better managed, and even enhanced.

The streams that are home to Salish Suckers have many values. These ribbons of aquatic and riparian habitat support a diversity of life, provide recreational opportunities, and enrich the

landscape with their beauty. They would be worth saving even if no endangered species were present.

The public can play an important role in Salish Sucker preservation by learning more about this fish and its habitat, and by supporting programs to maintain and improve the quality of the streams it lives in. 



SALISH SUCKERS REQUIRE STREAMS WITH INSTREAM OR OVERHANGING VEGETATION WHICH PROVIDES HIDING COVER AND PREVENTS OVERHEATING OF THE WATER. BC Environment photo



SALISH SUCKER SHOWING COLOURING DURING SPAWNING PHASE. *BC Environment photo*



NORMAL COLOURING DURING OTHER PERIODS IN LIFE CYCLE. © *The Vancouver Sun*

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