

Guidelines for the Collection of Salish Sucker
(*Catostomus* sp.)



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Disclaimer

This document has been prepared in cooperation with members of the by the Recovery Team for Non-Game Freshwater Fish Species (BC). It is intended to guide collection and salvage activities likely to impact Salish sucker. It does not necessarily represent the views of all individual members of the recovery team, or the official positions of the organizations with which the individual team members are associated. The guidelines are based on the best available knowledge and are subject to modifications resulting from new findings and revised objectives.

Non-Game Freshwater Fishes Recovery Team (BC)

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Introduction

The following guidelines represent advice regarding the collection and scientific study of the Salish sucker, and has been reviewed by relevant members of the Recovery Team for Non-game Freshwater Fish Species in BC. Nooksack dace are listed under the Species at Risk Act (*SARA*) as endangered. The purpose of the guidelines is to inform regulators issuing collection and study permits under *SARA* and the *BC Wildlife Act*. The guidelines are meant to apply to the Salish sucker, but the rationale presented may be relevant to other listed fish species in the province. The Recovery Team reserves the right to update the guidelines based on new information or interpretations.

Background

The Salish sucker is a small (< 28 cm) fish found in 10 Canadian watersheds, all in British Columbia's Fraser Valley. At least four other populations occur in north-western Washington State. Salish sucker populations have been in decline since at least the 1960s in Canada, and probably for much longer. One British Columbia population (Little Campbell River) is believed extirpated.

Adults are most abundant in headwater marshes and beaver ponds. Juveniles are found in shallow pools or glides containing cover, but also use other habitats. Spawning occurs in riffles over fine gravel and insect larvae predominate in the diet. Most individuals have small home ranges (mean 170 m length of channel, May - Oct), although some individuals venture kilometres during the spawning period. They may be quite abundant within certain ponds or marshes, and one or a very few sites may contain the great majority of individuals in a watershed.

Salish sucker populations are sampled regularly for scientific study and monitoring projects intended to improve their habitat. These activities are low intensity and affect a small proportion of the total population each year. At current levels their impact is believed to be negligible. Salish sucker are also regularly captured and relocated during fish salvage operations for in-stream works. These include municipal drainage works, road and utility crossing projects, habitat enhancement and compensation projects, and other works approved under the federal *Fisheries Act*.

Recommendations

Locations

Salish sucker are currently known from watersheds in Langley, Abbotsford, Chilliwack, Harrison Hotsprings, and the District of Kent. Proposed Critical habitat maps for have been prepared for all watersheds by the Recovery Team and are available for download¹. These guidelines should be applied to all sampling targeting Salish suckers and to all fish salvages conducted in non-riffle habitats within these watersheds.

¹ http://www.dfo-mpo.gc.ca/CSAS/Csas/Publications/ResDocs-DocRech/2007/2007_058_e.htm

Collection and Handling Methods

The preferred methods of collecting Salish sucker with baited (roe or cat food) Gee traps for juveniles and larger, custom-made “Feddes” traps for adults (construction instructions below). To avoid undue stress on animals, traps should be deployed for less than 24 hours and all traps should be accounted for at all times. Traps that are forgotten in a stream will continue to trap and kill fish even when unbaited. If dissolved oxygen levels are below 2 mg/l, limit sets to 2-6 hours starting in late morning or early afternoon to minimize the risk of asphyxiating fish in traps. Salish suckers may be collected by trapping at any time of year, although extra handling care is urged during the spawning season (early April to end of June). Handling should always be minimized, but if necessary, fish should be lightly anaesthetized in a 70 mg/l solution of MS222 (tricaine methanesulfonate) first. After handling, fish should be allowed to fully recover from sedation and released at their point of capture. With proper care, acute mortality rates should be below 1%. Salish suckers killed accidentally should be retained for deposit in a recognized museum collection (see lethal sampling section below).

Electrofishing is not recommended, except as the final step in fish salvage operations (see below). In addition to being stressful to the fish, it is often ineffective in Salish sucker habitat. Visibility is often poor, particularly following suspension of fine organic matter during sampling and adults are typically in water too deep for efficient backpack electroshocking. Unlike salmonids, they often do not roll belly up when shocked, but may freeze and sink to the bottom, where they are difficult to see. Electrofishing operations will also be subject to DFO restrictions on timing and location to protect salmonids and eggs.

To prevent the spread of invasive species and disease organisms the Recovery Team recommends that all sampling equipment (traps, seines, boats, boots, etc.) be sterilized using appropriate methods prior to moving gear from one water body to another. Treatment with diluted bleach is the most straightforward method at this time. A suitable protocol was recently developed for amphibian researchers in British Columbia and is available at: http://www.env.gov.bc.ca/wld/frogwatch/amphibian_disease.htm

Scientific Sampling

Lethal Sampling

Lethal sampling is permitted for the collection of voucher specimens to document newly discovered populations. A minimum of one and a maximum of two individuals should be retained for deposit with the Beaty Biodiversity Museum² and/or the Royal British Columbia Museum³. Fish should be overdosed in anaesthetic (MS 222 or clove oil) and preserved in 95% ethanol or 10% formalin. If formalin is used, a fin clip of each individual should be preserved in 95% ethanol. Applications for lethal sampling of Salish sucker for other purposes will be considered on a case by case basis by the Recovery Team.

² The Beaty Biodiversity Museum, University of British Columbia, 2370-6270 University Blvd., Vancouver, BC, V6T 1Z4 Phone: (604) 822-0297 Fax: (604) 822-2416 Email: info@beatymuseum.ubc.ca

³ Royal BC Museum, 675 Belleville Street, Victoria, BC Canada, V8W 9W2, Tel: (250) 356-RBCM (7226) Fax: (250) 387-5674

In Situ Scientific Studies - Use of Non-native Species

The Recovery Team recommends full prohibition of use of non-native plant or animal species in experimental studies in the wild. By “non-native species” we refer to all species that do not naturally occur within the watersheds where Salish sucker occur.

Salvage Operations

The works area should be isolated in sections not exceeding 100 m using stop nets. Efforts to clear fish from the section without capturing them prior to isolation are encouraged. Seines, low-voltage shocking or physical disturbance may be effective depending upon circumstances. Following isolation, traps should be set and lifted over at least two consecutive nights of trapping with a trap density of 1 adult trap and one Gee trap for juveniles per 10 m of channel or 50m² of water surface. If the section can be waded and is relatively free of obstructions, repeated seine passes may be substituted for trapping. Following seining, the section should be electrofished until no individuals are captured for at least one pass. Captured fish should be held for the minimum practical amount of time in well oxygenated water at ambient stream temperature. This is best accomplished using a perforated holding container partially immersed in the stream. If relocation is necessary, fish should be released into the closest suitable habitat within the watershed in accordance with fish transplant regulations (http://www-heb.pac.dfo-mpo.gc.ca/intro_trans/regulations_e.htm)

Trapping Tips

Adults

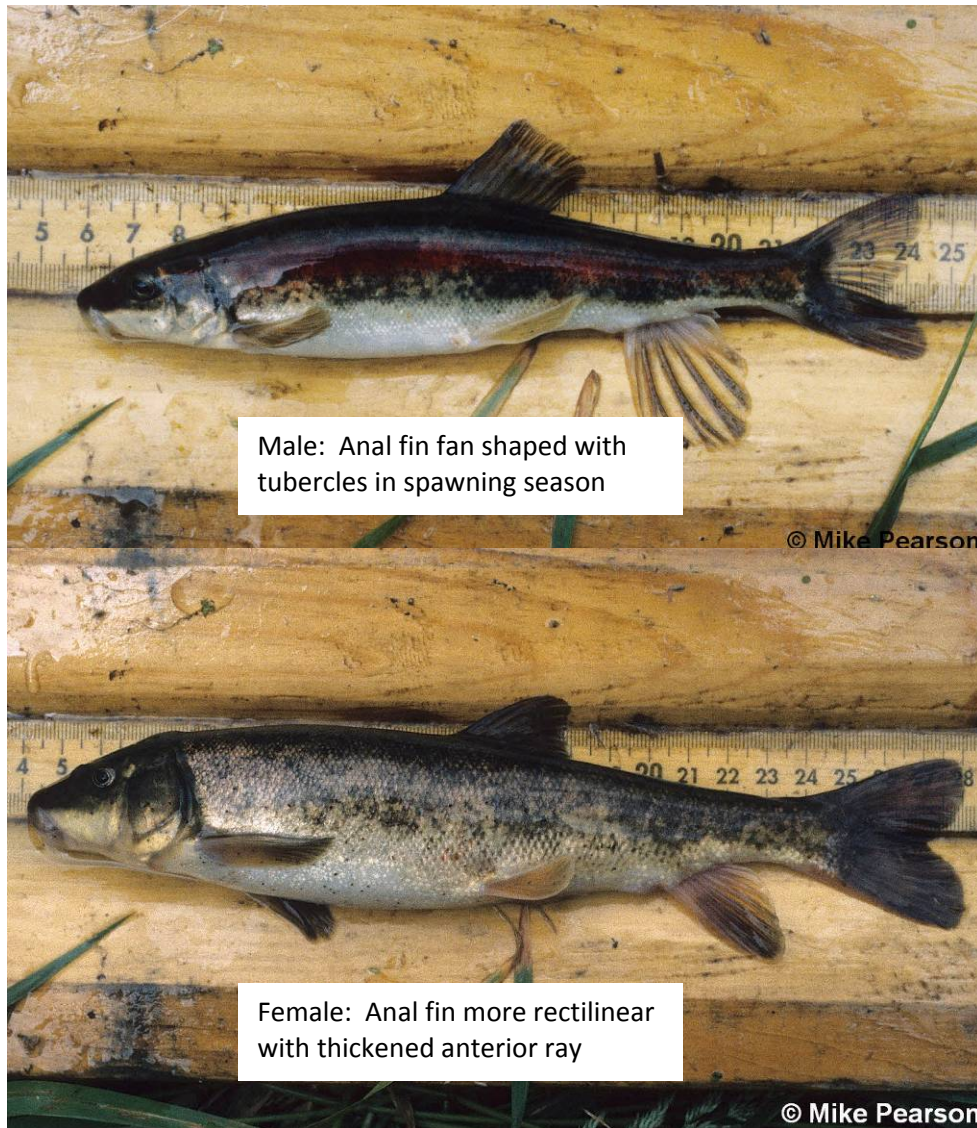
- Set Feddes traps (see below) in water of greater than 70 cm depth, preferably among aquatic vegetation. Traps should be oriented parallel to the current, if present.
- In streams adults often concentrate in the deepest available water.
- Bait traps with roe or cat food
- Set overnight (if oxygen levels permit), as Salish suckers are primarily nocturnal.

Juveniles

- Are more difficult to catch.
- Use commercially available Gee minnow traps baited with roe or cat food
- Target pools or slow moving glides of less than 50 cm depth with abundant aquatic vegetation

Salish Sucker Identification

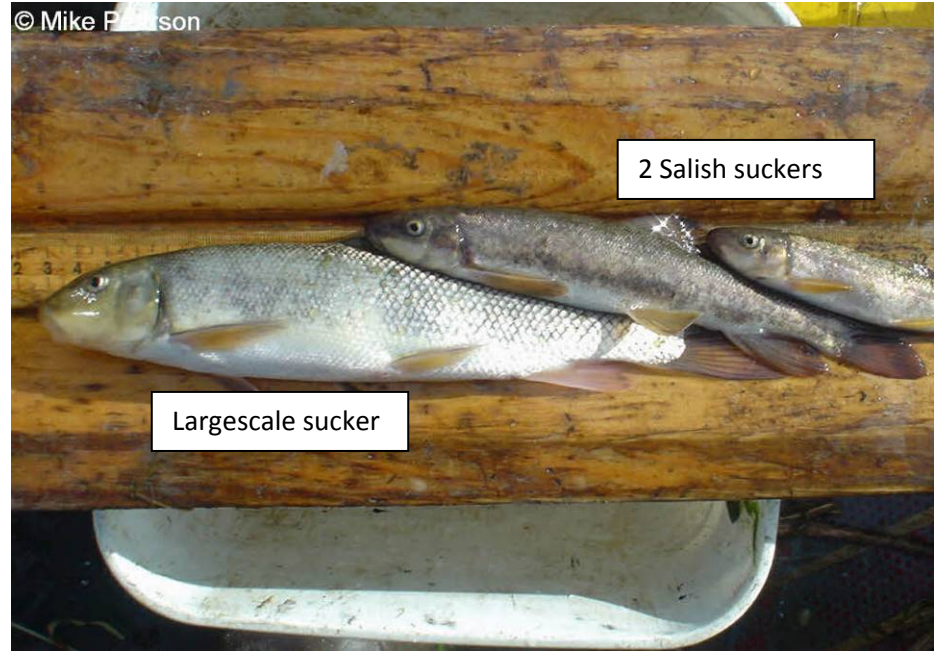
Salish suckers are small, (<28 cm), fine-scaled, catostomids (sucker family). Males are smaller than females (<21 cm). The mouth is small, approximately equal in diameter to the eye, fleshy-lipped and subterminal (less so in fish <100 mm). The dorsal surface is dark green with black mottling and a broad, red to purplish-red lateral band forms during the spawning season. Fish have 9-10 dorsal fin rays (**best field indicator for adults**) and the length of the dorsal fin insertion less than 2X caudal peduncle depth (**best field indicator for juveniles** <100 mm). Fish larger than 100 mm can be sexed in the field by examining the anal fin.



Similar Species: In Canada the largescale sucker (*Catostomus macrocheilus*) is the only similar species typically found with the Salish sucker. It grows to larger size (>350 mm), has more than 12 dorsal fin rays, and much larger scales (62-83 on lateral line).



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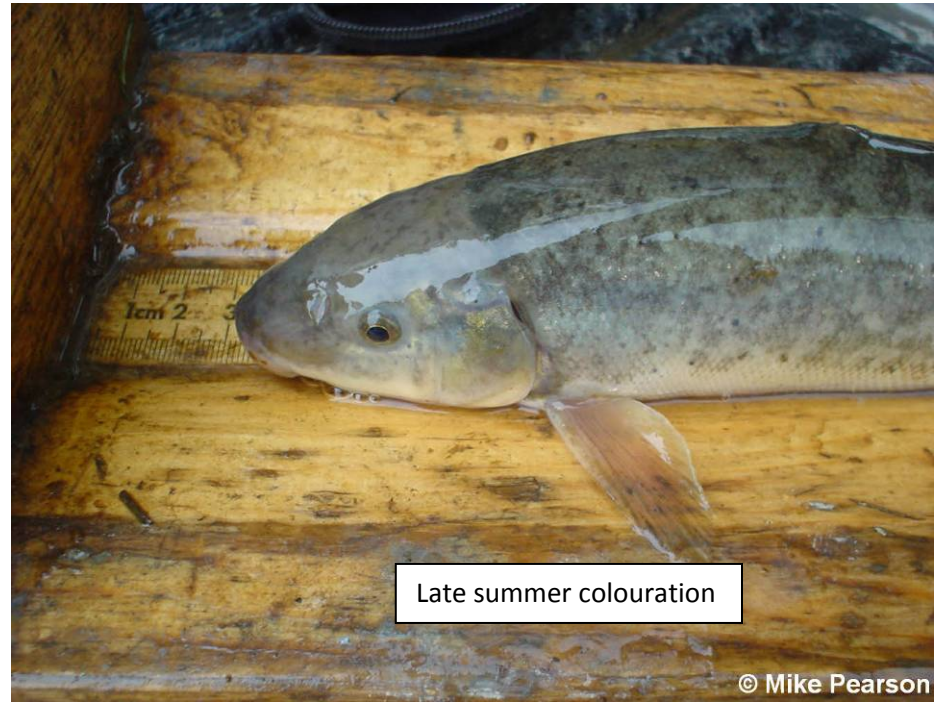
2 Salish suckers

Largescale sucker



Spawning colouration

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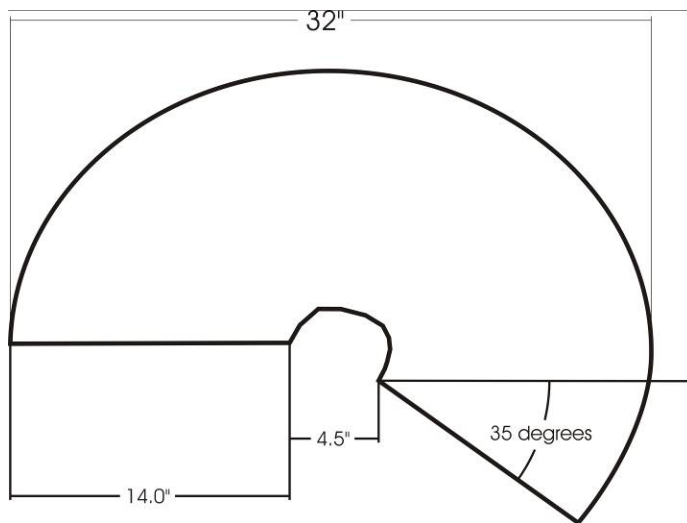
Late summer colouration

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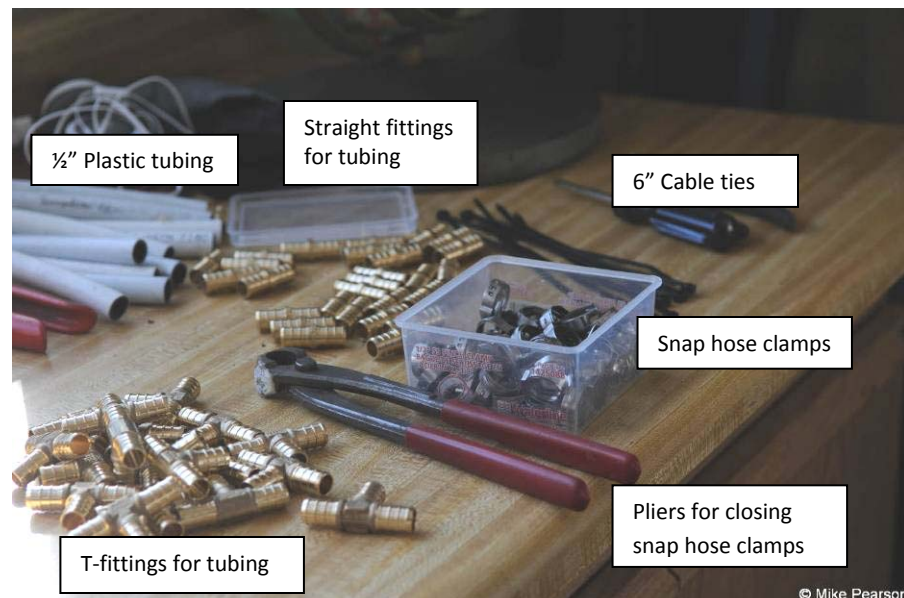
The Feddes Trap

Materials List

- (2) 51" lengths of ½ inch plastic tubing
- (2) 51 ¼ " lengths of ½ inch plastic tubing
- (1) 8" piece of ½ inch plastic tubing
- (2) T- joint fittings
- (2) straight fittings
- (10) hose clamp rings
- (50) cable ties
- (1) 5 m length of ¼ inch rope
- (1) 32"x 56" piece of ¼" galvanized steel mesh
- (1) Door; 10"x10" piece of ½" galvanized steel mesh
- (2) Elasticized bands and wire hooks for door closures
- (2) Funnels; pieces of ¼" galvanized steel mesh cut in this



The traps are modeled on Gee minnow traps, but are larger (32" x 16") and are easily constructed of materials available at most hardware stores.



Construction

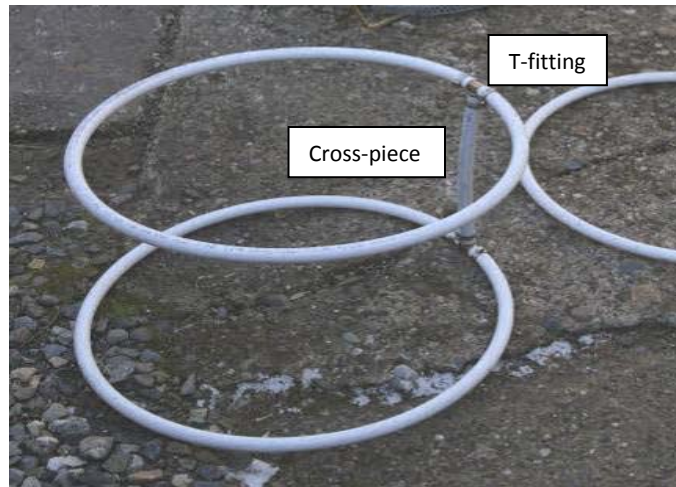
1. Construct end hoops by joining ends of 51 ¼" lengths with straight fittings secured with snap hose clamps.



2. Assemble funnels by overlapping and securing straight edges with cable ties. Wrap perimeter of funnel mouth around end hoop and secure with cable ties.



3. Assemble central frame by using T-fittings to form 2 hoops of the 51" tubing lengths joined by the 8" cross piece.

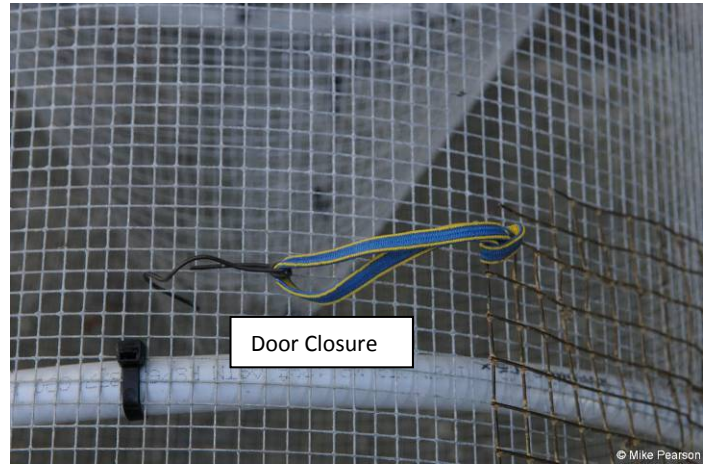
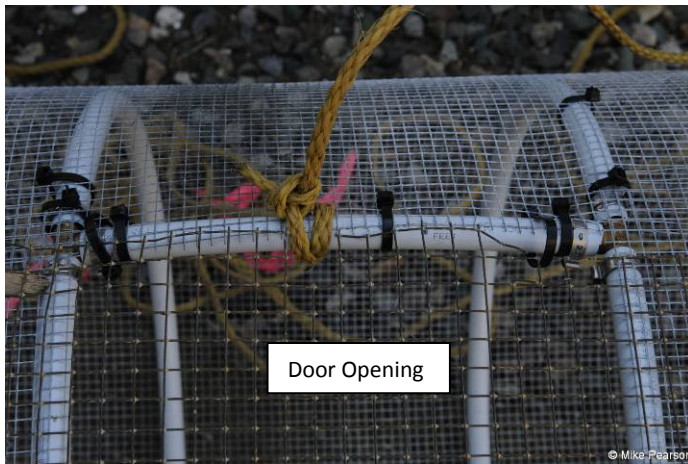


4. Secure the cross piece to the centre of a 32" edge of the large piece of mesh and each funnel to one of the 56" edges.

Roll the large mesh onto the frame securing it well with cable ties.



5. Cut a door opening extending the length of the crosspiece and 8" along the inside edges of the middle hoops.
6. Tie the trap retrieval rope to the cross-piece.
7. Attach the door to the cross piece using cable ties and affix door closures of elasticized bands (hair elastics)



Caution: Songbirds and small mammals readily enter these traps. Prevent unnecessary deaths by fastening doors in the open position when they are stored outside.