



**WELCOME TO 'THE SCHOOLER,' YOUR FIRST CITIZEN SCIENCE FORAGE FISH NEWSLETTER FROM PENINSULA STREAMS SOCIETY.**

This newsletter is Peninsula Streams Society's new initiative to connect with our citizen scientists in the Greater Victoria region, give updates on the work being done, and share information! If you'd like to submit a photo, data gathered while out in the field, tips and tricks, or a story, please email [peninsulastreams@gmail.com](mailto:peninsulastreams@gmail.com)



Gr. 11 Pearson College students getting trained by PSS biologist Brian Koval on sampling procedures at Weirs Beach, April 2021.

**DID YOU KNOW?**

Although rip-rap (range of rocky material placed along shorelines) is commonly used along beaches for the protection of oceanside property to help stabilize bluffs, it also stops the sediment supply to beaches. Finer sediments, such as sand, is lost from the beach, resulting in the beach becoming smaller, lower, and "harder" (i.e compacted, large rocks). This results in a reduction of suitable spawning habitat for forage fish like surf smelt and sand lance. No suitable habitat, no forage fish, no chinook...



Surf Smelt egg collected from North Saanich Yacht Club, April 2021.

**INCREDIBLE WORK FROM OUR DEDICATED CITIZEN SCIENTISTS!**

Building community and taking action! From March 1st to April 12th, our volunteers have collected **44** samples from **20** beaches, with **21** samples having eggs present! You are all so incredible and we appreciate your dedication and hard work. Without your integral contributions, this project would not have the results it does! Thank you!

**From June 2018 to April 2021:**



51 beaches have been sampled



345 samples have been taken



72 samples with eggs



Patricia Bay - Example of degraded beach and rip rap.

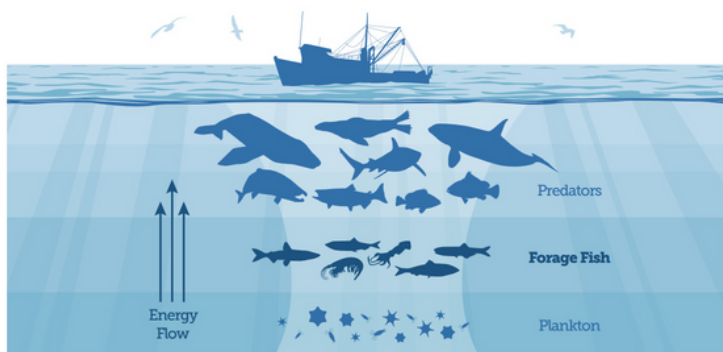


## FORAGE FISH AND THE FOOD WEB

Forage fish, such as Pacific sand lance and surf smelt, are small schooling fish that play an integral role in marine food webs, directly and indirectly feeding a diverse selection of birds, fish (including Chinook salmon), and whales. Their role as food, or 'forage' for other animals underpins the health of the Salish Sea, providing a link between lower and higher trophic levels.

Surf smelt grow to be 20-25cm long and spawn year-round on gravel and sand beaches near the high tide line. These fish depend on shading from overhanging vegetation to protect their eggs from summer sun.

Pacific sand lance are up to 20cm long and spawn on sandy intertidal beaches. They are one of Chinook salmon's primary food sources.



These big little fish face threats from a variety of sources, most notably from fisheries and the destruction of spawning habitats through shoreline modification. This includes armoring (i.e. seawalls, rip rap), dredging, vegetation removal, and pollution from storm water or other sources. These modifications result in alterations of the supply and movement of beach sediments, reduced shading of beach area, and increased pollution, therefore making the beaches unsuitable for surf smelt and sand lance.



Image from: Sea Doc Society April 8th, 2014. Photograph by David Ayers. Sand lance (top) and surf smelt (bottom).

## WHAT CAN YOU DO TO HELP?

In order to better protect these important fish, we first need to collect information on their movements, where they are spawning, how our actions may be impacting them over time, and what changes occur in marine food webs as forage fish continue to face threats to their habitats.

By participating in citizen science surveying local beaches, you are already providing an invaluable source of information that can lead to better beach management or restoration plans. The DFO currently has a lack of forage fish knowledge in comparison to the United States. For example, in 2016, WWF-Canada released a report, *Food for all*, which warned that 3/4 of the forage fish stock is unknown. This results in decisions being made within fisheries on how many fish can be caught without knowing how many fish there are. Therefore, the work you are doing as a volunteer in the field, collecting data, is extremely important, and remains the biggest contributor in helping protect these fish.





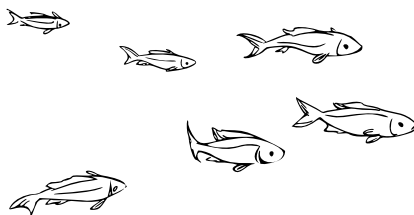
Willows Beach at sunset.

**GROUP UPDATES:  
FRIENDS OF BOWKER CREEK SOCIETY**

The Friends of Bowker Creek is our second newest survey team, taking on Willows Beach. After receiving training, the Bowker Creek crew has completed 6 outings on their own! They have battled some of the West coast elements on a couple days, including high winds and some rain! No eggs have been found thus far, but the Friends will continue to survey!

**TIPS AND TRICKS**

If you are unable to stand the feet of your blue bowl up in the catchment sieve, lay the feet of the blue bowl out flat across the top of the sieve. This way, the blue bowl will not be as tippy!



**GROUP UPDATES: PEARSON COLLEGE**

Pearson College is a new forage fish surveying group of grade 11 exchange students. They are eager to learn about the local environment and gain new skills. The group is guided by Gr. 11 student Viggo Henelius, who comes to us all the way from Finland! The students have been out twice now with training from PSS biologist Brian Koval and are ready to tackle surveys at Wiers Beach on their own. Using their school microscope, they have already found some Surf Smelt eggs! This group marks PSS's furthest group from Victoria. PSS would like to give a huge thank you to Pearson College and Victoria Foundation for their generous donation to support this work!



Pearson College students surveying at Weirs Beach learn how to use the blue bowl! PSS biologist Brian Koval looks on.

**UPCOMING EVENTS**

Even as we navigate the global pandemic and adjust our ways of living, the forage fish egg survey program has been doing well, thanks to our amazing volunteers! We will be continuing surveys into the summer, so if you know of any other community members or organizations looking to contribute to citizen science and assist with the work PSS is doing, email [peninsulastreams@gmail.com](mailto:peninsulastreams@gmail.com), or visit our website: [peninsulastreams.ca](http://peninsulastreams.ca).

## BEACHES SURVEYED

This map shows many of the beaches that are being surveyed by our dedicated citizen scientists. Yellow boxes show where surf smelt eggs have been detected, while blue shows where sand lance have been detected. Green boxes demonstrate where both surf smelt and sand lance eggs have been found!

As we continue to expand our program, we have been able to survey more beaches and create additional sites, which contributes to a more complete dataset! Thank you to all our volunteers!



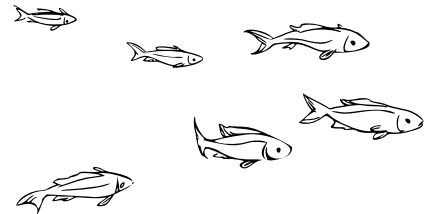
## WORKING TOGETHER TO COVER MORE AREA!



We currently have 182 volunteers.



Our volunteers are surveying an impressive 87 sites!



### Surveys per municipality from June 2018 to April 2021:

Central Saanich: 16  
 Colwood: 34  
 Esquimalt: 3  
 James Island: 1  
 Jordan River: 1  
 Metchosin: 1

North Saanich: 138  
 Oak Bay: 25  
 Saanich: 60  
 Sidney: 61  
 Sidney Island: 4  
 Victoria: 5  
 View Royal: 1





**FURTHER RESOURCES**

Peninsula Streams Society is proud to be partnered with the Mount Arrowsmith Biosphere Region Research Institute (MABRRI), the World Wildlife Fund (WWF), and the Sitka Foundation. Together, we are collaboratively collecting and sharing data on forage fish spawning grounds and updating our surveying techniques.

Peninsula Streams Society would like to send out a huge thank you to all of our partners, volunteers, and funders. The work we are all contributing to is part of a larger picture of marine health and wellbeing, and we could not do it without our amazing community!

**Check out these links for further information:**

**Strait of Georgia Data Centre**

<https://maps.sogdatacentre.ca/app/story-map-forage-fish-in-the-salish-sea>

**MABRRI Research Projects**

<https://mabrri.viu.ca/mabr-projects>

**Forage Fish Spawning Map (Washington State)**

[shorturl.at/exyJQ](http://shorturl.at/exyJQ)

**WWF Forage Fish**

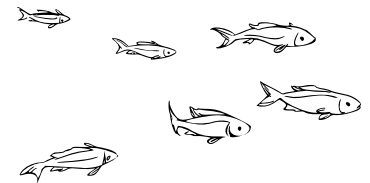
<https://wwf.ca/habitat/oceans/forage-fish/>

**REMINDER: COVID PROTOCOLS**

With COVID cases continuing to occur in the Vancouver Island region, we want to ensure that our volunteers remain safe and healthy. Please be sure you're following the 3 person sampling rule, maintaining 2 metres between one another, and are wearing your non-surgical face coverings to protect one another.



Forage fish survey at Tryon beach. April 2021.



**FUNDING AND PARTNERS**



TD Friends of the Environment Foundation



VICTORIA FOUNDATION





# THANK YOU TO OUR VOLUNTEER GROUPS!

- Pearson College
- Claremont Secondary
- Parkland Secondary
- Garth Homer Society
- Parks Canada
- Capital Regional District
- Friends of Victoria Harbour Bird Sanctuary
- Goldstream Hatchery
- Friends of Shoal Harbour Sanctuary (FOSH)
- Robert's Bay Residents (RBR)
- Friends of Swan Creek Watershed (FoSCW)
- Friends of Tod Creek Watershed (FoTCW)
- Sidney Anglers Association (SAA)
- Esquimalt Anglers Association (EAA)
- Esquimalt Lagoon Stewardship Initiative (ELSI)
- Students for the Salish Sea
- World Fisheries Trust (WFT)
- Camosun College
- University of Victoria (UVic)
- Property Responsibility on the Waterfront (PROW) Association
- Gorge Waterway Action Society (GWAS)
- Friends of Bowker Creek Watershed
- Society for Ecological Restoration

*Thank  
you*

from all of us at

