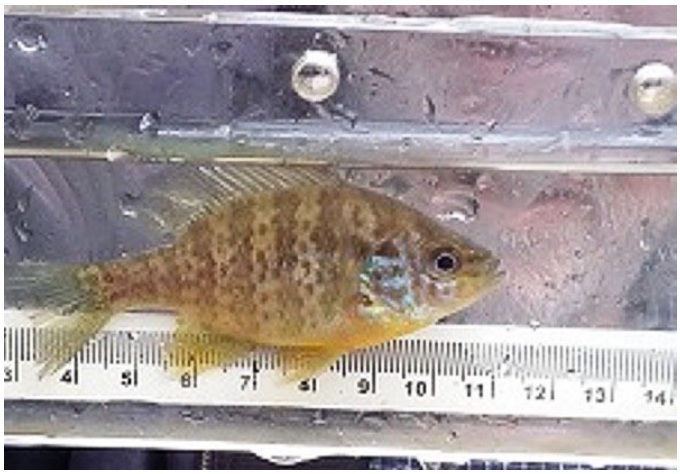
Introduced pumpkinseeds and introducing sticklebacks

(notes by Nick Doe)

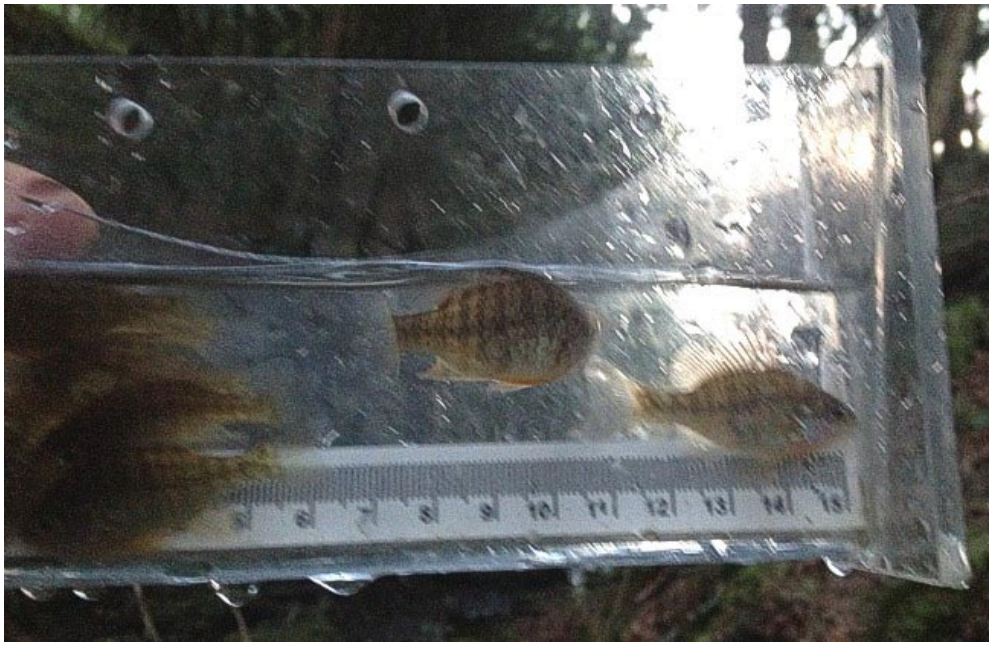
Pumpkinseeds (*Lepomis gibbosus*)



Mid-Vancouver Island Habitat Enhancement Society: April 17, 2017

Pumpkinseeds, a sunfish species, occur in Mallett Creek and Descanso Creek on Gabriola Island. They are an introduced species, probably from eastern Canada. How they got to the island is not known, but that somebody at sometime released them into these creeks is certain as they cannot tolerate saltwater.

According to the DFO, "…the species consumes amphibians and small fish, and can be considered a nuisance species. The diet of these fish is flexible, and they can reach high densities, compete with native fish, and negatively impact native communities."



Pumpkinseeds from Mallett Creek on Gabriola: April 15, 2014 Jethro Baker

GSK policy: Given the fragility of aquatic ecosystems on Gabriola, a good case can be made for working to eliminate this particular species from the island; however, at the present time, the Gabriola Streamkeepers have no policy or plans in this regard. They do however strongly advise against dumping unwanted aquarium fish such as goldfish into Gabriola's creeks and wetlands and will take steps to remove them as soon as they hear about them. GSK members have given talks at the school to warn children of the possible unintended consequences of releasing exotic fish and other creatures into the wild.

Introducing sticklebacks—a good idea?

These comments were addressed specifically to Coats Marsh but they can also be applied to "recent" dug-outs such as, for example, Nelders Pond.

Letter to Neil W. Fletcher, M.R.M.

Wetlands Education Program Manager, BC Wildlife Federation

I live on Gabriola Island and have the following question which someone there might be able to help with. I am not a biologist but have an interest in creeks and wetlands on the island as a member of the Gabriola Streamkeepers (GSK).

Coats Marsh on the island is a shallow water wetland (it retains water all year, though it is not very deep). I'll call it a lake, though it is, I know, too shallow to be called that technically. It collects water every winter from a catchment area to its east via intermittent and ephemeral creeks. The lake has no source of water during the summer other than precipitation, but there is no loss of water other than through evapotranspiration as the bed of the lake is a thick layer of clay of glacial origin (montmorillonite from weathered silt rich in feldspars).

Sometime in the 1930s, a local farmer blasted out the sandstone ridge at the lower end of the lake and drained it with the intention of starting a cranberry farm. This didn't happen, and a concrete weir is now in place to hold the water level at its former natural level. Because it was drained, the lake has no fish in it.[1]

Now, this marsh is in the watershed of a much larger lake Hoggan Lake and it does contain originally introduced cut-throat trout, but perhaps more interestingly, possibly one of the two species of stickleback species pairs. There is thus a possibility, but only that, that Coats Marsh, before it was drained, also contained sticklebacks. So my question is, more out of curiosity than with any intent to take action, what would the effect be of introducing or re-introducing sticklebacks to the marsh?

A positive I imagine is that it might encourage more fish-eating ducks to visit the marsh, but a negative I imagine is that it might impact for example the insect population. There are half-dozen or more species of damselflies and dragon flies that live in the marsh. Are sticklebacks a "good" thing to have in a shallow water wetland, or is our fish-less marsh all the more interesting because it is so.

Response from Neil W. Fletcher

I would not recommend introducing stickleback. It would likely disrupt the ecosystem as you suggest. Amphibians may suffer as they would be competing with stickleback for food. [2] I

[1] None have ever been reported. Supporting evidence that there are no fish is: none of the ducks resident there in winter are fish-eating, there are no common mergansers, for example; kingfishers are very rare visitors and appear to be catching only frogs when there; four minnow traps were set by biologists as part of an Ecological Features study in December 2010 and no fish were trapped; during mayfly season, no fish have been observed feeding on flies struggling on the surface; and there are significant barriers, natural and man-made, preventing the passage of fish between Hoggan Lake and the marsh.

[2] This would affect creatures that feed on tadpoles and small frogs, garter snakes, for example. Fish would also compete for mayflies with violet-green swallows, which are currently abundant over the lake in summer. Daphnia and other zooplankton populations that are at the base of the food chain would also change significantly. Further

suspect there has always been variability in our waterways (some waterways with fish and some without). If the stickleback were very rare or at risk, then perhaps it would be worth exploring new sites to introduce it to... if it's common, then I wouldn't consider it much.

It's interesting because there is a tendency for some conservation/stewardship groups to be very fish-centric with their interventions. In many cases, they've done great work for fish, but in other cases I suspect they've damaged other ecosystems in the process. I've heard of many accounts of beaver dams that have been cleared/destroyed to allow for fish passage. In some cases this could be warranted... but I do wonder what the historical extent of beaver dams would have been in our landscape without our interventions. They would have allowed for a great diversity of wetlands to develop within floodplains - which would have supported a fair diversity of other wildlife species. ... typically speaking I believe that introducing species to other areas requires a great deal of consideration.

GSK policy: The Gabriola Streamkeepers have no plans to introduce sticklebacks into fish-less ecosystems, nor is this possibility under discussion. Disturbance of natural wetland ecosystems should be discouraged without sound detailed scientific research into its possible impacts. ◊

reading: Richard Conniff, *Gone fishing—stocking rivers and lakes with game fish is good for anglers. But it is wreaking ecological havoc*, Scientific American, **317**, 5, November 2017.