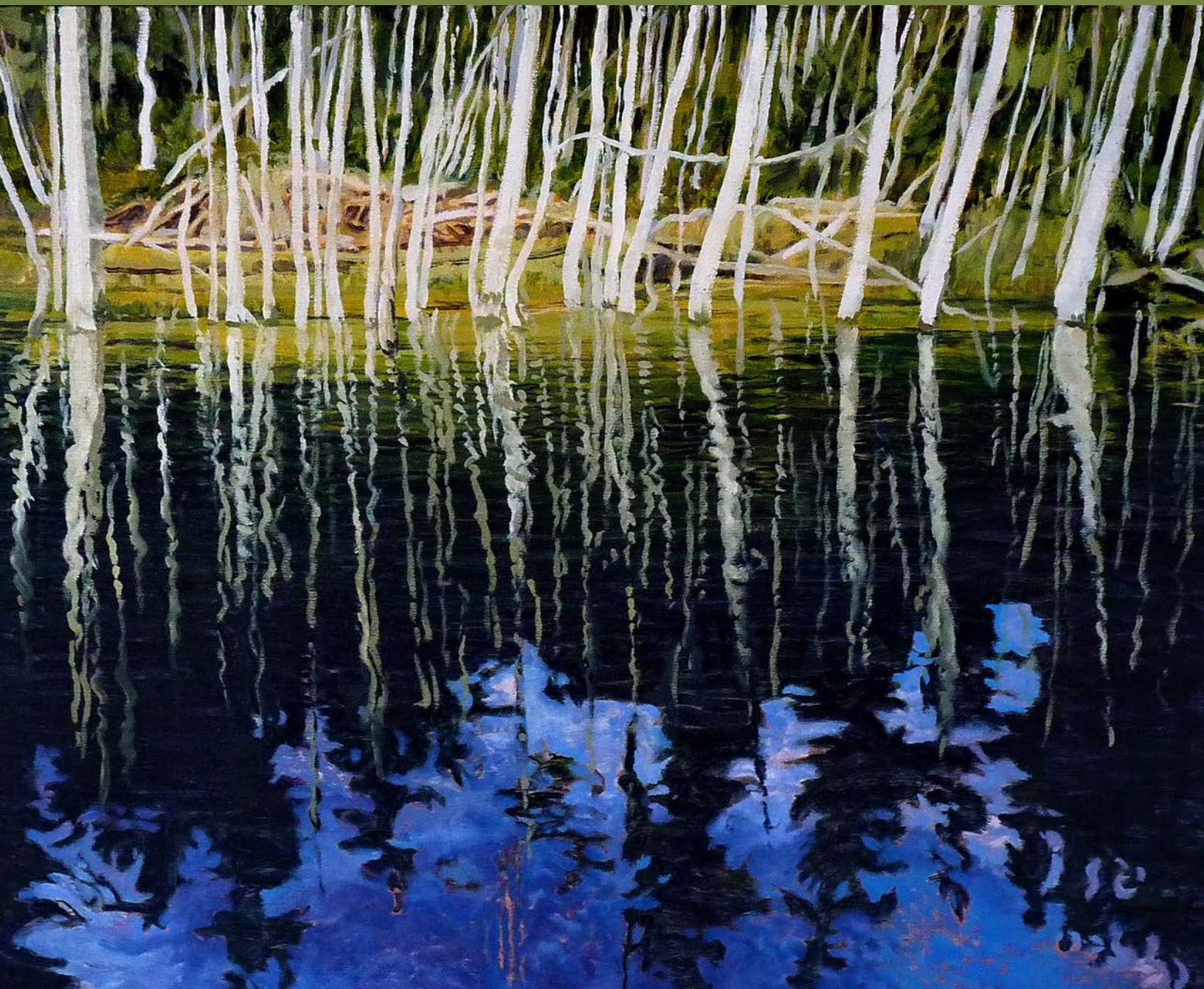


SPRING 2018

The Galiano Island Stewardship News

A newsletter of the Galiano Conservancy Association, where the people of Galiano Island can share ideas, stories and perspectives on stewarding the land.



Cover image: Galiano's Great Beaver Swamp by Brian Mitchell

In this issue: Marine Conservation | Rockfish | Bat Monitoring
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Marine Conservation

Sonia Voicescu

DID YOU KNOW?

The body of water which surrounds Galiano Island is part of the **Salish Sea**. It represents the combined area of the Strait of Georgia, Puget Sound and the Juan de Fuca Strait. This name was agreed upon in 2010 by both Canadian and American governments as well as First Nations groups from both countries in order to honour the Coast Salish people who first inhabited the area. In total, there are 19 different First Nations groups which have historical ties with the Gulf Islands.



Photo: Jackie Hildering, The Marine Detective

CAN YOU SPOT THESE MARINE CREATURES?

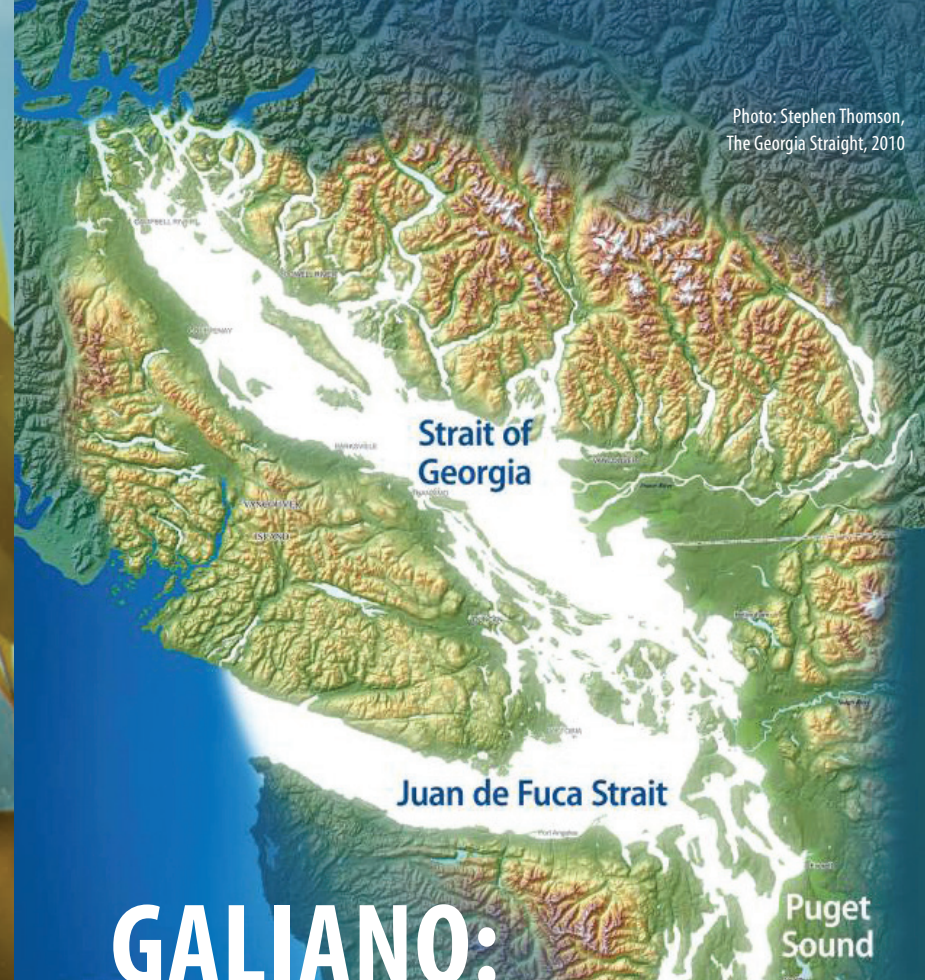
Some marine species in the Salish Sea are very good at mimicking their habitats in order to avoid predators. Below, top, the sea hare *Phyllapsia taylori* is hiding on an eelgrass blade and on the bottom, the cryptic nudibranch *Corambe steinbergae* is camouflaged among a *Macrocystis* kelp upon which it feeds.



Photo Source: Woodley Island Marina, 2015



Photo Source: Clinton Bauder, Monterey, CA, Oct 5, 2017



GALIANO: AN ISLAND IN THE SALISH SEA

SALISH SEA FUN FACTS

- Maximum depth of the Salish Sea: 650m
- 3500 different species in the Strait of Georgia alone
- There are areas with very fast currents : At Porlier Pass currents can reach up to 10 knots
- It's home to 4 species of squid and 3 species of octopus and with the largest being the Giant Pacific octopus, weighing 45kg and with an arm spread of over 2m
- There are 419 islands in the Salish Sea
- **Bull kelp**, which can be found in the Salish Sea, can grow up to 80ft in length

FIVE THINGS YOU CAN DO FOR MARINE CONSERVATION

1 Make safe, sustainable seafood choices. When shopping or dining, help reduce the demand for over-exploited fish species by choosing seafood that is caught in a sustainable manner.

2 Reduce the use of plastic products. A lot of plastic products can end up in the oceans, destroying marine habitats and entangling many marine creatures.

3 Practice responsible marine travel & tourism. Be aware of the marine life surrounding you when you are on your boat, kayak or any other marine vessel; do not travel in sensitive areas or anywhere where you could cause harm to marine life.

4 Use less fertilizers. Fertilizers which are used in excess either in gardens or for agriculture can end up in our oceans and cause "dead zones" (areas with very little or no oxygen). These zones inhibit the survival of marine animals and cause an overall decrease in ocean biodiversity.

5 Do not litter/pick up garbage on beaches. Beaches are important habitats for many marine creatures; as we share this space with them it is important to keep these areas clean so that they can thrive.

Rockfish

Stefania Gorgopa and Jenna Falk

Rockfish can live longer than orca whales, humans and elephants! The oldest recorded rockfish was found in Alaska, and was estimated to be approximately 205 years old (DFO, 2016). A fun fact on its own, this longevity also makes rockfish very susceptible to overfishing because they mature slowly and produce more young the older they get. There are 36 species of rockfish found in BC, and over 100 worldwide. In the Southern Gulf Islands, these include **yelloweye** (*S. ruberrimus*), quillback (*S. maliger*), copper (*S. caurinus*), china (*S. nebulosus*), black (*S. melanops*) and tiger (*S. nigrocinctus*) rockfish.

An essential question to answer for effective conservation remains unanswered: How many rockfish are there around Galiano, and how are their populations changing over time? The Galiano Conservancy has partnered up with the University of Victoria, Valdes Island Conservancy and Environment and Climate Change Canada in order to answer this question and continue to support rockfish monitoring and conservation efforts in BC and the Gulf Islands.

There are thousands of recreational divers in coastal BC, representing a significant untapped resource of citizen scientists ready to be deployed to help study rockfish. With the help of these volunteer scuba divers, we can learn more about rockfish species and their habitat.



Photo: Scott Stevenson

An important first step in any research project is to evaluate the reliability of methods, to ensure you are collecting what you think you are, and what you aim to. To evaluate the reliability of citizen science data for this scuba survey program, pairs of divers of varying levels of experience identified and recorded the number of individual rockfish and other fish species along underwater transects. Divers also provided information about their skills, including diving experience, technical training and fish identification ability. What our research found was that fish identification ability was a significant factor in the quality of their data. In other words, divers who had more species knowledge provided more reliable data, regardless of the technical certifications they held. While very important for safety procedures and technical applications underwater, the skills associated with these certifications did not have a notable impact on data quality for this kind of citizen science research. This is good news for rockfish out there, because it means that far more divers in BC can collect reliable data on rockfish populations to help conservation efforts.



Photo: Stefania Gorgopa

DID YOU KNOW?

- Rockfish give birth to live young and rockfish females produce more young the older they get
- Red snapper and rock cod are common names for rockfish
- This project included 114 surveys with 29 participant divers at 4 different sites
- 30 different known fish species, including 7 rockfish species, were seen during the surveys
- Most abundant species seen: unknown perch species (2000 on one dive and 7000 over all the dives)
- Most abundant rockfish species seen: Puget sound rockfish (1503 on one dive, 5849 from all dives) and Yellowtail rockfish (1600 on one dive, 4744 from all dives)



Photo: Stefania Gorgopa

WHAT CAN I DO?

- 1** Be a rockfish hero and share your conservation knowledge with family and friends. The more people that know and care about these creatures, the more conservation success we can have.
- 2** If you like to fish, be aware of Rockfish Conservation Areas and fishing restrictions therein.
- 3** If you catch a rockfish and do not keep it, try using a "Descender" device to help the fish sink back down to safe depths. Otherwise, it will stay afloat and likely perish.

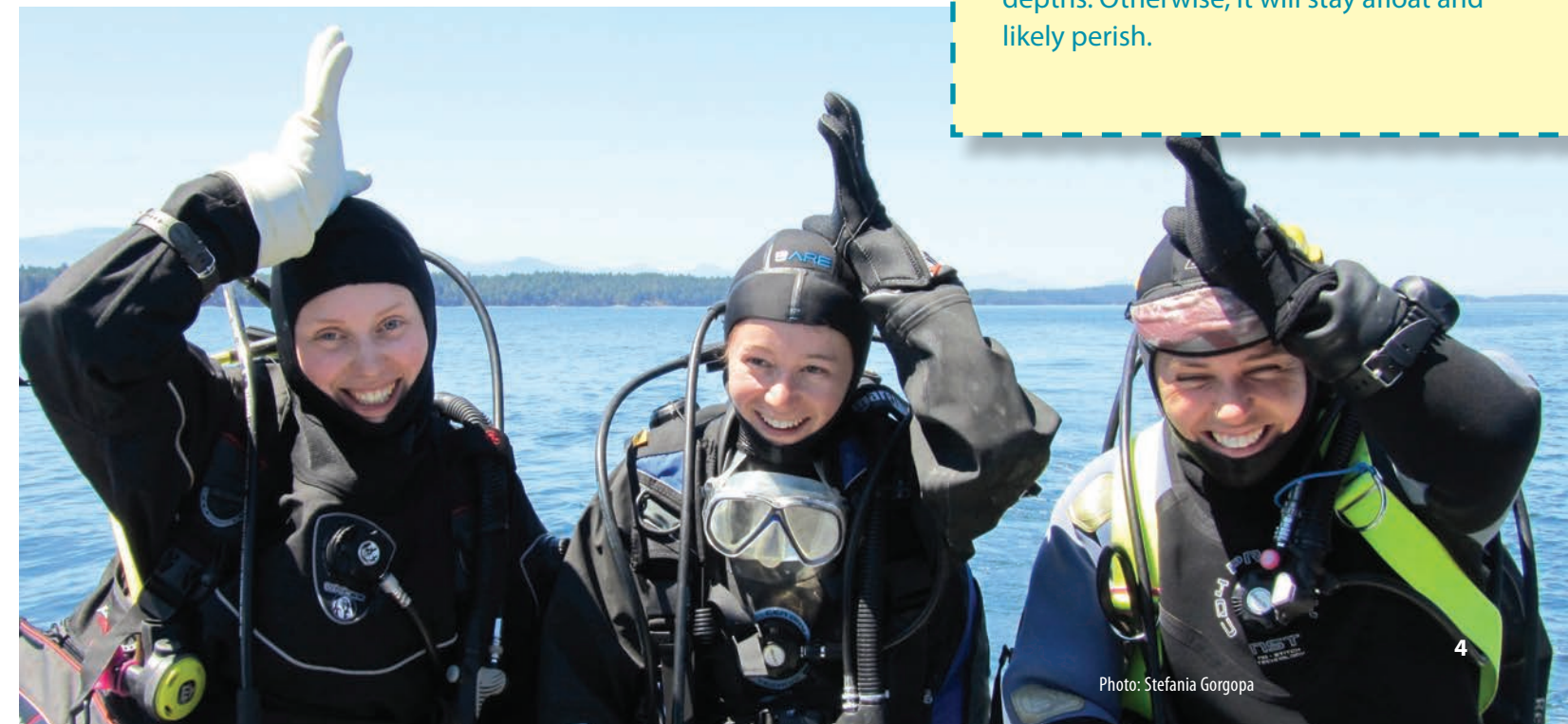


Photo: Stefania Gorgopa



Photo: BC Bat program

Bat monitoring 2017 – Bat diversity and activity at Laughlin Lake

A story about the bats that share Galiano Island with us – By Frieda Weinert

Between May and September 2017, we conducted acoustic monitoring at Laughlin Lake to provide baseline data of bat activity on Galiano Island. **Over 26,700 bat calls from 78 nights of monitoring** were analyzed using auto-identification software, followed by manual verification. We confirmed that **Laughlin Lake is home to nine different bat species** (see box next page).

Eight are among the sixteen species known to be native to British Columbia, while the ninth, the Brazilian Free-tailed Bat (*Tadarida brasiliensis*) has a historical geographic range that extends to southern Oregon in the USA. This isn't the first time the Brazilian Free-tailed Bat has been found in the Southern Gulf Islands, either. In 2016, *T. brasiliensis* was recorded and verified by retired biologist Peter Ommundsen on Salt Spring Island, becoming the first confirmed report of the species in Canada. At Laughlin Lake, *T. brasiliensis* was recorded during 65% of monitored nights, suggesting it is at least a seasonal resident.

Although not present at Laughlin Lake, a tenth species, Townsend's Big-eared Bat (*Corynorhinus townsendii*) was recorded over three nights on private property near the Great Beaver Swamp, less than 3 km southeast of Laughlin Lake. That finding suggests that bat diversity on Galiano may include other species not yet recorded.

DID YOU KNOW?

To navigate while flying, most bats use **echolocation** in addition to eyesight to “see” the shapes around them. Echolocation calls provide bats with sonic images of their environment, which helps them to find their way around objects and obstacles!

This project was undertaken with the financial support of the Government of Canada.
Ce projet a été réalisé avec l'appui financier du gouvernement du Canada.



WHAT IS WHITE-NOSE SYNDROME?

White-nose Syndrome (WNS) is a fungal infection which affects bats by colonizing the skin of their ears, wings, and muzzle. It is thought to spread from direct bat-to-bat contact and causes bats to wake more frequently during hibernation, which depletes their fat stores, leading to severe health problems. This fungus has not yet been found in BC, however it is spreading North from the United States.



Photo: BC Bat program



Photo: Frieda Weinert

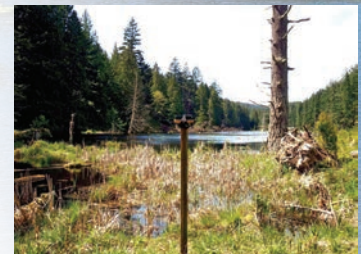


Photo: Frieda Weinert

Bats recorded at Laughlin Lake, Galiano Island

1. **California Myotis** (*Myotis californicus*): recorded the most often and present every night monitored
2. **Yuma Myotis** (*Myotis yumanensis*), recorded the most often along with the California Myotis, and present every night monitored
3. **Big Brown Bat** (*Eptesicus fuscus*), recorded during 91% of nights, primarily at dawn
4. **Little Brown Myotis** (*Myotis lucifugus*), federal endangered species, was present during 83% of nights
5. **Silver-haired Bat** (*Lasionycteris noctivagans*), recorded in over 90% of nights, but less often than the four previous species;
6. **Western Small-footed Myotis** (*Myotis ciliolabrum*), recorded in over 90% of nights, but less often than species 1-4;
7. **Hoary-Bat** (*Lasiurus cinereus*), recorded in 58% of nights
8. **Western Long-eared Myotis** (*Myotis evotis*), present during 83% of monitored nights, but with fewer recorded calls than any other species
9. **Brazilian Free-tailed Bat** (*Tadarida brasiliensis*)

IF YOU FIND A SICK, INJURED OR DEAD BAT:

Please email info@bcbats.ca or call 1-855-922-2287. Reporting helps the BC Community Bat Program track diseases and conservation concerns, particularly White Nose Syndrome. If you would like to volunteer to help monitor and protect bats in BC, please contact: The BC Community Bat Program at www.bc.bats.ca or for local activities, the Galiano Conservancy.

Photo: Frieda Weinert

Water Conservation

Water Water Everywhere?

The growing concern for our freshwater sources

Tanya Inglis

With the winter rains and an ocean at our doorstep, it is hard to imagine the Galiano community ever having to worry about its water supply. However, we do. There are now many wells that experience saltwater intrusion from overuse, and in the summer drought season, some homes and businesses run out of water. As Canada is blessed with abundant freshwater resources, we are often prone to over-consumption and neglect of our freshwater reserves, and Galiano is no exception. With help from the Canada 150 Fund and the Victoria Foundation, the Galiano Conservancy (GCA) has been working to bring freshwater awareness and action to the Galiano community.

Through our freshwater conservation project, we have approached this challenge in three ways. Working with one of our community partners, The Galiano Island Recycling Resource Society, the GCA distributed free water saving kits to residents and home owners.

These kits included water efficient shower heads and kitchen and bath tap aerators which help reduce water consumption. However, to sustain long term change and conservation, education is key. To this end, the GCA was very excited to bring Gord Baird of Eco-Sense, Victoria, BC to Galiano to discuss water conservation and demonstrate to home owners how they can collect, store and use rainwater.

Stewardship habits are best learned young. The GCA engaged Galiano children and youth about water conservation through after-school and in-class activities. This project aims to involve the Galiano community as a whole; we want to nurture respectful and sustainable water stewardship practices and offer practical solutions for improving conservation at a household level.



This initiative is made possible by the Community Fund for Canada's 150th, a collaboration between the Victoria Foundation, the Government of Canada, and extraordinary leaders from coast to coast to coast.

Galiano Water Facts

Galiano's annual rainfall is 926mm with most of that rain coming between October through to March.

Galiano's groundwater is found in bedrock aquifers and there are 21 groundwater regions defined on the island.

Galiano is at risk for increased saltwater intrusion of its fresh water supply when sea levels increase, or there is a decrease in rainfall and therefore recharge (when the aquifer refills during the rainy season) and as demand and use of the groundwater goes up.

You Can Help

there are many ways for individuals and families to help conserve water and you might be surprised at how easy it is to do.

around the house: make sure to keep the tap off when brushing your teeth, fix those leaks and use water saving appliances, faucets and showerheads, and short showers instead of baths!

outside and in the garden: consider harvesting rain water for your garden and lawn. these can be simple small barrels to large water cisterns, and remember to water in the morning or in the evening to make the most of the water used.

The Water Cycle

1. Solar Heat
2. Evaporation
3. Transpiration
4. Condensation
5. Precipitation
6. Down logs
7. Rain water harvest
8. Well
9. Water table
10. Septic system



Illustration: Yucco Takeda

Do you have ideas about improving water conservation on Galiano? Drop us a message on email, social media or come and visit us in person. Let's keep the conservation conversation "flowing"!

Living More Harmoniously with Beavers

Rose Longini

I'll say it at the beginning and I'll say it again at the end:
To live more harmoniously, learn to refine the goal.

In 1989, when I first saw the 5-acre beaver pond on this land which lies on the gently sloping northern face of Mount Galiano, two eagles perched silently on a cedar snag and it seemed they were awaiting my arrival. I was to be the seventh "owner" of the land. The first settlers here were the German-born Charles Groth and his Coast Salish wife, Elizabeth Georgeson: they arrived in 1881. An entry in Groth's diary (1881-1887) p.91: "Indians came out for some rushes for mats." The system of fresh water ponds and streams on this land is about a half-hour's walk from Montague Harbor, so one can imagine that the people who left shell middens at Montague may have come for reeds for baskets over the centuries.

The pond we're looking at holds surface water running down the valley between Mt. Galiano and Mt. Sutil—the source of Murchison Creek, which winds through the south end of the island to Murchison Cove, where Gardner Road meets Sturdies Bay Road. Kenneth and Marie Hardy, who lived on the lower side of Morgan Road, drew their drinking water from the creek until the early 1990's.

In 1992, a couple of hundred acres of (120year old?) fir and cedar on the hillsides and valley between Mt. Galiano and Mt. Sutil were clearcut—Majestic groves, which there are few of us remaining to remember. When the winter storms sent eroding water down from the clearcut, the beaver dam on the pond began to break down. I called the Ministry of Environment to assess the situation and followed their advice to shore up the old dam with boulders and build a new spillway. The beavers dammed the new spillway. Every morning I pulled their work apart and every night they built anew. That was when I began to appreciate the superiority of their structures compared to human-built concrete dams. They can stop the flow of water overnight, using whatever materials are available at the time, in ever new configurations of mud, reed, branches, bark, never re-using the materials I'd piled up on the shore the previous day.

A few years later, the beaver focus turned to an old logging road paralleling the downhill shore of the pond, making it an extension to the pond. This threatened flooding to my house and field, so I dug a narrow canal through the dam to empty the new sub-pond. They responded with a very large dam downstream. Next



Photo: Sky Forest

summer, my son and grandsons spent many hours digging out the new dam. Then I called in an excavator to deal with the road-extension. The dam material was lifted out, four pvc pipes with drainage holes down their length were laid side by side on the site, and the dam material was returned to the top. All nice and tidy and reasonable, and we had emptied all the water out of the old road. That very night, the beaver closed up all four pipes and their pond-extension was full of water again. But I discovered that the pipe closest to the pond was within my reach, and if I cleared that single pipe each morning-poking it with a bamboo stick. The level of water was lowered to the point where it was no longer a threat to me, nor a big threat to the beavers. Once again, it become a daily practice to maintain harmony.

I've learned something about not doing, although the learning is never finished. We can never be prepared for the fact that everything is happening for the first time in this living world. Beavers are very attentive and intelligent, they will respond in-kind to human effort. That means we have to refine our goals, becoming more intelligent ourselves.

Some of us creek residents are talking about walking from Murchison Cove to the source on Mt. Galiano, stopping along the way at the 1,000-year old cedar tree—a Murchison Creek Festival.

One gentle summer afternoon, as I wandered aimlessly on the eastern edge of the pond, a beaver woman sauntered 50 feet ahead of me, at the same pace, slowly; we were two creatures walking in unison in our mysterious and watery home.

Note: In 2001 the Galiano Conservancy Association and the Islands Trust Fund became holders of a conservation covenant on this land.

DID YOU KNOW?

- **Beavers are ecosystem engineers.** Their dam building creates a mosaic of different habitats for many different species, which helps to increase overall species richness within an area.
- A beaver's front teeth never stop growing! Their gnawing on wood not only helps them to build their dens, but it also keeps their teeth from growing too long.
- Beavers can use their broad tail to slap the water as an alarm signal for other beavers when predators are approaching.
- The beaver is mainly a **nocturnal** animal, which means it is most active at night.
- Beavers are slow on land but can be very good swimmers and hold their breath up to 15 minutes underwater.
- The world's largest beaver dam is in Alberta and is 2790 ft long!



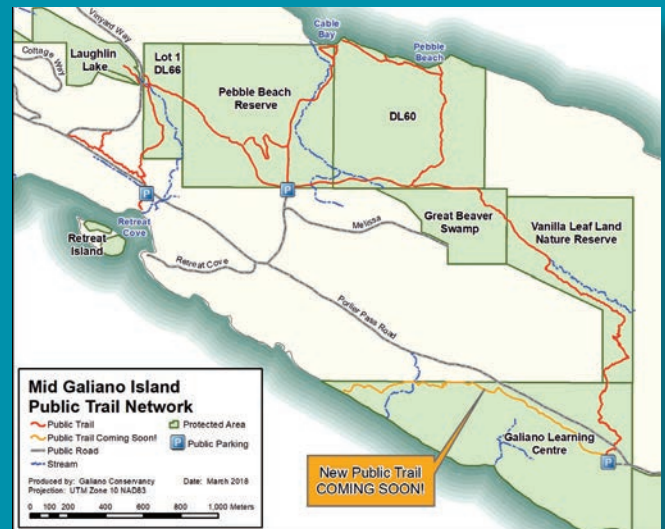
Photo: Sky Forest



Photo: Galiano Conservancy Association

Let's Hit the Trail...

Have you explored the Mid Galiano Protected Areas Network? Over 8 kilometers of walking trails weave through over 1,200 acres of conservation lands spanning the width of Galiano! These trails will bring you to a variety of Galiano's rich ecosystems and landscapes, including wetlands, old coastal forest, steep sandstone cliffs, a valley of alder, and extensive low bank shoreline. Portions of the trail are steep and can be muddy in winter. Please refer to the map for different route options to suite your interests for happy hiking. Parking is available at the Cable Bay/Pebble Beach parking lot and at the Millard Learning Centre entrance.



Choose Nature

Make a gift today and contribute to the stewardship and protection of Galiano's natural places.

Did you know that only two cents of every dollar donated by Canadians each year goes to the environment? With a gift to the Galiano Conservancy, you can help to change that. Your contribution can help to protect some of Galiano's most ecologically significant areas. There are many ways to contribute - through a single or monthly gift, volunteer involvement, a gift in your will or a gift of land.

To learn more about how you can choose nature, contact Jenna at development@galianoconservancy.ca or 250-539-2424. We'd be happy to work with you to find the most meaningful and impactful way for you to support conservation on Galiano.

Galiano Conservancy Association

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Special thanks to Kelly Brooks at Far and Wide Marketing for design and layout support