

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.

In this issue: a special focus on the work being completed at the Galiano Learning Centre and opportunities for becoming involved.



September 24, 2016 was a very special day for Galiano

It saw the community coming together to recognize the contributions of the Millard family to Galiano, through a Dedication Ceremony of the Millard Learning Centre. Thanks everyone for a very special day on Saturday. The Millard family's contributions include significant financial donations and nearly 30 years of volunteer service on the part of Ken and Linda. Linda created and managed the GCA's community library for many years, with Ken acting as the organization's full-

time Coordinator until passing away in September 2015. While Ken and Linda's time was given freely and happily, it would not have been possible without their family's deep understanding of the importance of this mission and their generosity in giving up time together.

To honour this family's contributions, a new name and entrance sign for the Galiano Learning Centre was publicly unveiled at this special event.



Forest Restoration Field School

Forest Forensics - Mycelia-what?

By Brittany McLeod

The rich smell of the forest floor permeates my nostrils as I dig through the work of thousands of decomposers. The soil is moist, dark and full of nutrients and minerals. Surrounded by Saturna Ecological Education Center (SEEC) students, I am crouched down hunting for tiny mycelium threads (branching, vegetative parts of fungus); we are searching for hints as to what makes an ecosystem healthy. A forest without mycelium, is like a body without the circulatory system, both would not be able to effectively transport nutrients.

Have you ever wondered what an ecosystem has experienced over time? Who was there before you? What animals scurried, flew, and hopped through the forest? How big were the trees? What does a healthy ecosystem even look like? The Galiano Conservancy Association (GCA) offers restoration field schools for high-school and post-secondary age groups to explore these curious questions. Forest Forensics is a program geared towards high school students that gives them the opportunity to put their detective caps on - and focus on the forest around them in a way most never have before. Students determine which successional stage a forest is in, and prescribe a restoration treatment. Undergraduate students from UVic and UBC also participate in restoration field schools held at the Millard Learning Centre while digging into advanced ecological concepts and sleeping under the stars. It's amazing how hard it is to find silence in our world today - yet we have it here.

Why, might you ask, is restoration important? Nobel Prize Winner Paul Crutzen suggests that we have entered a new geological time period known as the Anthropocene. This epoch consists of earth's weather systems and environment being highly influenced by human activity. As this time period suggests, human behaviour can shape an ecosystem. But this influence can be positive too - we have the opportunity to restore ecosystems in order to reconcile the harm we have done. Human and non-human species depend upon the recovery of damaged landscapes. While conservation is key in protecting what we currently have left on earth, restoration is key for the rehabilitation of vital yet damaged ecosystems. Zooming from a global scale to lot DL63, Pebble Beach, on Galiano Island, the GCA continues to implement restoration treatments in order to transform a plantation forest to a resilient, thriving ecosystem. The first restoration work here

was in 2004, and huge strides in ecosystem health are already apparent. In 1968, the first clear cut was made on this lot, and degradation continued until the GCA took ownership of the land.

Now, it's not always easy to keep teenagers off their phones, but hiking nearly 6 km through incredible ecosystems (and over a ridgetop) does seem to do the trick. Recently, SEEC students completed Module 1 of Forest Forensics, a 6-day Restoration Field School. We hiked directly into experiential learning with fourteen high-school students and their teacher Dorianna. The Pebble Beach Reserve trail led us into a mature healthy forest and allowed us to draw a comparison as we then transitioned to a dark plantation forest. These nature savvy students were challenged to learn in depth about native ecology and plant communities. The field school extensively covered forest structure, composition and function, not to mention no time for cell phones!



“I learned a lot throughout (our) trip to Galiano. Now when I walk through a forest I look at it in a different light. I think, how old are these trees? What made the forest the way it is? Is it healthy? I’m now considering going into forest conservation after graduating.”

-SEEC 2016 student



“Does that moss have teeth?! What is a nitrogen fixer? Why do trees and mushrooms need each other?” These are questions students excitedly investigated during the field school. We were met with many mysteries in differing plant communities along the way for the students to solve using independent inquiry. Students also honed in on their compass skills while participating in an orienteering course, and mapped stumps in the mature forest. By understanding the spacing of a healthy forest, students will have an idea of the number of trees to thin in order to create more light in a dense plantation. Keep your eyes peeled for Forest Forensics Module 2 when SEEC students return to Galiano in the spring. The students will continue their restoration efforts in the planted forest by implementing a student-led treatment plan.

“I never thought there was so much to learn about a forest’s make up and whether or not it’s healthy. Going to Galiano has inspired me to learn how to read a forest’s history by looking at various indicators.”

-SEEC 2016 student



Galiano as a Hub for Innovative Ecological Restoration

Some of the most advanced and community-driven restoration programs in the region are offered here on Galiano Island. For four summers, Professor Eric Higgs has brought UVic students to the island for a field course in Advanced Principles and Practices in Ecological Restoration. Students can choose from a variety of projects - summer 2016 students worked on “the design of an apiary, a native food forage forest, strategies for removing Scotch broom, implementing a meteorology program, designing a backcountry campsite, ramping up a native seed bank, and bringing solar education to the Learning Centre.” (ES 411 Blog). As with the high school students from SEEC, undergraduate students benefit from being immersed in the field with hands-on learning.



Professor Eric Higgs: “the ES 441 class is ‘a true partnership between UVic’s School of Environmental Studies and the Galiano Conservancy Association. This is not a course dropped into a beautiful location, but a learning experience that emerges out of the culture and ecology of Galiano Island.” (Fournier, Island Tides)

This long-term partnership is an example of the durability GCA has to offer from our innovative programs. While working with restoration principles, students curate a vital connection to the land. Curating the connection between the GCA and secondary/post-secondary education is an important gateway for youth to the land and is one that is made to last.

“What a passionate team of mentors to work with and learn from! ES 441 meant muddy rubber boots and engaged conversations—by the wood stove, on afternoon transects, or at the cozy GCA office—and sprouted deep investment in learning. I grew so much.”

- Navi Smith, 2013, ES 411 student

The essence of these field schools is to promote sustainability and restoration principles - and connect students with the communities around them. In turn, students also solidify lifelong bonds with each other and to the land they intimately get to know. Just as mycelium, they begin to foster connections to a greater whole and become environmental stewards. Next time you enter the forest, ask yourself what stories a landscape holds. The conversation for many of us has become life long, with many twists and turns, but always seeing us back in the forest someday.



Harvest and Herbal Workshop

November 19-20

By Suzanne Fournier



This mid-November weekend created a wondrous world of nature experience for 16 people of all ages. Coming from Finland, Germany, Vancouver, Galiano and other islands, participants all shared a keen interest in learning more about medicinal and edible plants as well as how to harvest, preserve and prepare a feast from wild and cultivated crops. The workshop, hosted by the Galiano Conservancy Association, took place at the 188-acre Millard Learning Centre. The magical site features over two kilometres of waterfront—the longest intact coastline in the Salish Sea—wetlands, two seasonal streams, 80 acres of mature forest, a recycled schoolhouse building and now the community-built permaculture garden or Food Forest.

A remarkable amount of learning took place on two blessedly sunny November mornings, amid the camaraderie of a large group creating potions and a plant-based feast to share. Keeping the workshop on track and on time were our two focused and competent instructors. Reed Osler, a certified Community Herbalist and educator for the last 15 years, is the conservancy's Education Coordinator. Cedana Bourne, GCA's Agriculture and Nursery Coordinator, is an herbalist and registered Holistic Nutritionist who graciously shared her recipes and jars of preserved sunchokes and garlic scapes,

along with bottles of her delicious kombucha. Perhaps most important of all, the workshop was a very hands-on format where participants learned how to make our own salves and liniments as well as how to harvest and prepare a wide range of fresh, fermented, salted and brined products, taking home not only our own creations but recipes to extend the growing season.

On the first day, participants gathered medicinal and edible plants as part of our hike and “forest bathing” along the stunning southern ridge of the MLC property, amid coastal Douglas fir, Grand fir, Alder, Arbutus, Cedar and Garry oak. In the forest understory lurked harvestable jewels such as Salal, Yerba buena, Self-heal, Trailing blackberry, Oregon grape, Evergreen huckleberry, Plantain, Sword and Licorice fern. The group carefully picked small amounts of wild plants to make food and medicine, using the guidelines given for wildcrafting. Accurate identification of a plant is key, including whether the plant is native, endangered, or growing in a sensitive environment. Leaving enough to share with deer, birds and insects, not to mention other wild crafters, is crucial. Avoid picking at polluted or roadside sites. Targeting invasive or over-abundant crops such as blackberry or dandelion root is a good place to begin, and farmers may thank you. After

our forest walk, the group sat down at the ocean cove in the sunshine to enjoy steeped Grand Fir and blackberry tea hot from Reed's thermoses, along with homemade vegan cookies.

Back at the MLC classroom, a buzz of activity began as we learned to create our own salves and liniments. First we steamed ourselves over bowls of hot water filled with just-harvested cedar, which we learned is an excellent way to fight infection and stimulate the immune system. Reed and Cedana demonstrated how to make infused medicinal herbal oils, using grape seed, vitamin E and jojoba oil or the more affordable extra-virgin olive oil. A blender was used to buzz (previously dried) Oregon grape and cedar oil until warm, then it was strained through clean muslin. We used the oil to make a lovely Forest Healing Salve by combining the warmed oil with beeswax. To complete the first day of the workshop, we also each made a small canning jar of liniment by carefully stuffing it with small alder twigs and finely-chopped swordfern, topped up by 99 percent isopropyl alcohol. The next morning, one workshop participant said she enjoyed a wonderful painless sleep after her friend used the liniment on her chronically-sore back.

On Sunday, we set off with snips and baskets for the food forest, which is planted with many Hugelkultur no-dig raised beds brimming with food plant. After our tour, we harvested a diverse list of plants. Back at the MLC kitchen, everyone happily chopped, sautéed, stirred and eventually feasted on a delicious thick soup. Big bowls of salad added more zest and biodiversity to our meal with arugula, pea shoots, buckwheat shoots, oxeye daisy greens, borage and nasturtium flowers, for



a truly delicious rainbow-coloured feast.

The final lesson of the workshop taught us to make kombucha, a tasty fermented and bubbly beverage loaded with enzymes, bacterial acids, antioxidants and glucosamines. Cedana demonstrated how to make the popular tonic, providing each of us with the essential ingredient of a S.C.O.B.Y, which stands for Symbiotic Culture of Bacteria and Yeast.

Sharing at the end of the workshop, Nicolina Kolster, trained in herbal aromatherapy in Finland, said she was “excited to learn how to use plants in the garden and from the wild, in so many ways.” Kolster and Lukas Traude, both 25, said they look forward to planting their own biodiverse garden. GCA director Julie Gardner, who is cultivating her own native plant garden near Retreat Cove, said she “loved that the common plants around my house are so useful—they contain riches beyond weeds!” And Galiano resident Jeanne Erickson said she had learned much about plants and permaculture to enhance her own usually solitary garden practice. Everyone agreed that harvest workshops at the MLC are an excellent way to learn—and feast.



Here comes the sun...

to the Galiano Conservancy Association!

Tom Mommsen, Galiano



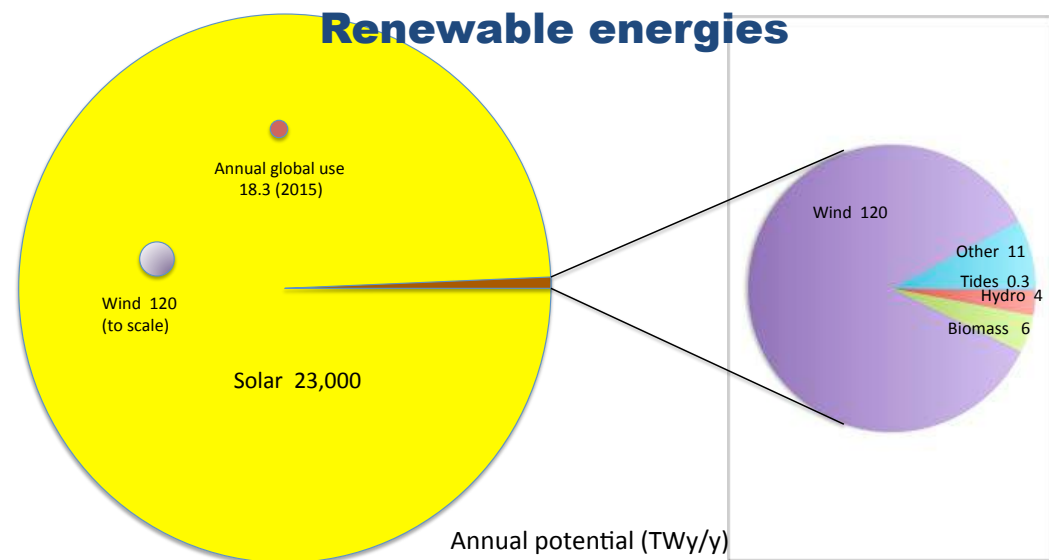
Why go solar?

Our sun has been around for a while and will continue to do so for a few billions years yet. While the sun is 'up there', it delivers, in a little over one hour, enough energy to drive all energetic processes used by humans in a year (around 18 TeraWatts - TW). The amount of energy reaching the earth from the sun puts everything else into the shade, if not into a very dark corner. Oh, if there were only simple and inexpensive ways to capture all that energy! Well, it turns out, there already are: for the last few millions years, biology - as we know it - has evolved methods to capture, convert and store solar energy. Thus, algae and green plants deliver greens, fruits, seeds, roots and other stores (generally known as trees and over geological time turned into fossil fuels), for direct and indirect use. Equally impressive, albeit somewhat more recent, human ingenuity

has developed solar cells that are pretty good at capturing the sun's energy and turning it into electricity. What started as observations on the photovoltaic effect, that gave Mr. A. Einstein his only Nobel Prize, was eventually developed into the solar (photovoltaic, PV) cells we know today. Admittedly, their efficiencies of 16-24 % remain short of the theoretical maximum (around 40%), but they already outdo the most efficient plants (between 2 and 6 %) quite handily.



Sun-powered flower (*Helianthus annuus*) on Galiano, producing pollen, seeds, cellulose, oxygen etc.



Adapted from Perez & Perez (2015)

Earth energy availability in perspective. Top portion shows the annual potential renewable energy on the blue planet in terawattyears/year. Solar potential overwhelms everything; less than 0.08% of the sun's energy (18.3/23000) hitting the earth every year needs to be captured to supply all energy required by humankind. The bottom portion displays the total energies available (TWy) in fossil fuels until complete exhaustion of the respective fossil fuel resource. For instance, if gas were used for all earthly demands, it would last for 21 years. What that would do to the climate is beyond description. Graph adapted from M. Perez & R. Perez (2015). IEA-SHCP Newsletter Vol 62.

Solar PV at the Millard Learning Centre (MLC)

Two years ago a group of Galianoites hatched the idea to initiate a bulk-buy of solar equipment and the Galiano Conservancy was an immediate and enthusiastic supporter. In the context of its general emphasis on teaching, stewardship, restoration and research, while being as benign on the environment as possible, the Conservancy recognized the opportunity to answer hands-on questions about solar power: Does it work here? Where is the hitch? What about storage? Can it make a difference? What are the real costs? Eventually, over 400 PV modules were ordered together with rails, racking, hardware and electronics to install 15 different systems on the island. This included the eighteen 255 Watt modules now proudly mounted on the roof of the Aspa building at the Millard Learning Center (MLC). The entire 4.6-kW South-facing system has been operating flawlessly for over a year, generating electricity reliably, cleanly and without a sound. To maximize the power gain from the PV modules, we adapted a racking system that allows alternating between summer (22° inclination) and winter (60°) positions. This array is in addition to the small array already powering the wellwater supply at the MLC.

Because the MLC is not connected to the power grid, the solar installation differs from most others on Galiano Island (except Phillimore Point, which is also 'off-grid'), since it requires stand-alone storage. The electricity generated by the modules as direct current (DC) flows from the roof through a sophisticated charge controller

directly into a bank of batteries for storage. When power is drawn at the MLC, electrical current from the batteries is inverted to alternating current (AC) using a fairly fancy inverter that, in turn, powers lights, computers, projectors and other devices. The system has some issues inherent to any off-grid set-up: our traditional-type batteries require maintenance and system capacity is limited by the storage in the batteries, currently around 10 kilowatthours (kWh). Unfortunately, at the time, sufficient storage to retain more electricity in the summer and power the MLC during the not-so-sunny winter months was well outside of our budget. Yet, as a proof of concept, our system works perfectly and many lessons have been learned.



From spring to fall, visitors, students and teachers working at the MLC get to enjoy plenty of electricity generated by the sun. Only on consecutive rainy days do we need to supplement the solar gains with generator power.

Does solar PV work on Galiano?

Yes, solar PV does work on Galiano! In fact, very nicely and efficiently. Most solar systems on Galiano are grid-tied, where electricity generated by roof or ground-mounted modules feeds into an electrical subpanel. Electricity flows directly into the house from the solar panels (after DC to AC conversion) and any surplus - which will be rather abundant in the summer months - feeds into the grid, with the neighbours enjoying the excess solar-generated electricity. In this set-up, the grid basically functions as a large battery. During darker times of the year or at night, when consumption exceeds solar production, additional demand is met from the grid. At the end of a 12-month period, BC Hydro will even pay for excess electricity. In the summer (March to October) everyone who installed solar has been pleased to see their hydro bills go down dramatically - for my installation, I am paying only the hook-up charge of \$5/month for approximately 8 months of the year! Grid-tied PV also has some inherent issues, leading to friendly discussions about respective pros and cons versus off-grid. Fortuitously, both technologies evolve quickly, while the sun continues to deliver free energy.

The value of PV

Apart from the feel-good factor, solar PV is valuable educationally and (almost) devoid of greenhouse gas emissions. Yet, the - badly mistaken - argument is often made - that solar is an expensive flight of fancy especially in BC with its excess 'clean' hydropower. First of all, PV is not expensive, but that's another part of the story.

It also turns out that hydro is not nearly as clean as advertised. Newer research shows indisputably that artificial reservoirs and turbines generate surprisingly large amounts of carbon dioxide and methane. The average of 372 g of greenhouse gases (GHGs) per kWh of electricity produced exceeds the amounts generated by solar or wind by more than ten-fold and amounts to more than half the GHG emissions from fossil fuels. In terms of GHG emissions, there simply are no equals to solar and wind. Once installed on a roof or in a solar farm (a large installation of solar cells for community use), the cells just do their work and require only a minimum of maintenance, for an anticipated functional life of at least 40 years.

At the MLC, studying and living with an off-grid PV system is a great learning experience and students adjust quickly to the facts that power is valuable, limited, should not be wasted, should be shared equitably and big demands (e.g. hairdryers, Large Hadron Colliders, etc.) may need to be curtailed or postponed until the next sunny day or when the batteries have been recharged fully! Also, students (and teachers!) rapidly become aware of power consumption of their own devices and recognize the value of that normally elusive unit: the kilowatt-hour (kWh).

Everybody is familiar with those annoying bills from BC Hydro listing kWh, but what do those numbers really mean? Powering a 50 W incandescent light for 20 hours, produces some light and consumes 1000 Wh (1 kWh) of energy, with most of the electrical input wasted as heat. This excess heat may be helpful when trying to hatch chicks from eggs in an incubator, but heat is a waste when - after a hard day in the field - students have to analyze data and do research at night with limited electricity supplied by batteries. Luckily, the same amount of light is generated by a 7.5 W light-emitting



diode (LED) for a use of 0.15 kWh in 20 h. Needless to say LEDs rule and incandescent bulbs are nowhere to be found in the MLC. Similarly, one would be hard-pressed to locate traditional desktop computers at the center - these energy hogs consume upwards of 400 W, including the monitor - while laptop computers with power consumption well below 100 W are the energetically smart choice.

Located at a similar latitude to Paris (France), the MLC solar array can deliver about 5700 kWh per year - roughly half of what an average BC household uses annually - saving the equivalent of two to four metric tonnes of greenhouse gas emissions (depending on hydro or oil being used as a reference point). Alas, in summer, a lot of the solar energy cannot be harnessed because our battery bank is limited and batteries are quickly filled to capacity and would be damaged if overcharged. One of the solutions to this conundrum is to increase battery capacity. Fortunately, technology in the electricity storage field is improving at a rapid rate, prices are dropping quickly and capacities are increasing by the day! Just a few years ago, the idea of large battery storage seemed like a pipe-dream; since then, reality has overtaken the dream, including at utility scale. Now many options are available and at ever decreasing costs, ranging from sulfate/seawater based batteries, through Lithium-ion batteries, flow batteries, generation and storage of hydrogen, and pumped storage to storage of pressurized air. As such, the argument about the intermittency of solar and wind has lost its validity.

What about the cost?

Contrary to the myths the media and trolls are perpetuating, commercial electricity supplied by PV solar cells is already cheaper than coal, gas, oil, nuclear or hydro, even in regions not known for their solar prowess, like Germany or the UK. In fact, solar is only beaten in the price-per-kilowatt-hour stakes by wind-power, a fact that was unthinkable even a couple of years ago. Plus, the input is

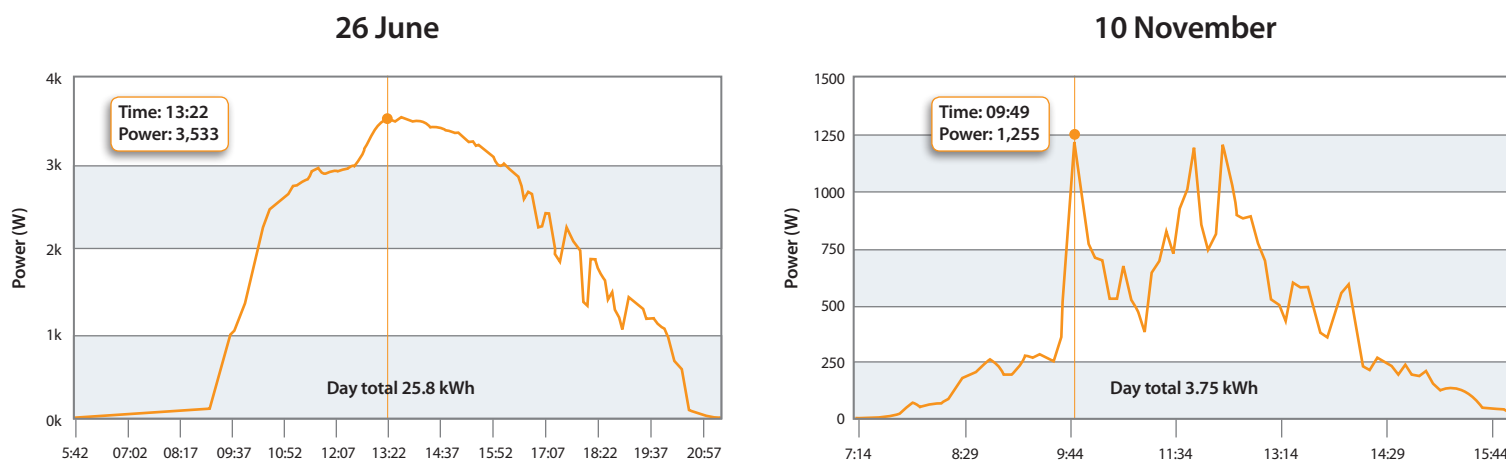
free and no price increases are on the horizon! Over time, PV costs will continue to decrease, while costs for fossil fuel energies will increase in unison with greenhouse gas emission liabilities. None of the fossil fuels burn cleanly into carbon dioxide. They also generate many side-compounds including black carbon, volatile organics, fine particulate matter, sulfur oxides and nitrogen oxides with considerable negative effects on environment and health. Also, neither the subsidies continually lavished on fossil fuels nor the externalities are ever reflected in the actual costs of fossil fuels. Very conservative estimates for the real cost to society and the planet come in at a minimum of \$135 per tonne of carbon dioxide, putting both BC (with a carbon price set at \$30/t) and the federal government (\$10/t, starting in 2018) to shame.

The cost of individual solar PV installations is higher than for commercial arrays, in part because of scale. Still, we calculate that the return on the investment under the current cost environment in BC (low charge for power, no subsidies for PV, low C\$) still exceeds 3% - quite acceptable for a long-term investment in a decarbonized future!

Where to go from here?

With the very successful proof of concept behind us, it would be nice to capture the excess solar power during spring, summer and fall. Options are a much larger battery bank or tie-in to the power grid, opening the possibility to 'export' excess power to the grid and 'import' power from the grid when the demand is high and solar production is low. Another slightly longer-term goal should be to make the MLC join the net-zero world, where the MLC produces as much renewable power as is consumed on site - most likely with an extended PV array. Either way, the future is solar and bright!

Interested in Galiano's future bulk purchase of solar systems or solar concerns that cannot be solved with sunscreen? Contact the author at solar_galiano@yahoo.ca



Representative daily electricity production of a 4 kW array on Galiano island on a fairly sunny day in June 2016 (left) and a dull day in November 2016 (right).

This holiday season, don't forget to respect your elders

Darrienne Lancaster, Lily Burke, Jenna Falk, Warren Warrtig



In British Columbia (BC), land of the charismatic salmon, it's difficult for other fish to make a splash. However, around the Southern Gulf Islands, another fish is making waves because of the hard work of local scientists and conservation groups. An effort that started out small in 2011 and has been growing since, the Galiano Conservancy Association (GCA), in partnership with the Valdes Island Conservancy (VIC) and the University of Victoria School of Environmental Studies (UVic ES) as of 2014, are working to raise the profile of BC's imperilled rockfish.



Rockfish represent a genus of fish and more than 30 species make their home in BC waters. Many live out their lives at or near the bottom of the ocean on rocky substrate. Some rockfish species around Galiano Island can live for over 120 years and they usually spend their long lives in just one area. From a human perspective, this means up to 4 generations of family could visit Galiano Island and the same rockfish could be found during this time living offshore of your island home! Rockfish do not survive the usual catch and release fishing like most salmon species and this, along

with biological and behavioural characteristics, make them vulnerable to overfishing. Many rockfish species are now listed as Threatened or as a species of Special Concern by Canadian protection agencies.

Rockfish declines observed around the Southern Gulf Islands galvanized the GCA to coordinate a SCUBA survey in 2011 to assess rockfish numbers inside and outside some of Galiano's Rockfish Conservation Areas (RCAs). GCA biologist Lia Chalifour spearheaded this effort and results of this survey found more rockfish outside of RCAs than inside. However, this was a preliminary finding, which created a host of new questions and avenues to explore.

In 2014, Masters student Darrienne Lancaster, from UVic ES, placed shore-mounted trail cameras around Galiano Island and other Southern Gulf Islands to count recreational fishers fishing inside of RCAs. She also conducted dockside surveys to find out the amount of recreational fisher knowledge of rockfish and RCA regulations. Darrienne's research showed low levels of rockfish and RCA knowledge, and moderately high levels of illegal fishing within RCAs. It is very likely that most of this illegal fishing is due to the low levels of RCA knowledge among recreational fishers. Results from Darrienne's research spawned an outreach campaign by the GCA who pulled together more community partners like the Vancouver Aquarium and the Marine Life Sanctuary Society along with local researchers. Working together, 29 permanent signs were installed on 8 Southern Gulf Islands and 19 more are planned for the Vancouver Island and Mainland BC coasts. These organizations continue to spread posters across the region to raise awareness of RCAs and threats to rockfish.

In the summers of 2015 and 2016, GCA Intern Alanna Vachon continued Darrienne's trail camera monitoring and dockside surveys to see if recreational fisher behaviour or knowledge changed after the course of the education campaign. Alanna found that 88% of people interviewed thought rockfish conservation was important, with 52% suggesting increased education to improve RCA knowledge. This indicates initial outreach efforts are improving public awareness and that the community wants to be more informed.

Next it was time to plunge under the waves with some intensive SCUBA dive surveys to collect data on rockfish abundance and diversity. In 2015, Masters student Lily Burke, also from UVic ES, took up the rockfish conservation banner and conducted surveys of rockfish abundance inside and outside RCAs by diving 58 sites throughout the Southern Gulf Islands – not for the faint of heart! This underwater research involved frequent visits from lingcod, sea lions, and even a cameo appearance by the resident killer whale pod, which swam past a few hundred meters from the divers. This project is also comparing rockfish abundances observed to known levels of recreational fishing from research conducted by Dr. Dana Haggarty and Darrienne Lancaster. VIC has been documenting habitat within and outside of the RCAs with a 100m drop camera (filling the gap of where divers can't see). Their findings to date indicate that very little of the RCAs are actually suitable rockfish habitat, which is being further explored.

We wanted to further engage the community in this research and provide an opportunity to share information both ways. To do this, the GCA hosted a Rockfish Workshop

in 2016 at the Millard Learning Centre with guest speakers that included Andy Lamb, local rockfish aficionado, and Jeff Marliave, Vancouver Aquarium rockfish expert. The workshop allowed community members and up-and-coming researchers to connect and brainstorm the best ways to conserve rockfish for the future.

Moving forward, the Rockfish Conservation Project is building on the substantial knowledge gained through previous rockfish research and is planning to extend these marine conservation efforts. Project partners hope to continue this initiative with funding provided by the federal Habitat Stewardship Program. There is continued information gathering (i.e., dive surveys, Valdes Island Bioblitz) and sharing (i.e., public talks, posters) activities planned for the future. An exciting new aspect of this project is that it is looking into how members of the public can be involved in the long-term monitoring of rockfish abundance and the success of this conservation initiative. If you would like more information and ways to get involved, please contact Jenna at 250-539-2424 or development@galianoconservancy.ca. We want to hear from you!



Photo credits: Stephen Ban and Scott Stevenson

My Wonderful Experience on Galiano Island

As an intern at the Galiano Conservation Association

By Frieda Weinert, forest-engineering student at University of applied science Weihenstephan-Triesdorf in Freising, Germany

On a sunny morning in March 2016, a ferry took me to one of the southern Gulf Islands. Just a few months before, I was back in Germany and had to decide where I would go abroad to volunteer. As a forest engineering student at the University of Applied Sciences Weihenstephan-Triesdorf, this was a requirement of my program. I was stuck between going to Slovenia or Canada, specifically British Columbia. Both beautiful, but different. In the end I chose Galiano, because of the west coast. Mountains, sea and forests everywhere. I read online and I had a talk via phone with Keith Erickson, Ecologist at the Galiano Conservancy Association (GCA) about projects I could be part of. The final decision was made



Over the last 6 months I have volunteered at the GCA. It is a democratic grassroots organization that has grown over the last near-27 years, in times of climate change and habitat conversion, into a very knowledgeable and socially minded non profit. The purposes of the GCA are to protect and enhance the quality of the human and natural environment of the area. Being a land trust, it also works to support the establishment of wilderness and other natural habitat preserves for the benefit of many generations to come.

The first experience I made was seeing natural areas less controlled by man - partly man-made nature. It was fabulous to recognize the natural structure of trees (the German forest economy loves straight timber) and the species richness of plants and animals on the Island.

Soon I was involved in a stream survey at the recently restored Learning Centre cove, and other restoration projects on different nature habitats. Because of long term use and invasion of exotic species we wanted to recreate a natural creek ecosystem for different native plants and wildlife species. With the mentoring of Keith, it was possible to experience the work as an ecologist. Having these unique, hands-on experiences is why my University program wants all the students to get out and work with organizations in Germany or other countries.

Cedana Bourne, the Agriculture and Nursery Coordinator of the GCA shared her knowledge about herbs, while working in the nursery and the greenhouse. I helped also at the Permaculture "Food Forest", a sustainable garden where the forest is used as a canopy and protector for growing edible plants. Education programs, at the food forest and other places around Galiano and the Learning Centre, were very helpful to practice English and

a lot fun too. My favourite moment at a program was disguising myself as the "Fairy Godmother" of the pond, and enchanting the kids with stories of the pond creatures and why I need their help to look after the frogs, bats and dragonflies.

The GCA staff members had confidence and trust in me and my work, so I was able to finish some projects on my own. One of these was a Bat Monitoring project at the Galiano Learning Centre. This work is new for Galiano and we were very excited to start monitoring to see which species of bats live here. I volunteered at the Salt Spring Conservancy with Peter Ommundsen to learn about their established program. Peter shared his skills and knowledge about monitoring bats in B.C. with me and the GCA.

But to monitor wildlife, we needed to have an acoustic detector. It was the first time I realized, I am working with a non-profit and I have to search for a way to make this monitoring possible. Fortunately, Keith had a contact named Paul Grant, Wildlife Biologist at Grant Scientific Services Ltd. He was very generous and loaned us a detector and gave us a lot of support while analyzing bat calls. It is hard to tell them apart at first!

It was a pleasure for me to work with Peter and Paul. We analyzed four different species over 19 days of recordings at Galiano Learning Centre. Little brown bat, big brown bat, California myotis and long-eared myotis. It fascinated me how many different bat voices I listened to.

The skills I learned in the past 6 months will help me in my future as a forester and maybe some day as an ecologist, but more importantly, as a human to understand the earth as a whole.

But honestly, I wasn't working 24/7. I went with friends to remote places on Vancouver Island, where we saw coastal wolves and a bear. I was lucky to circumnavigate Saturna Island by kayak and see the shorelines and ecosystems of some magnificent areas and the peace & quiet of Reserves. Living in a wonderful house and spending time with new friends made Galiano my favourite place on earth. Thanks to everyone.

What's next? I am back at school now, having some field trips to Slovenia, south Bavaria and graduating in summer 2017. I hope very much to come back in spring 2017 to Galiano to finish my Bachelor's thesis working with the GCA and doing further bat monitoring under the mentorship of Keith and Paul. Hope to see you next year!

Thanks to a caring community...

2016 has been a year of change but also positive growth and renewal. The support of our community has made this possible and we thank you. Warm wishes for the holiday season. Please consider making a holiday gift to the Galiano Conservancy on behalf of the birds and the bees and all the non-human members of our community.

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Give the Galiano Conservancy a solid foundation for supporting conservation and a healthy environment on Galiano well into the future. Complete the enclosed gift form today or contact Jenna Falk at 250-539-2424 or email development@galianoconservancy.ca.



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