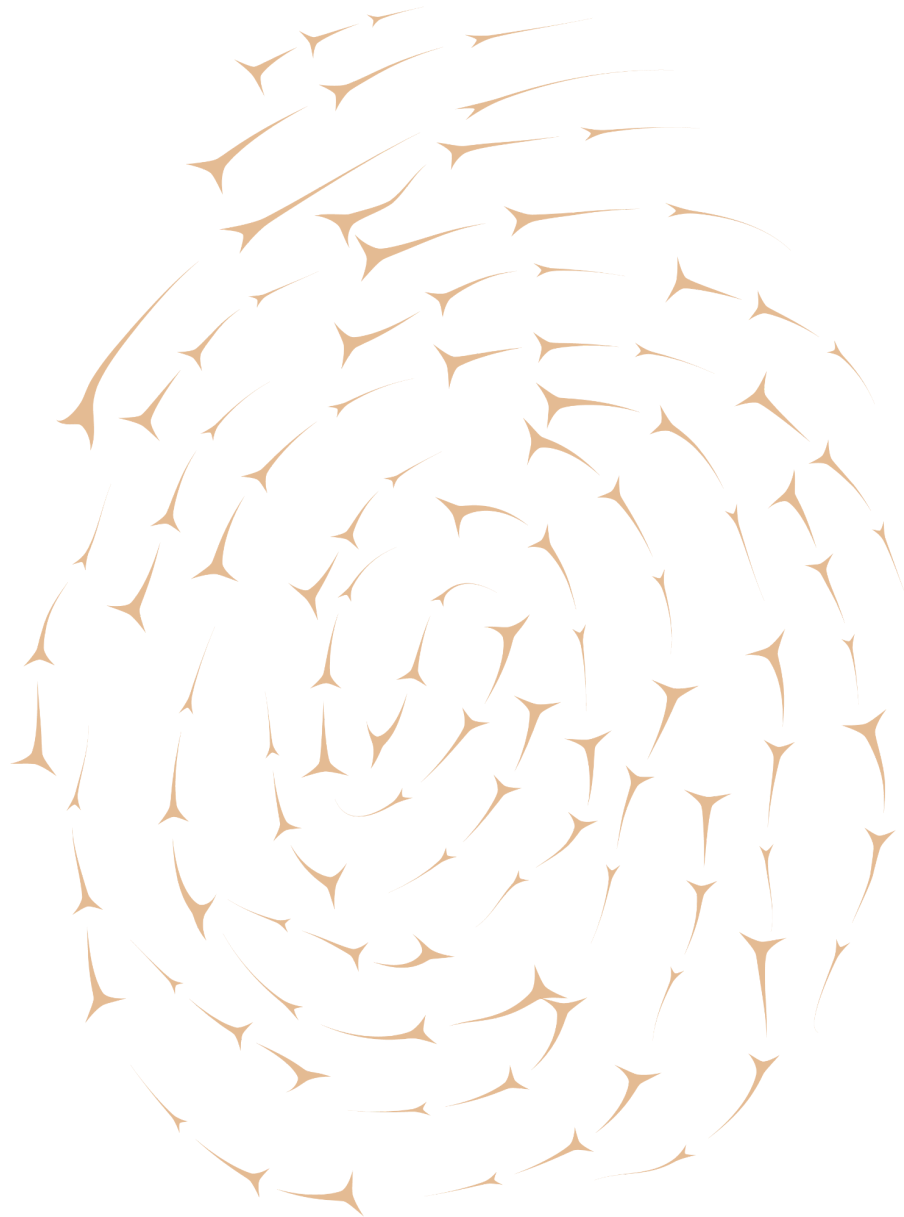


Part IV: Ecological Fingerprint



This is a section of a larger report. Visit galianoconservancy.ca/oneisland/ for the full version

June 2022

Galiano Conservancy Association

“The People of Galiano Island, being mindful of the pressures from a growing West Coast population and a demonstrated desire of many to find relief from urban congestion and associated tension through a rural atmosphere, and being aware of the physical limitations of Galiano Island to accept uncontrolled population increase without degradation of the rural way of life and damage to the ecological systems, deem it desirable to create a Community Plan to deal with these issues.

The rural character of the Galiano Island Trust Area must be preserved. The waterfronts, beaches and waters surrounding them must be preserved and kept free of pollution for the enjoyment of users and the preservation of marine life. Groundwater supplies must be protected from contamination by effluent of all types. Ground cover and trees must be preserved to the extent necessary to maintain the natural beauty of the island, the ability of the soil to retain moisture and to prevent erosion of soil and soft rocks. Particular care must be taken to preserve sufficient land and water in their natural state to enable wildlife, plant life and marine life of the island to continue to exist and flourish.

As the present generation inherited these islands in a relatively preserved state, this Plan attempts to perpetuate this state and preserve the unique environment for future generations.

Even seemingly small changes can damage or deplete resources, compromise self-sufficiency and distort long term planning. It is a tribute to the continuing vigour, passion and foresight of our community that much of the natural character and resources of Galiano has been maintained.

- Preamble,
Galiano Island Official Community Plan¹
1974 - 2021

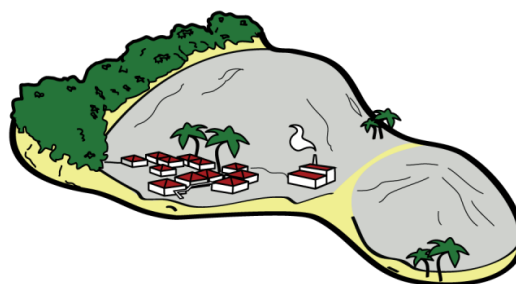


Photo by: Jim Labounty

¹ Islands Trust. (1995). *Galiano Island Local Trust Committee - Official Community Plan ByLaw # 108*.
<https://islandstrust.bc.ca/document/galiano-ltc-ocp-bylaw-no-108/>

Background

Island Ecological Fingerprints



We were originally inspired to generate an Ecological Footprint for Galiano Island after reading a 2012 paper by Dr. Beate Ratter and Jan Petzold entitled “From Ecological Footprint to Ecological Fingerprint - sustainable development on Helgoland.” In this study, the authors present their analysis of the Ecological Footprint of the German island of Helgoland in 2009, and pose a challenging question:

“Sustainability is difficult in insularity and isolation. Is it fair to calculate the Ecological Footprint of a small island?”²

In response to this question, they proposed the idea of the Ecological Fingerprint. They wrote:

“The ecological fingerprint is a measure of the particular attitude, self-image and intrinsic values an island chooses for itself with respect to global resource use. Rather than the footprint, it is thus the fingerprint of an island which should be measured to indicate the prevalent island attitude and its active contribution to sustainability.”³

The Ecological Fingerprint can take the form of a qualitative study that provides context to the quantitative information provided by the Ecological Footprint. We corresponded with Dr. Ratter regularly during the development of this project, and decided that, in order to capture the Ecological Fingerprint of the Galiano Island community, we would interview island residents who have lived in the community for a long time about their experiences of environmental change and their attitudes towards sustainability, community, and island ecosystems.

Oral Histories

Between July 2021 and April 2022, we interviewed 17 community members; during the same period, the Coast Salish Peoples of Galiano Society interviewed 6 of its members. We selected Interviewees by soliciting community suggestions through our “Community Mail-Out Survey,” and then reaching out to community members who were mentioned multiple times or with whom we had pre-existing personal or professional relationships. We were unable to interview every community member who was

² Ratter, B., & Petzold, J. (2012). From Ecological Footprint to Ecological Fingerprint - sustainable development on Helgoland. In Larsen, K. T. (Ed.), *From One Island To Another - A Celebration of Island Connections* (pp. 191-204). Centre for Regional and Tourism Research.

³ Ibid.

recommended to us, and we were unable to arrange interviews with several community members who we contacted within the timeframe of this project. In general, our Interviewees tended to be middle-aged or older as a result of our selection criteria, so future work could be done to highlight youth voices as well. What we present in the following pages, then, is a “snapshot” of the Ecological Fingerprint of Galiano Island, based on the remarks of the people we were able to speak with.

We recorded interviews on audio and sometimes video, depending on the Interviewee’s preference. We conducted most of the interviews personally; several additional interviews were conducted by Kris Krug and Ana Bazdresch. We created a list of questions to guide the interviews (which can be found in the Appendix C), but were flexible in our questioning to allow for a natural conversation.

For the Coast Salish Peoples of Galiano Society, interviews were conducted by Shar Wilson and Richard Wilson, from a set of questions they prepared.

After the interviews were completed, we transcribed all the interviews using Otter.ai and performed an informal thematic analysis, selecting and categorizing quotes that stood out to us as relevant to the Ecological Fingerprint.⁴ We include a number of representative quotes in the following pages.

Edited transcripts of the original interviews may be obtained by reaching out to us at oneisland@galianoconservancy.ca. A list of Interviewees and interview dates can be found in Appendix C.

Additional Activities

We also wanted to involve youth community members in helping to document the community’s Ecological Fingerprint. We reached out to Deblekha Guin and Roksan Parfitt of the Access to Media Education Society and the Yellowhouse Art Centre Society, respectively, to help us engage island youth in the project. They created and facilitated two workshops at the Galiano Community School.

Roksan Parfitt and Ria Okuda (GCA Educator) engaged students in a guided colouring session. Tree ring colouring sheets with three distinctive sections were given to students. Below are the discussion topics that were discussed during the guiding colouring sessions.

- Inner Circle - How did your ancestors connect to this land (or another)?
- Middle Circle - How are you connected to this place?
- Outer Circle - How do you imagine future generations will inhabit this place?

⁴ Our discussions focused primarily on the practical and material relationships between the residents of Galiano Island and the environment, in order to give context to the Ecological Footprint. For a deeper discussion of aesthetic, recreational, and cultural values associated with Galiano’s ecosystems, see Emmings, K., & Erickson, K. (2004). *Galiano Island Landscape Classification and UP-CLOSE Workshop Series Final Report*. Galiano Conservancy Association, Galiano Island, BC. https://galianoconservancy.ca/wp-content/uploads/2016/11/final_report_complete.pdf

Deblekha Guin and Richard Wilson facilitated an “Interviewing with Elders” workshop, in which the Upper Intermediate class at The Galiano Community School (12 students between Grades 4-7) learned the basics about interviewing and recording audio on Zoom recorders. In the spirit of ‘hands on learning,’ it began with them practicing their interviewing skills by interviewing each other (with a slightly modified version of the questions used in the Oral History component of this project). The next day they worked in groups to interview five local elders. Richard Wilson edited excerpts from these interviews into a sound collage.

We also asked three qualitative questions in our “Community Mail-Out Survey” about community improvement, if residents are living sustainably, and how residents think they will be impacted by climate change. We intended these questions to solicit a broader, island-wide perspective on the themes discussed in this report. We summarize the feedback we received in Part V of this report. The responses to these questions were sorted by theme and can be found in the Appendix D.

Organization

We present our “snapshot” of the Ecological Fingerprint of Galiano Island based on our oral history interviews. We intend this not as a comprehensive account of the island’s history and ecology, but rather as a lightly-curated collection of memories, observations, insights, and attitudes expressed by Interviewees. Some topics were discussed in great detail by most Interviewees (see ‘Forests’ and ‘Fish’), while other topics that we understand to be important to island residents were mentioned less frequently or not at all. To our knowledge, ours is the first attempt to create and present an Ecological Fingerprint alongside an Ecological Footprint analysis.

We present this collection under the umbrella of three broad themes: “Land”, “Water”, and “Community”. Each theme has multiple sections based on the categories of our thematic analysis. Some Interviewees’ voices feature more prominently in some sections, and less so in others. In all cases we have done our best to preserve the intent of the Interviewee in what they meant to communicate to us.

At the end of some sections, we provide **Our Takeaway**, which is just that - our perspective on how the information we collected relates to the Ecological Footprint and the Ecological Fingerprint of the Galiano Island community. The reader may take it or leave it as they see fit.

Land

Terrestrial ecosystems on Galiano Island provide many resources and services to the island community. The sections below cover several topics that were raised repeatedly throughout our interviews.

Forests

Galiano Island's forests are representative of the Coastal Douglas-fir biogeoclimatic zone, making them globally unique and uniquely imperiled.⁵ Forested landscapes account for about 78% of Galiano's land cover, a number which has stayed fairly consistent between 2002⁶ and 2022 (see Part II of this report). Despite this apparent stability in more recent years, many Interviewees told us that they had witnessed significant changes in Galiano's forests over the course of their lives. Florence James recalled:

"The huge change is on the east side of Galiano Island, there's no more trees. There was old growth there - huge, huge trees. And I missed them and my husband did too, because when he fished he used those trees for a mark... like way up in the forest that rise high - the old growth. They're all gone."⁷

It is well-documented that hwulmuhw mustimuhw of the Salish Sea have practiced unique forms of sustainable forestry for thousands of years, and that old-growth western redcedar trees (Hul'qumi'num - X'pey; Latin - *Thuja Plicata*) in particular were stewarded for generations to provide wood for hats, baskets, longhouses, and, eventually, canoes.⁸ Karen Charlie shared with us:

"I work with cedar all the time. I learned from my mum. I have a basket that's over 200 years old now that's a cedar basket. That was just something that they carried their stuff in... The cedar tree is a very important thing to me. It's part of me - there's a lot of different things that are, that makes me who I am today. What I eat, what I work with, what I treasure - the cedar tree is one of them."⁹

⁵ Austin, M.A., Buffett, D.A., Nicolson, D.J., Scudder, G.G.E., & Stevens, V. (eds.). (2008). *Taking nature's pulse: The status of biodiversity in British Columbia*. Biodiversity BC.

⁶ Emmings, K., & Erickson, K. (2004). *Galiano Island Landscape Classification and UP-CLOSE Workshop Series Final Report*. Galiano Conservancy Association, Galiano Island, BC.
https://galianoconservancy.ca/wp-content/uploads/2016/11/final_report_complete.pdf

⁷ James, F., Fournier, S., & Thompson, M. (2021, November 16). Florence James Interview - One Island, One Earth Project.

⁸ See Deur, D., & Turner, N. J. (2011). *Keeping it living traditions of plant use and cultivation on the northwest coast of North America*. University of Washington Press.

⁹ Charlie, K., Charlie, R., Huggins, A., & Thompson, M. (2021, November 5). Karen and Richard Charlie interview - One Island One Earth Project.

Today, western redcedar trees are still common in forests on the island, but we estimate that less 0.1% of Galiano's remaining forests are old-growth. Bowie Keefer, who lives along the coastline that Florence described above, told us:

"And if you look at the forest... There's very little old growth timber left, a few sample trees here and there that the loggers spared, perhaps because they were not that valuable as timber... The island is all second growth or third growth forest."¹⁰

The economic value of Galiano's forests has long been recognized. Interviewees who lived on the island prior to the 1980s recalled a small, thriving (and colourful) community based in part on forestry. Don and Carol Robson told us:

"Well, when we came here, it was a logging community...the whole island was logging, logging camps all over, logging tracks going up and down the road. Whaler's Bay, full of logs all the way out to Lions Island. And it was a booming little place - a dance at the community hall every Saturday night with all these wild loggers. And usually, some kind of fistfight and somebody's car upside down in the ditch on Sunday morning!"¹¹



MacMillan Bloedel 1976

Don also recalled how the "gunny sack" logging that was practiced during his childhood eventually led to land consolidation. After clearing the valuable timber from a piece of land, he said, they were left with a dilemma, and some reached out to his father:

"And I remember loggers, phoning [him] up and, 'we got this chunk of property and how are we going to ever sell it?' My dad says, 'you call up that Powell River Pulp and Paper Company and they'll buy it right over the phone. They don't even know it's got no timber on it!' And, and he says, 'not only that, they'll send you a check and the check doesn't bounce!'"¹²

¹⁰ Keefer, B., & Thompson, M. (2022, January 17). Bowie Keefer Interview - One Island, One Earth Project.

¹¹ Robson, D., Robson, C., Krug, K., & Thompson, M. (2021, September 27). Don and Carol Robson Interview - One Island, One Earth project.

¹² Ibid.

Land that was acquired by the Powell River Pulp and Paper Company, including an enormous acreage acquired from Canadian Collieries, would become the property of MacMillan Bloedel, which eventually came to own roughly half of the land on Galiano Island by 1960.¹³ A number of Interviewees told us that, prior to the 1970s and 80s, MacMillan Bloedel's logging activities were relatively limited in scale. During this time, community members could freely access these lands. Gary Moore told us:

"At that time, there was a vast hinterland of forested land that people could access. They were welcome to go there at any time, they could go to beaches and coves and get firewood for \$10 - you had to pay a \$10 fee at the gas station and get the permit to go and cut firewood on the company land... The local people, the old timers used to feel it was almost like the commons... If they needed gravel, they would go in there, there were gravel pits, and you could take gravel, and people did."¹⁴

Many Interviewees told us they valued this forest land very highly. Jane Wolverton shared that:

"One of the things that appealed to me about Galiano was that 56% of it was owned by MacMillan Bloedel as a tree farm, and I thought, "well, that's great, because it won't get developed." That was my thing. And, and then, of course, all of that changed."¹⁵

In the 1970s and 80s, when MacMillan Bloedel clear-cut most of the forest lots they owned on Galiano Island, and subsequently put these lots on the market. All of the Interviewees who spoke to us about the clear-cutting were disturbed by it. Geoff Gaylor told us:

"It was very unpleasant to have that kind of environment destroyed. It was beautiful here... the local community had full access to this whole forest, [and] all of a sudden, the forest disappears. And then you don't have access because they sell it to private individuals who put up gates, you know, so it was really disturbing."¹⁶

In addition to the clear-cutting carried out by MacMillan Bloedel, developers who bought the forest lots also engaged in logging. Bowie Keefer, who purchased a forest lot from MacMillan Bloedel in the early 1990's, explained that:

¹³ Horter, W. (2017, March 10). *The Great Land Grab*. Dogwood. Retrieved May 3, 2022, from <https://dogwoodbc.ca/news/the-great-land-grab/>

¹⁴ Moore, G., Moore, B., & Thompson, M. (2022, February 7). Barbara and Gary Moore Interview - One Island, One Earth project.

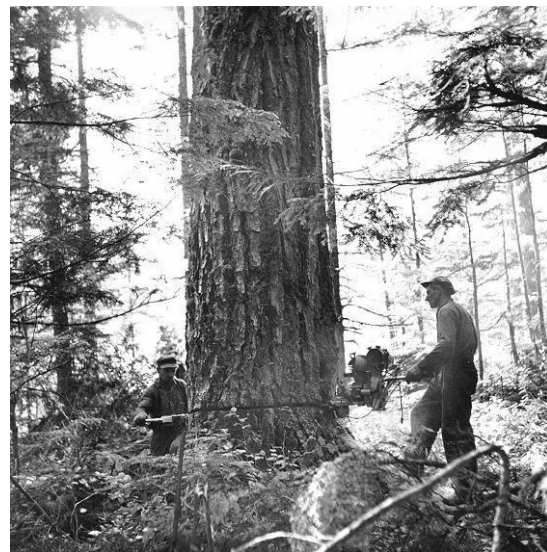
¹⁵ Wolverton, J., Krug, K., & Thompson, M. (2021, October 1). Jane Wolverton Interview - One Island, One Earth project.

¹⁶ Gaylor, G., & Bazdresch, A. (2022, January 31). Geoff Gaylor Interview - One Island, One Earth project.

"The forest lands were auctioned off. And some of it was bought by entrepreneurs, the kind of rural entrepreneur that does logging, and sometimes in a very rough way, and then flogs real estate. So the community saw some of this happening, there was a burst of logging, and there was a bunch of real estate proposals."¹⁷

Gary Moore remembered that:

"When [MacMillan Bloedel] sold their lands to developers, the developers continued selling timber to pay for the land they just bought. So there was a tremendous removal of biomass in the form of trees, and the trunks of trees going off on logging trucks. And at the same time... they burned and they burned... they burned the whole cut."¹⁸



MacMillan Bloedel 1947

The result of all of this logging was turmoil in the community. George Harris recalled:

"So for a period of five years there, it was like a war zone here. It was quite disturbing. There was nothing... I mean, okay, there was nothing legally we could do. But the community rose up."¹⁹

This period of time figures prominently in the memories of many island residents, and almost all of the Interviewees provided their perspectives on what occurred. We have learned that this turbulent period resulted in broad-based community organizing, the formation of organizations (including the Galiano Conservancy Association),²⁰ a lawsuit that advanced to the Supreme Court of British Columbia, the creation of Dionisio Provincial Park, the acquisition of Mount Galiano by the Galiano Club, and many other notable developments. We won't recount the details of these events here, as accounts of this

¹⁷ Keefer, B., & Thompson, M. (2022, January 17). Bowie Keefer Interview - One Island, One Earth Project.

¹⁸ Moore, G., Moore, B., & Thompson, M. (2022, February 7). Barbara and Gary Moore Interview - One Island, One Earth project.

¹⁹ Harris, G., & Bazdresch, A. (2022, February 6). George Harris Interview - One Island, One Earth project.

²⁰ An organization called Clear-Cut Alternatives was formed in 1987 in response to these events, and this organization evolved into the Galiano Conservancy Association in 1989. See <https://galianoconservancy.ca/wp-content/uploads/2020/05/Galiano-Stewardship-News-Fall-2019-1.pdf>

history are already available,²¹ but we think there are at least four significant outcomes of this period of time.

The first outcome we identified is the preservation of a forest land-base on Galiano in the face of intense development pressures. According to George Harris:

*"We focused on the most important assets, and protected them. And it was spectacular, what the community was able to do over a period of many years."*²²

Bowie Keefer told us that:

*"Since then, there has been essentially very little harvesting and no clear-cut logging on Galiano. And the result is the entire island is now green, if seen from outer space, and this means that we can look forward optimistically toward, eventually, the island being covered with a forest that is mature... tending towards old growth. So I'm an optimist about that."*²³

Interviewees attributed this first outcome to the effects of community bylaws, protected areas, Province-wide changes in the economics of the forest industry, and shifts in community attitudes. John Georgeson reflected that:

*"When you drive around on the island there now compared to what it was like in the 60s and 70s, I can remember, maybe in the 80s, used to be able to see the water. Now it's all grown in because everybody's afraid to cut trees... Used to drive up, if you went up to the north end in the afternoon, it was so bright in your eyes, but... most of it's shaded now, because the trees are all over the road now."*²⁴

The second outcome we identified was the loss of a forest-based economy on Galiano Island. Gary Moore told us that many islanders who opposed MacMillan Bloedel's clear-cuts were still in favour of sustainable forestry:

²¹ See Griffiths, M. (2004). *The Story of Galiano Island ~ across thirty important years*. Galiano Island, BC. Retrieved from <http://galianostory.com/OVERVIEW.HTM>; and Moore, G. (2017). *What Happened at Coon Bay: Roots and Branches of the Galiano Conservancy Association* (1st ed.). Alea Design and Print.

²² Harris, G., & Bazdresch, A. (2022, February 6). George Harris Interview - One Island, One Earth project.

²³ Keefer, B., & Thompson, M. (2022, January 17). Bowie Keefer Interview - One Island, One Earth Project.

²⁴ Head, C., Baines, L., Georgeson, J., Wilson, R., & Wilson, S. (2021). Charlie Head, Loyd Baines, and John Georgeson Interview - Coast Salish Peoples of Galiano Society.

"Unfortunately, we lost that fight. We tried to keep it in the community's hands so that the community could manage it sustainably according to the community's needs and wants and firewood needs and that sort of thing, as well as employment, of course."²⁵

Instead of a sustainable forestry economy, Galiano Island today has little to no forestry economy. George Harris told us:



Photo by: Jim Labounty

"[In the] early 90s, the clearcutting stopped. And now the log dump is gone. And so the economics of forestry - because they also took the best trees, but also getting the trees off the island now is almost impossible. So, that's probably been the biggest change is the end of logging."²⁶

Looking over Whaler Bay, Charlie Head recounted:

"Used to see logging, there used to be logs or something happening in this bay all the time, now there's nothing."²⁷

The third outcome we identified is the polarization of the Galiano Island community along several fault lines associated with these events. According to John Georgeson:

"Yeah, I think it was the protesters, or the logging fighters there in the late 80s segregated the community, and it's maintained that since then."²⁸

George Harris told us:

²⁵ Moore, G., Moore, B., & Thompson, M. (2022, February 7). Barbara and Gary Moore Interview - One Island, One Earth project.

²⁶ Harris, G., & Bazdresch, A. (2022, February 6). George Harris Interview - One Island, One Earth project.

²⁷ Head, C., Baines, L., Georgeson, J., Wilson, R., & Wilson, S. (2021). Charlie Head, Loyd Baines, and John Georgeson Interview - Coast Salish Peoples of Galiano Society.

²⁸ Ibid.

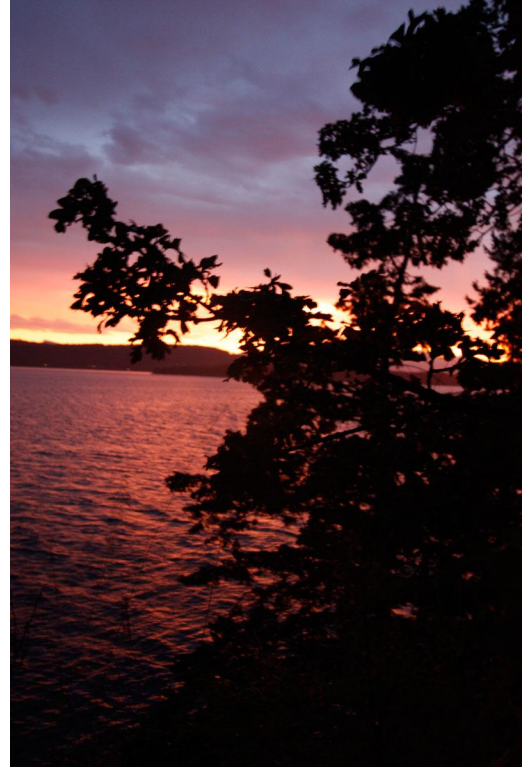
"And so we fought [the development], and we changed the rules, but it created a divide in the community that's never healed, because it was a multi-million dollar - I mean, this was 7000 acres was being developed."²⁹

Don Robson's perspective summed up a sentiment we heard from many Interviewees:

"So really the way MacBlo [MacMillan Bloedel] left it, I think they knew we would be fighting about it forever. "Take that Galiano, you suckers."³⁰

The fourth outcome we identified was the simplification of Galiano Island's forest ecosystems. According to Bowie Keefer:

"Right now our forests are quite impoverished because of the history of clear-cut logging. You don't see many dogwood trees for example. And because of climate change, we're seeing a lot of cedar trees dying. And what we need is a forest that is more diverse."³¹



Bowie was, however, hopeful that this could be addressed:

"Much of the forest land on this island has been in a state of neglect, almost complete neglect. And that's kind of benign neglect, in the sense that you're letting nature take its course. But you're not helping nature. Your land has been seriously impacted and impoverished ecologically. And if you restore it with some sensitivity and intelligence, and major investment of effort, you can help nature."³²

²⁹ Harris, G., & Bazdresch, A. (2022, February 6). George Harris Interview - One Island, One Earth project.

³⁰ Robson, D., Robson, C., Krug, K., & Thompson, M. (2021, September 27). Don and Carol Robson Interview - One Island, One Earth project.

³¹ Keefer, B., & Thompson, M. (2022, January 17). Bowie Keefer Interview - One Island, One Earth Project.

³² Keefer, B., & Thompson, M. (2022, January 17). Bowie Keefer Interview - One Island, One Earth Project.

The Galiano Conservancy Association has been engaged in forest restoration projects for over two decades, developing innovative approaches³³ which are now being adopted in the UK.³⁴ Many of our Interviewees indicated renewed interest in more hands-on management of Galiano's forests. Geoff Gaylor told us:

"Selective logging is pretty easy... [laughs], you leave some trees, you know, and you don't only take the best ones and leave the bad ones; you take the bad ones with some of the best ones, but you leave a good seed. Whatever you want to call it, like gardening right, you get a good seed thing going on. So that's how I kind of see the environment here."³⁵

Bowie Keefer spoke at length about the vision that he and GEFA, the newly-formed Galiano EcoForestry Association,³⁶ have for Galiano Island:

"And we see this, the island, all of Galiano eventually being a kind of a demonstration forest, where you've got public trail networks, you've got a forest being cared for, you've got a community that's getting along, you've got jobs for young people working on the trails and maintaining the forest."³⁷



Our Takeaway is that the Galiano community has succeeded - despite significant development pressure - in preserving a forest land base and associated community values, but has been unable to maintain either the full ecological integrity or the economic viability of this land base. Forest lands on Galiano Island continue to provide for the vast majority of our terrestrial **Biocapacity** (see Part II of this report), but are also in need of restorative interventions to maintain and improve their health. Forests, then, continue to be a source of identity, pride, enjoyment, solace, and opportunity, but also some amount of lingering tension. And, as we show in the next section, a degree of risk.

³³ Scholz, O., Erikson, K., Azevedo, J. (2004). Restoring the Forest in a Young Coastal Douglas-fir Plantation. *Society for Ecological Restoration*. https://galianoconservancy.ca/wp-content/uploads/2016/11/restoration_paper_1.pdf

³⁴ Weston, P. (2022, January 29). *Chopping, twisting, felling: The unruly way to Rewild Scotland's forests*. The Guardian. Retrieved April 29, 2022, from <https://www.theguardian.com/environment/2022/jan/29/chopping-twisting-felling-the-unruly-way-to-rewild-scotland-s-forests-aoe>

³⁵ Gaylor, G., & Bazdresch, A. (2022, January 31). Geoff Gaylor Interview - One Island, One Earth project.

³⁶ See <https://www.youtube.com/watch?v=1kTm1hPSbqA>

³⁷ Keefer, B., & Thompson, M. (2022, January 17). Bowie Keefer Interview - One Island, One Earth Project.

Fire

Forests in the Coastal Douglas-fir biogeoclimatic zone have evolved alongside both natural and anthropogenic fire, with an estimated mean fire return interval of approximately 100-250 years for stand-replacing natural ignitions and much shorter rotations for low-intensity human-ignited fires.³⁸ We have observed that many of the surviving old-growth Douglas-fir (Hul'qumi'num - Ts'ey; Latin - *Pseudotsuga menziesii*) trees on Galiano Island are marked by fire scars.

Due to widely shared concerns around the potential impacts of wildfire on this small and very flammable island, the Galiano Island community organized to create not one but two volunteer fire departments, in the north and south of the island. Don Robson told us that at first, not every community member was on board:

"We formed the fire department here about 1962. And in 1966, we decided we were going to form a fire district. And we actually had quite an opposition to it. I was the fire chief, and one of my best friends says 'we don't want to be paying taxes for a fire department.' He says, 'if my house catches [fire], don't even spray any water on it.' I said, 'Well, we'll show up with a fire truck and beer and hot dogs, and we'll just watch it burn.' [laughter]"³⁹

Despite this initial reluctance, it is clear to us that the vast majority of island residents now see value in these community institutions, supporting them financially and as volunteers. These fire departments have been highly successful in responding to emergencies and preventing wildfires on Galiano since their inception, which is in keeping with over a century of reasonably successful fire suppression throughout the Province⁴⁰ and, indeed, throughout North America.⁴¹ As a result, a number of Interviewees noted the risks posed by the build-up of fuels in forests on Galiano Island. Bowie Keefer pointed out that:

"We're intimately living in the forest or close to it. And so we are at risk from forest fires. The risk of wildfires here is much much less than in the interior, because we're close to the cooling influence of the ocean, and in the winter, we do get lots of rain - as we are this year. And it appears that climate change is making our winters wetter and our summers drier, and these very long

³⁸ Derr, K. (2014). Anthropogenic Fire and Landscape Management on Valdes Island, Southwestern BC. *Canadian Journal of Archaeology*, 38, 250-279.

³⁹ Robson, D., Robson, C., Krug, K., & Thompson, M. (2021, September 27). Don and Carol Robson Interview - One Island, One Earth project.

⁴⁰ Hanes, C. C., et al. (2018). Fire-regime changes in Canada over the last half century. *Canadian Journal of Forest Research*, 49.

⁴¹ Parisien, M., et al. (2016). The spatially varying influence of humans on fire probability in North America. *Environmental Research Letters*, 11.

droughts are greatly raising the risk of forest fire. Forest fires have a natural role in rejuvenating forests, but we don't need large and destructive forest fires."⁴²

Some Interviewees related the risk of forest fires to the effects of climate change, reduced logging, or both. Janice Wilson observed:



"You know, the warmer weather, the lack of logging - which used to happen in a good way on Galiano, no longer happens anymore. So there's a lot of dry debris in the forest that never used to be there before."⁴³

The danger of this situation was made evident on July 23, 2006, when an anthropogenic wildfire forced evacuations of over 100 island residents and consumed over 60 hectares of land on the southeast side of Galiano.⁴⁴ The fire and its aftermath have had a lasting impact on some island residents.⁴⁵ Bowie Keefer told us that it's time for the Galiano community to address the issue of fuel build-up:

"The forest needs to be cared for to reduce the fire risk and to do some management so that the young forest will be diverse and beautiful."⁴⁶

The Galiano Conservancy can provide guidance on balancing FireSmart principles with ecological landscaping, including maintaining sufficient coarse woody debris (CWD) in forested ecosystems while minimizing fire risk.⁴⁷ During the same time period as this project unfolded, the community secured

⁴² Keefer, B., & Thompson, M. (2022, January 17). Bowie Keefer Interview - One Island, One Earth Project.

⁴³ Wilson, J., Wilson, R., & Wilson, S. (2021). Janice Wilson Interview - Coast Salish Peoples of Galiano Society.

⁴⁴ Salinas, E. (2006, July 25). *Fire, evacuation shatter B.C. Island's calm*. The Globe and Mail. Retrieved April 29, 2022, from <https://www.theglobeandmail.com/news/national/fire-evacuation-shatter-bc-islands-calm/article1106656/>

⁴⁵ See Sandilands, C., & Colwell, A. (2020). Wildfire. In *Rising tides: Reflections for climate changing times*. essay, Harbour Publishing.

⁴⁶ Keefer, B., & Thompson, M. (2022, January 17). Bowie Keefer Interview - One Island, One Earth Project.

⁴⁷ See <https://galianoconservancy.ca/wp-content/uploads/2020/08/Stewardship-News.pdf>

funding to hire three part-time positions to help residents apply FireSmart principles to their properties. Several demonstration FireSmart forest areas have been established on the island.

While some Interviewees echoed this desire for improved forest management, no Interviewee brought up the topic of prescribed fire, a practice which is being experimented with elsewhere in the Southern Gulf Islands⁴⁸ and which has long been employed by hwulmuhw mustimuhw of the Salish Sea.



Our Takeaway is that the Galiano community has begun to recognize an increased risk of wildfires on the island, and is beginning to take some measures to proactively address this risk. Community members are worried, but not worried enough yet to pursue altering settlement patterns, creating firebreaks, selective logging, or returning prescribed fire to the land.

Deer

Black-tailed deer (Hul'qumi'num - Ha'put; Latin - *Odocoileus hemionus columbianus*) are native to Galiano Island, and we have observed that they are very abundant on Galiano and on neighbouring Parker Island as well. Levi Wilson told us:

"One of the stories I've heard about Parker Island and its name Qwi'qwuns... relates to the fact that that's where all the deer on Galiano - anybody who comes to hunt deer from Galiano - the deer come from Parker Island. It's like the deer breeding ground, and then they swim over and populate."⁴⁹

Emily Menzies added:

"I can attest to that... because I lived there for about a year, and there's herds of deer - like forget mom and two babies - there's freaking herds [laughs]."⁵⁰

Hwulmuhw mustimuhw told us they have always come to Galiano Island to hunt deer, and that deer are a critical food source. Hunting is an important life skill that is taught from a young age, Karen Charlie told us:

⁴⁸ Cunningham, S. (2016, October 1). *Small Gulf Island set ablaze in hopes of spurring new growth*. Vancouver Island. Retrieved April 29, 2022, from

<https://vancouverisland.ctvnews.ca/small-gulf-island-set-ablaze-in-hopes-of-spurring-new-growth-1.3097232>

⁴⁹ Wilson, L., Menzies, E., Huggins, A., & Thompson, M. (2021, July 21). Levi Wilson and Emily Menzies interview - One Island One Earth Project.

⁵⁰ Ibid.

"We start teaching our kids how to hunt when their voices start to change."⁵¹

We've learned that deer have been an important source of sustenance for hwunitum and hwulmuhw mustimuhw alike. According to Don Robson, who grew up on Galiano in the 40s and 50s:

"In those days, you had to go out and get your limit of deer just to survive. We didn't hunt for sport... that was your meat in the wintertime. I can remember when I finally got old enough to get my hunting license, so now we could have three deer. So that was a big event."⁵²

Bob Wilson told us it was previously easier to access good hunting areas on Galiano Island:

"There used to be so much room to hunt. And we never ever thought about private property or anything. We knew where the houses were back then, and of course you wouldn't go and endanger somebody. You knew a safe place to hunt. And there was always lots of land and different roads you could hunt that you knew you were away from the people."⁵³



In more recent years, though, he says it has become much more difficult:

"I don't even know where to hunt on this island anymore, really, to be honest. I mean, where we get our deer meat now is on a person's private property that he allows us to hunt. And there's no really public areas to hunt that I can think of, safely anyways."⁵⁴

In addition to the impacts of development and housing in reducing access to former hunting areas, some Interviewees noted that hunting is not allowed in most protected areas on the island. Florence James,

⁵¹ Charlie, K., Charlie, R., Huggins, A., & Thompson, M. (2021, November 5). Karen and Richard Charlie interview - One Island One Earth Project.

⁵² Robson, D., Robson, C., Krug, K., & Thompson, M. (2021, September 27). Don and Carol Robson Interview - One Island, One Earth project.

⁵³ Wilson, B., Wilson, R., & Wilson, S. (2021). Bob Wilson Interview - Coast Salish Peoples of Galiano Society.

⁵⁴ Ibid.

recalling her conversations regarding land acquisition efforts with the late Ken Millard (the first Executive Director of the Galiano Conservancy Association), told us:

"I said 'don't protect it so hard that we can't hunt there.' Because that was my deal. I said, 'I'm gonna help you and I'll tell you, but you gotta let us hunt.' That's our food. And because you're keeping it more clean, I really now want to be there. Yes! [laughs] So you got to work with us. You can't work against us."⁵⁵

Emily Menzies observed to us that:

"The few places that have been preserved are often in parks where harvesting isn't allowed, and so much of the conservation and preservation movements, unfortunately, have for a long time seen Indigenous people as inimical to conservation goals."⁵⁶

Over the years, Interviewees told us, access to hunting areas has declined and the population of deer has grown. Several Interviewees also said they'd observed a decrease in the size of the deer on the island. Bob Wilson told us:

"I think it has a lot to do with the overpopulation of deer. I think there's more deer on the island now than there used to be. But they are a lot, they're smaller."⁵⁷

Deer populations across the Southern Gulf Islands, including Galiano Island, have been labeled "hyper-abundant" by local scientists, and studies have demonstrated negative impacts on native wildflowers,⁵⁸ culturally-important plant foods,⁵⁹ and songbirds.⁶⁰ We have heard islanders attribute the abundant deer population to extirpation of native predators from Galiano, reduced hunting pressure, and the aftermath of the clear-cuts in the 1970s and 80s. Sheila Anderson told us:

⁵⁵ James, F., Fournier, S., & Thompson, M. (2021, November 16). Florence James Interview - One Island, One Earth Project.

⁵⁶ Wilson, L., Menzies, E., Huggins, A., & Thompson, M. (2021, July 21). Levi Wilson and Emily Menzies interview - One Island One Earth Project.

⁵⁷ Wilson, B., Wilson, R., & Wilson, S. (2021). Bob Wilson Interview - Coast Salish Peoples of Galiano Society.

⁵⁸ Gonzales, E., & Arcese, P. (2008). Herbivory More Limiting Than Competition On Early And Established Native Plants In An Invaded Meadow. *Ecology*, 89(12), pp. 3282–3289.

⁵⁹ Arcese, P., et al. (2014). Deer Density and Plant Palatability Predict Shrub Cover, Richness, Diversity and Aboriginal Food Value in a North American Archipelago. *Diversity and Distributions*, 20(12), pp. 1368–1378.

⁶⁰ Martin, T., et al. (2011). Browsing down Our Natural Heritage: Deer Impacts on Vegetation Structure and Songbird Populations across an Island Archipelago. *Biological Conservation*, 144(1), pp. 459–469.

"I think that changed when they did the clear cutting, it really changed the deer population. And there seemed to be - as is typical, I believe - when clear cuts start to come back in young saplings, that population goes up. And we definitely noticed more deer after that."⁶¹

She continued:

"And then the trees grow back and get to the point where there's not enough food to browse for them. And then they start shifting into the other lands, like where people are living."⁶²

Many Interviewees acknowledged that living alongside a large population of deer has some downsides, including frequent vehicle collisions and difficulties growing food. George Harris told us:



"We're putting in big gardens, but they're a disaster. The deer come in, and they just decimated our cherry orchard."⁶³

Emily Menzies remarked:

"What vegetarian who grows a garden on Galiano doesn't, like, curse the deer at some point? Because they got into your garden and ate everything, you know? Like, there's too many... and Levi's told me about these cyclical diseases that have run through the deer population, right?"⁶⁴

During the course of this project, the deer population on the island was going through one such outbreak (in this case of a disease that had not been previously recorded in BC).⁶⁵ Many Interviewees expressed some desire for reducing

⁶¹ Anderson, D., Anderson, S., & Huggins, A. (2022, March 10). Sheila and Don Anderson Interview - One Island, One Earth project.

⁶² Ibid.

⁶³ Harris, G., & Bazdresch, A. (2022, February 6). George Harris Interview - One Island, One Earth project.

⁶⁴ Wilson, L., Menzies, E., Huggins, A., & Thompson, M. (2021, July 21). Levi Wilson and Emily Menzies interview - One Island One Earth Project.

⁶⁵ British Columbia Government. (2021). *Adenovirus Hemorrhagic Disease In Deer British Columbia Wildlife Health Fact Sheet*. BC Environment.

https://www2.gov.bc.ca/assets/gov/environment/plants-animals-and-ecosystems/wildlife-wildlife-habitat/wildlife-health/wildlife-health-documents/adenovirus_hemorrhagic_disease_in_deer.pdf

the deer population. Emily said that she thinks that, with the proper organization, a community-led hunting effort could be a win-win-win for island residents, conservation, and food security:

“But if there was an actual planned thing, where we took care of the safety concerns, where it was mapped out whose properties are open to hunting to come through... and there was actually like, some record, you know, some observation done of how many deer do need to be culled, and then have it all set up, ready for processing. And then you have local, organic, wild meats. You're not shipping in beef from who knows where that's so expensive, right, for people to meet their protein needs?”⁶⁶

The Galiano Conservancy Association hosted the 3rd edition of their “Feed the People” workshop during the course of this project. The workshop is led by Penelakut Elders, including Karen and Richard Charlie, and teaches participants how to respectfully process deer that have been hunted by Penelakut hunters on Galiano Island and Conservancy lands.⁶⁷ A central goal of the workshop is to communicate to participants the importance to hwulmuhw mustimuhw of being able to access deer on their territories, especially as fish stocks have declined (see ‘Water’ theme). Karen Charlie reminded us:

“The salmon's almost all gone, which needs to be revived. That's where we talk about being able to adapt. And that's why we're depending mostly on the deer meat now. Deer meat is the most pure meat that we have now.”⁶⁸



Our Takeaway is that Galiano Island is capable of supporting robust native deer populations, but that absent sufficient top-down pressure (i.e., predation or hunting), deer populations will continue to be held in check by food scarcity, disease, and vehicle collisions, with negative implications for island residents, island ecologies, and the deer themselves. Finding creative ways to facilitate hunting by hwulmuhw mustimuhw and to improve overall access to safe areas to hunt could have significant benefits to the community as a whole.

Birds

Interviewees made several notable observations about changes in the populations of birds on the island.

⁶⁶ Wilson, L., Menzies, E., Huggins, A., & Thompson, M. (2021, July 21). Levi Wilson and Emily Menzies interview - One Island One Earth Project.

⁶⁷ Galiano Conservancy Association. (2019). *Conservation and Deer On Galiano Island*. Galiano Conservancy Association. <https://galianoconservancy.ca/deer/>

⁶⁸ Charlie, K., Charlie, R., Huggins, A., & Thompson, M. (2021, November 5). Karen and Richard Charlie interview - One Island One Earth Project.

The first observation is that populations of sooty (blue) grouse (Hul'qumi'num - Miit'; Latin - *Dendragapus obscurus*) are lower today than they were in the past. Many Interviewees reported that, when they were young, grouse were plentiful and were commonly hunted and eaten by island residents. Carol Robson told us:



"We had a good life. There was lots of food. We had lots of grouse on Galiano. Dad was a good hunter."⁶⁹

Encounters with grouse were a common occurrence, according to Sheila Anderson:

"You hear them in the spring when they were doing their mating thing and you'd run into them when you're on the trails... Even on Bluffs Park, a mother with babies right on the trail and all flying up and panicking because you came along."⁷⁰

While we have observed grouse on the island, they are almost certainly less common today. Don Robson remarked to us:

"Everybody hunted grouse. Up on Mount Sutil, used to be grouse everywhere. Now there's no grouse."⁷¹

Another bird that was identified as an important local food source is the common murre (Hul'qumi'num - Sxeetth; Latin - *Uria aalge*). Karen Charlie told us:

"That's one of our main foods in the wintertime. Especially for the oils in the murre duck... there's not much oils in the deer meat."⁷²

She continued to tell us that the populations of common murre in the Salish Sea crashed following the 1989 Exxon Valdez oil spill in Alaska:

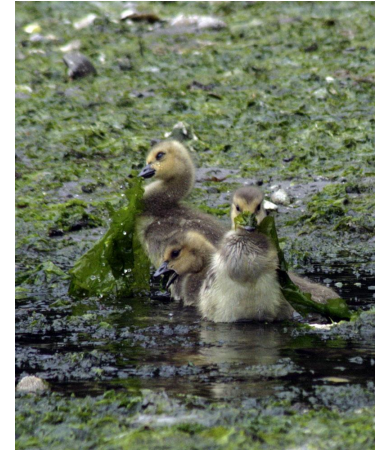
⁶⁹ Robson, D., Robson, C., Krug, K., & Thompson, M. (2021, September 27). Don and Carol Robson Interview - One Island, One Earth project.

⁷⁰ Anderson, D., Anderson, S., & Huggins, A. (2022, March 10). Sheila and Don Anderson Interview - One Island, One Earth project.

⁷¹ Robson, D., Robson, C., Krug, K., & Thompson, M. (2021, September 27). Don and Carol Robson Interview - One Island, One Earth project.

⁷² Charlie, K., Charlie, R., Huggins, A., & Thompson, M. (2021, November 5). Karen and Richard Charlie interview - One Island One Earth Project.

"I just love ducks. I was so devastated when the murre duck was really gone for a while. Just couldn't find one! And then when we did start to get it, they had patches of oil on them, [and] we weren't allowed to clean and cook, and so it was just wasted. So the First Nations men kind of gave up on the murre duck. You know that oil spill that happened in Alaska? They polluted our food, because the murre duck goes away in the summertime. They come back in the winter time."⁷³



Karen told us that the population has recovered to a certain extent since 1989:

"Almost. It's not as good as it used to be. Our hunters used to come in with up to 300; now we're lucky we get 20."⁷⁴

Interviewees mentioned other observed changes in bird populations that have less relevance to this project, including the near replacement of western screech owls (Latin - *Megascops kennicottii*) by barred owls (Latin - *Strix varia*), as well as the arrival of Anna's hummingbird (Latin - *Calypte anna*).



Our Takeaway is that at least two important and previously common species of bird are no longer abundant enough today to support the kind of hunting that was practiced in the past on and around Galiano Island. Efforts to recover these species might afford future generations the opportunity to once again harvest these species, but may need to address land use change, pollution, and fish populations (see the section on 'Fish').

Introduced Species 🍷

Several Interviewees expressed concern about the introduction and establishment of non-native species to Galiano Island. Karen Charlie told us:

⁷³ Ibid.

⁷⁴ Ibid.

"There's a lot of different trees that are brought in and planted that are not part of the natural environment. And invasive species like the scotch broom - people don't know that was brought here. My grandchildren don't know that that plant doesn't belong here. It's just like garbage laying all along our road now - invasive."⁷⁵

Shar and Bob Wilson also felt that Scotch broom (Latin - *Cytisus scoparius*) had increased on Galiano Island over the years. Shar observed:

"Broom brush has kind of overtaken Galiano, pretty much. There's lots. I mean, that probably has to do with, I don't know, I don't think deer eat broom brush."⁷⁶

Scotch broom was not the only introduced species that elicited concern. Shar continued:

"I wish people would stop bringing species on this island that don't belong here. Like, to eradicate all those invasive species, to try to get the land back to where it used to be like. People are planting flowers... I don't remember daffodils

growing all over the island before. Now there's daffodils everywhere."⁷⁷



We note that many of these introduced species have become so established on the island that many residents appear to consider them to be fully naturalized. For example, on a widely published illustrated community map of the island produced for a community atlas of the Salish Sea,⁷⁸ nearly every one of the wildflowers depicted on the map is an introduced species - these include rose campion (Latin - *Silene coronaria*), daffodil (Latin - *Narcissus spp.*),

foxglove (Latin - *Digitalis purpurea*), and crocus (Latin - *Crocus spp.*); the only native species depicted appears to be chocolate lily (Hul'qumi'num - lhasem; Latin - *Fritillaria affinis*). The Galiano Conservancy

⁷⁵ Charlie, K., Charlie, R., Huggins, A., & Thompson, M. (2021, November 5). Karen and Richard Charlie interview - One Island One Earth Project.

⁷⁶ Wilson, B., Wilson, R., & Wilson, S. (2021). Bob Wilson Interview - Coast Salish Peoples of Galiano Society.

⁷⁷ Ibid.

⁷⁸ See Stevenson, J., & Harrington, S. (2007). *Islands in the Salish Sea: A community atlas*. TouchWood Editions.

Association actively controls and removes introduced species in protected areas, and maintains a web page to provide up-to-date information and resources to island residents on the subject.⁷⁹

Some Interviewees were also concerned about marine introduced species. Richard Charlie told us:

"You can see all the freighters parked close to reserve areas. I seen it on the news that they caught a different species of crab in Ladysmith that could kill all the Dungeness and whatever else that we live off of if they didn't catch it... And I blame those freighters, you know, being stuck on the bottom of the freighters for how many months and then finally just let go."⁸⁰



Our Takeaway is that some within the Galiano Island community remain concerned about new species introductions and well-established introduced species; others may now be inured to them, or less aware of their impacts. We've observed that significant community efforts have been and are being made to address this issue; nevertheless, we note that, at the time of writing, these efforts have been insufficient to prevent the establishment of these species, or control their expansion in many parts of the island (including the Provincial Parks). Our experience has been that it is possible to control or eliminate many of these species from an area given appropriate effort and persistence. Ongoing efforts to educate island residents and secure more resources to address this issue could help prevent introduced species from further impacting island ecosystems.

Freshwater

During our time on Galiano Island, we've observed that the availability (or lack thereof) of freshwater to support households, local food production, and new developments has been a serious concern to most, if not all, island residents. There is significant overlap between this issue and concerns about climate change (see next section) and development (see 'Housing' section).

Galiano Island is defined by a Mediterranean climate, with cool, wet winters and summer drought. Rainfall is ample in the winter season, but absent during key summer months, a pattern that is expected to be exacerbated by climate change.⁸¹ Despite this, the Interviewees who spoke on the topic told us that water wasn't always scarce on Galiano Island. Florence James recalled her experiences of north Galiano when she was young:

⁷⁹ See <https://galianoconservancy.ca/our-work/restoration/>

⁸⁰ Charlie, K., Charlie, R., Huggins, A., & Thompson, M. (2021, November 5). Karen and Richard Charlie interview - One Island One Earth Project.

⁸¹ Capital Regional District. (2017). *Climate Projections for the Capital Region*. Retrieved on May 5, 2022 from https://www.crd.bc.ca/docs/default-source/climate-action-pdf/reports/2017-07-17_climateprojectionsforthecapitalregion_final.pdf?sfvrsn=bb9f39ca_12

"Lots of space, lots of freedom, lots of good water, no contamination."⁸²

We have learned that this is no longer the case in more populated parts of the island (see 'Water' section of Part III of this report). Several Interviewees remarked to us that they now regularly see trucks delivering water to residents and businesses in the summertime. Barbara Moore asked:

"How much water do we [see being brought in], in tanks? Yeah, there's a lot. That never used to happen!"⁸³

Gary Moore responded:

"Many, many wells have failed here now in the areas that they've always produced water. Lots of saltwater intrusion... It's easy to forget that there was a time when we were shocked that they were selling water at the gas station in large five gallon containers. 'What? We're importing water? Oh, shit!'"⁸⁴

Barbara and Gary told us that they've had to be really careful to conserve water in their own home:

"So it's a really small amount of water, which is what informed many of our choices about how to live here. So, you know, we don't have a flush toilet."⁸⁵

Emily Menzies told us that the lack of water impacts local agriculture:

"So agriculture, you know, it's tough. It's tough on an island with very little water."⁸⁶

In our Community Mail-Out Survey,⁸⁷ 'Water Accessibility' and 'Agricultural Water' were by far the most frequently mentioned issues for participants when responding to how they think climate change will affect them. Despite the widely-held concerns about water, relatively few Interviewees spoke with us at length about this topic. It is possible that this may be because water has been a controversial issue on the island during the course of this project.

⁸² James, F., Fournier, S., & Thompson, M. (2021, November 16). Florence James Interview - One Island, One Earth Project.

⁸³ Moore, G., Moore, B., & Thompson, M. (2022, February 7). Barbara and Gary Moore Interview - One Island, One Earth project.

⁸⁴ Ibid.

⁸⁵ Ibid.

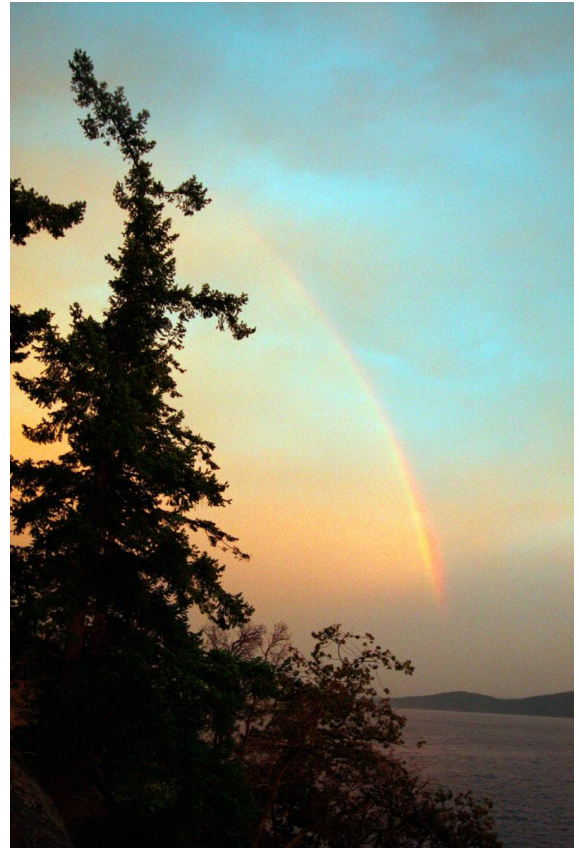
⁸⁶ Wilson, L., Menzies, E., Huggins, A., & Thompson, M. (2021, July 21). Levi Wilson and Emily Menzies interview - One Island One Earth Project.

⁸⁷ See Appendix D

The topic of water availability and development will be discussed further in the 'Housing' section.



Our Takeaway is that limited groundwater supplies are a defining issue for the Galiano Island community, with impacts for quality of life, housing, agricultural potential, and ecosystem management. Parts of the island where freshwater was once taken for granted are now experiencing regular water shortages and in some cases saltwater intrusion. There appears to be broad agreement that development must be constrained by water availability, but disagreement over where and how to draw that line depending on the land and development in question. Nevertheless, the plentiful rainfall during the winter months on Galiano Island provides substantial opportunities for rainwater harvesting, water-efficient technologies, greywater systems, and composting toilets to help address this problem. The Galiano Conservancy Association maintains demonstration facilities for each of these approaches at the Millard Learning Centre, as well as a web page of resources.⁸⁸



Climate

Our central motivation for this project was to better understand what a small island community like Galiano Island can do about the **Climate Crisis**. Over the course of our interviews, it became clear to us that many Interviewees already attribute some of the changes they've observed on the island to climate change. Since most of these observations are associated with the land, we've included this section here.

The vast majority of Interviewees acknowledged climate change and attributed it to human agency. Bowie Keefer remarked to us:

*"Humanity is stupid enough to burn all the coal as quickly as you can and dig out all the oil sands as quickly as you can, and burn all the fossil fuels as quickly as you can on the principle that we've got to do it right now because it's there. And we have recklessly perturbed the climate, which is impacting on Galiano."*⁸⁹

⁸⁸ See www.galianoconservancy.ca/water

⁸⁹ Keefer, B., & Thompson, M. (2022, January 17). Bowie Keefer Interview - One Island, One Earth Project.

Interviewees mentioned several impacts they had already observed. Several Interviewees recalled longer, colder winters in the past. Janice Wilson said:

"I believe the weather has changed throughout the years. I remember when I was growing up, some years we'd have like three feet of snow. I remember, my dad would come out and we'd make tunnels in the snow when I was young. And I don't think that Galiano gets that much snow anymore."⁹⁰

Richard Charlie told us:



"We used to have a lot of snow... I can remember climbing on the roof and jumping into a great big snow pile as a kid. You know, my mom's asking me, 'what are you doing?' 'Playing in the snow.' 'Well, get off the roof!' 'Okay.' Jump in the snow! But here we hardly have any snow now in the winter time. We're lucky to have three weeks at the most of snow."⁹¹

Bob Wilson remembered:

There'd be cold spells where the small little ponds and things would freeze over and we'd all dig out our thrift store skates and go and try to play hockey on it and stuff. And nowadays, if it does freeze it doesn't freeze enough to even try to skate on... The school used to take skating days... I'm sure that never happens anymore because there wouldn't be any ice there. It definitely was colder back then. The climate was, the winter was different for sure."⁹²

Some Interviewees also noted changes during the summer season. In addition to increasingly regular smoke from wildfires, higher temperatures were a concern. Karen Charlie told us:

⁹⁰ Wilson, J., Wilson, R., & Wilson, S. (2021). Janice Wilson Interview - Coast Salish Peoples of Galiano Society.

⁹¹ Charlie, K., Charlie, R., Huggins, A., & Thompson, M. (2021, November 5). Karen and Richard Charlie interview - One Island One Earth Project.

⁹² Wilson, B., Wilson, R., & Wilson, S. (2021). Bob Wilson Interview - Coast Salish Peoples of Galiano Society.

"The environment is changing, the world is changing - the heat. Take a look at the heatwave that happened this summer. I've never really seen that. I've never really lived in that kind of heat before."⁹³

Karen's reference here to the 'heat dome' event in June of 2021⁹⁴ would be immediately clear to any islander (or indeed any resident in the affected areas). Other observations that Interviewees associated with a changing climate included stressed western redcedar trees and intense wind storms.

Levi Wilson told us:

"The most visually striking one that I've seen is how cedars all have some red on them now. They grow a lot slower. I remember when I was a kid there was no real red in the forest. There's lots of it now."⁹⁵



Bowie Keefer explained to us:

"Our cedar trees are in bad shape in much of the island because of the severe droughts."⁹⁶

Richard Charlie told us:

"My wife says it's got to be, maybe climate change. Our cedar trees are starting to die off for no reason at all."⁹⁷

Declines in western redcedar populations like those observed on Galiano Island have been predicted based on regional climate projections.⁹⁸ On the subject of storms, Janice Wilson observed:

⁹³ Charlie, K., Charlie, R., Huggins, A., & Thompson, M. (2021, November 5). Karen and Richard Charlie interview - One Island One Earth Project.

⁹⁴ Schmunk, R. (2021, November 1). *595 people were killed by heat in B.C. this summer, new figures from Coroner Show* | CBC news. CBCnews. Retrieved May 2, 2022, from <https://www.cbc.ca/news/canada/british-columbia/bc-heat-dome-sudden-deaths-revised-2021-1.6232758>

⁹⁵ Wilson, L., Menzies, E., Huggins, A., & Thompson, M. (2021, July 21). Levi Wilson and Emily Menzies interview - One Island One Earth Project.

⁹⁶ Keefer, B., & Thompson, M. (2022, January 17). Bowie Keefer Interview - One Island, One Earth Project.

⁹⁷ Charlie, K., Charlie, R., Huggins, A., & Thompson, M. (2021, November 5). Karen and Richard Charlie interview - One Island One Earth Project.

⁹⁸ Wilson, S. J., & Hebda, R. J. (2008). Mitigating and Adapting to Climate Change through the

"The wind seems a lot stronger now than it did before. We have more fierce storms... I mean, you know, trees fall and the wind is strong, the island is without power for days and days. Yeah, I believe that. It's changing a lot."⁹⁹

Gary Moore told us:

"Power outages and high, high wind events were less normal, less common when we first moved here."¹⁰⁰

It was clear to us from our interviews that a particularly destructive December 2018 windstorm¹⁰¹ still figured largely in Interviewee's memories. When asked how they thought climate change would affect them, some of the most frequent responses from participants in our Community Mail-Out Survey¹⁰² (aside from 'Water Accessibility' and 'Agricultural Water' - see 'Freshwater' section, above) were "Heat Waves/Temperature", "Fire", "Extreme Weather", "Food Production/Availability", and "Air Quality/Smoke" - in that order.



Our Takeaway is that the Galiano Island community is, for the most part, keenly aware of some of the risks associated with the climate crisis, and already attributes some locally observed changes to its effects. Significant organizing and engagement around this issue has already occurred, including art exhibitions¹⁰³ and the recent publication of a compilation book.¹⁰⁴ During the course of this project alone, we experienced an unprecedented heat dome in June of 2021, persistent wildfire smoke in July of 2021, an atmospheric river rain and flood event in November of 2021, and frequent storm-related power outages throughout the winter of 2021 and 2022. This report is an attempt to contribute to the ongoing dialogue around community-led efforts to mitigate and adapt to a changing climate.

Conservation of Nature. The Land Trust Alliance of BC. Available from:

<https://www.savethecedarleague.org/docs/FixClimatebyConservingNature.pdf>

⁹⁹ Wilson, J., Wilson, R., & Wilson, S. (2021). Janice Wilson Interview - Coast Salish Peoples of Galiano Society.

¹⁰⁰ Moore, G., Moore, B., & Thompson, M. (2022, February 7). Barbara and Gary Moore Interview - One Island, One Earth project.

¹⁰¹ Denis, J. S., & Cruickshank, A. (2018, December 29). *These B.C. Islanders just survived the most violent storm to hit the province in 20 years. Here's what they want you to know.* thestar.com. Retrieved May 2, 2022, from <https://www.thestar.com/vancouver/2018/12/28/these-bc-islanders-just-survived-the-most-violent-storm-to-hit-the-province-in-20-years-heres-what-they-want-you-to-know.html?rf>

¹⁰² See Appendix D

¹⁰³ See 'Higher Tide', <https://www.yellowhouseartcentre.ca/past-exhibitions>

¹⁰⁴ See Sandilands, C. (2020). *Rising tides: Reflections for climate changing times.* Harbour Publishing.

Water

Island communities frequently depend on marine resources, and Galiano Island is no exception. The people who spoke with us repeatedly emphasized the importance of marine resources, and expressed serious concern about declines in these resources that they have witnessed over their lifetimes.

Fish

The vast majority of our Interviewees spoke about the historical importance of fishing to the Galiano Island community. It is clear to us that fishing has always been a foundation of coastal communities, economies, and cultures in the Salish Sea, and that unique systems of harvest and governance have been practiced here since time immemorial.¹⁰⁵ During our interview, Karen and Richard Charlie described how Karen's father used to fish for Pacific herring (Hul'qumi'num - Slhewut'; Latin - *Clupea pallasii*) when they were young. Richard told us about how he made a herring rake:

"He spent days and days just making that rake, and I spent days helping him make that rake... He used to just go out on his canoe - it was just outside of the spit in Penelakut - and just rake up buckets and buckets of herring. Soon as you would go like this and paddle with that rake, up comes, maybe there's 20-30 herrings just on the end of the board going like this, then he'd just go like this and start banging it in the canoe, filling up his canoe with herrings... One of the joyful times of living, to spend with elders to watch that magic happen."¹⁰⁶

Karen told us that it's been many years since it was possible to fish like that:

"Probably 40 years ago was the last time that we were able to just rake it out of the water. Can't do that anymore. Nobody does that anymore. They're all fishing with the great big boats and nets."¹⁰⁷

There were active herring salteries (and later canneries) operated by Japanese families since the early 1900s in several bays on the north end of Galiano Island, prior to Japanese internment during the Second World War.¹⁰⁸ The Strait of Georgia in the Salish Sea currently supports one of the last remaining

¹⁰⁵ See, for example: Claxton, N. NXEMFOLTW. (2015). *To Fish as Formerly: A Resurgent Journey back to the Saanich Reef Net Fishery* (thesis). University of Victoria, Victoria.

¹⁰⁶ Charlie, K., Charlie, R., Huggins, A., & Thompson, M. (2021, November 5). Karen and Richard Charlie interview - One Island One Earth Project.

¹⁰⁷ Ibid.

¹⁰⁸ Steward, E. (1994). Herring Salteries - Canneries. In *Galiano houses and people: Looking back to 1930* (pp. 140-141). essay, E. Steward.



industrial herring fisheries on the Pacific coast,¹⁰⁹ which had its quota cut in half in 2021¹¹⁰ in response to ongoing declines and public pressure. Herring are a foundational species for the marine food web of the Salish Sea,¹¹¹ but Karen told us that they have long since stopped spawning in the waters around Galiano and Penelakut Islands:

"I used to always wait - every February they'd be spawning down in our bay, they'd be coming around. But now we don't get herring.

We have to go and wait with buckets at the fisherman's wharfs. That's where we get our herring now. Because they don't come to where we usually go and fish for them."¹¹²

Fishing is a cherished way of life for many hwulmuhw mustimuhw in the region. In her 2018 article, "We Have Stories: Five Generations of Indigenous Women in Water," Rosemary Georgeson shares:

"I grew up on fishing boats. My first memories are of being on the water on my dad's fish packer in the Georgeson Bay. I mostly worked with my dad, trolling from Galiano Island to Prince Rupert and back. Surrounded by the smell of saltwater, coffee, fish, and diesel, I loved to fish in the early morning. The sun was always the brightest then, and there would be a gentle roll in the boat. My brothers and I knew our life was part of the water that was around us, in our bay, around our island. It was our highway. We survived off it. It was our food source, our economy, our social structure. The water was a place where we connected with family and friends. It all came from the water around us. We used to all be fishermen."¹¹³

¹⁰⁹ Pollon, C. (2022, May 3). *B.C.'s last great herring fishery*. The Narwhal. Retrieved May 3, 2022, from <https://thenarwhal.ca/b-cs-last-great-herring-fishery/>

¹¹⁰ See

<https://www.canada.ca/en/fisheries-oceans/news/2021/12/fisheries-and-oceans-canada-updates-pacific-herring-coast-wide-harvest-plan-for-2021-22.html>

¹¹¹ MacDuffee, M. (2021, September 16). *Pacific Herring: Underpinning the coastal foodweb*. Raincoast Conservation Foundation. Retrieved May 3, 2022, from

<https://www.raincoast.org/2018/06/pacific-herring-underpinning-the-coastal-foodweb/>

¹¹² Charlie, K., Charlie, R., Huggins, A., & Thompson, M. (2021, November 5). Karen and Richard Charlie interview - One Island One Earth Project.

¹¹³ Georgeson, R., & Hallenbeck, J. (2018). We Have Stories: Five Generations of Indigenous Women in Water. *Decolonization: Indigeneity, Education & Society*. 7(1), 20-38.

<https://jps.library.utoronto.ca/index.php/des/article/view/30390>

Hwumlmuhw mustimuhw and hwunitum Interviewees alike told us that, like herring, other fish and seafood used to be much more abundant. Carol Robson told us:

"Food was actually abundant. Salmon, you could be sure if you went out there you're going to catch a salmon. Our parents ended up running a fishing lodge, which is now the inn, and we would guarantee people 'if they want to go fish, you'll catch a salmon.' There was lots of fish. Then, we used to catch little rock cod right off the dock for supper with a little string and a hook. There was lots of food."¹¹⁴

Lloyd Baines spoke about his memories of fishing in his childhood:

"We did a lot of fishing in those days, even as young kids. We were out in rowboats and that, catching fish, and there was two buyers at the north end then: one in Baines Bay and one in the gas station bay. There was lots of buyers there, there was a lot of people fishing."¹¹⁵

Bob Wilson recalled some of his fondest memories:

"During the winter my dad used to go fishing in Whalers Bay and Montague Harbour, because there's always a lot of spring salmon in the bays at nighttime. And I loved it, like, I fished with him all summer long up north and over in the Fraser, but coming home and going out fishing right here at home, I always felt really good... The fish we caught were for food for our family. And sometimes we took it over to Vancouver, to Ladner and sold them. And I believe my dad thought it was his right to do that."¹¹⁶

Levi Wilson told us:

¹¹⁴ Robson, D., Robson, C., Krug, K., & Thompson, M. (2021, September 27). Don and Carol Robson Interview - One Island, One Earth project.

¹¹⁵ Head, C., Baines, L., Georgeson, J., Wilson, R., & Wilson, S. (2021). Charlie Head, Loyd Baines, and John Georgeson Interview - Coast Salish Peoples of Galiano Society.

¹¹⁶ Wilson, B., Wilson, R., & Wilson, S. (2021). Bob Wilson Interview - Coast Salish Peoples of Galiano Society.

"Fishing is such a big thing for my family. On my grandpa's wedding ring, he had a carved salmon. So much of his life identity was built around salmon... But it's all gone so far that I never even considered being a fisherman. My dad was a fisherman: he took his first boat out when he was 15, my grandpa when he was 12, my brother started when he was 16. I'm a little bit older than him, but it never really entered my mind as something to do because we all saw the way that it was going... The scarcity has changed, like, our family trajectory, where everybody was a fisherman, now there's just like one or two, if they've been able to hold on that long."¹¹⁷

Every Interviewee who told us that they fished expressed that they've observed significant declines in fish populations. Geoff Gaylor told us:

"I'm a pretty ardent fisherman, and not for the sport of it, just to go out and get some nice fresh food. But it's harder because the salmon are gone, they're way, way less. So it's a lot harder now... The source is diminishing, which has nothing to do with this island."¹¹⁸

Richard Charlie told us:

"We go as far as Tumbo Island to go catch some of our fish because sometimes there's hardly any on the outside of Galiano, we can't even get a nibble there, so we've got to try and find them and find out where they're hiding."¹¹⁹

Interviewees who do not fish regularly also recognized the declines in fish stocks and their impacts on the community. Jane Wolverton told us:

"One of the things that I worry about - and I've seen the change over time - is the loss of a lot of the marine life. There used to be 20 or 30 boats out in Active Pass at Helen Point fishing, you know, and the ferries would come around the corner and they'd be just 'Honk honk, Honk honk.' [Now] there's no fish out there, you know, to attract that kind of fishery."¹²⁰

¹¹⁷ Wilson, L., Menzies, E., Huggins, A., & Thompson, M. (2021, July 21). Levi Wilson and Emily Menzies interview - One Island One Earth Project.

¹¹⁸ Gaylor, G., & Bazdresch, A. (2022, January 31). Geoff Gaylor Interview - One Island, One Earth project.

¹¹⁹ Charlie, K., Charlie, R., Huggins, A., & Thompson, M. (2021, November 5). Karen and Richard Charlie interview - One Island One Earth Project.

¹²⁰ Wolverton, J., Krug, K., & Thompson, M. (2021, October 1). Jane Wolverton Interview - One Island, One Earth project.

George Harris explained to us:

"Galiano was a major home port for fishermen. And what's happened in the last 25 years, due to destruction of habitat - not on Galiano, but on the mainland, all over the world - the destruction of habitat, and the overfishing has decimated the fishing industry."¹²¹

Declines in fish stocks in the Salish Sea and the associated impacts of fisheries policy and industrial consolidation on fishing families are well-documented. Rosemary Georgeson writes:

"We do not live on the water because we cannot go out on it. There is no movement on the water anymore. No women out there. They succeeded in taking that away. Food and life and movement is gone. They were doing that then to my great grandmother, and one hundred and twenty years later, they have succeeded. The separation is what we have inherited. 150 years ago, this was to be a place for tourists. They now come from all over the world to fish in our waters, and our access to it is limited and cut off. And they are still polluting our creeks and our rivers, farmed fish, whatever they can do to disconnect us from the water we used to call home."¹²²

Shar Wilson explained that, as a result:

"There's a gap of exchange of knowledge that has happened. For example, Bob's dad taught him how to fish and his uncles taught him how to fish... and our kids almost still depend on Bob and I to do the fishing. Here we are, you know, grandparents and doing the fishing. I never... I always thought that our kids would be doing the fishing. Honestly. Yeah, I did."¹²³

Emily Menzies told us:

¹²¹ Harris, G., & Bazdresch, A. (2022, February 6). George Harris Interview - One Island, One Earth project.

¹²² Georgeson, R., & Hallenbeck, J. (2018). We Have Stories: Five Generations of Indigenous Women in Water. *Decolonization: Indigeneity, Education & Society*. 7(1), 20-38.
<https://jps.library.utoronto.ca/index.php/des/article/view/30390>

¹²³ Wilson, B., Wilson, R., & Wilson, S. (2021). Bob Wilson Interview - Coast Salish Peoples of Galiano Society.

"Levi's comfort food is canned salmon, rice, seaweed, and eulachon grease... I mean, places around here used to be called the grease trail! There was so much spilled on the ground, because of the trade in eulachon grease up and down the coast. And now it's worth its weight in gold type of thing. It's the eulachon, they're so endangered... And just even with canned salmon, you know, we don't get any salmon from any family anymore. Like, you know, it's a special treat to be able to afford Levi's comfort food."¹²⁴

Emily continued to explain that declines in seafood didn't just happen decades ago, but have continued and accelerated up to the present day. She talked about being invited to an annual seafood dinner when she was first getting to know Levi Wilson, a decade previous to our interview:

"Literally my first year was just like this huge mountain of food, I'd never seen so much food. And it was like a full on buffet, just take as much as you want [of] this amazing, incredible seafood. And each year, you know, it's been tougher and tougher. And a lot of the types of creatures aren't there, you know? My first year was totally like crab, prawns, salmon and cod... And each year we kind of lost a thing, or not as much, you get just a little portion, and you have servers now doling out, you know, 'you get two prawns each,' you know? That kind of thing. So we're not even just talking in one lifetime, we're talking in the life of a relationship. You know, we're talking the last 10 years, that there's been a huge difference."¹²⁵

Every Interviewee who spoke to us about fishing felt that the loss of the local fishing industry was not the fault of the Galiano Island community, but instead was caused by larger social, economic, and political forces. Nevertheless, islanders continue to fish and to buy fish, when they can, from local sources. George Harris told us:

¹²⁴ Wilson, L., Menzies, E., Huggins, A., & Thompson, M. (2021, July 21). Levi Wilson and Emily Menzies interview - One Island One Earth Project.

¹²⁵ Wilson, L., Menzies, E., Huggins, A., & Thompson, M. (2021, July 21). Levi Wilson and Emily Menzies interview - One Island One Earth Project.

"I guess I have always tried to find local fishermen who sell me local fish. And in the 80s, we were able to buy cod, commercially caught by the same Japanese fishermen that we kicked off this island in 1942. They came back to the north end, and were living on fish boats. And we would buy our cod from them. But again, overfishing, destruction of habitat. And so the cod fishery died in the early 90s. So we probably have less access, but we have a very good First Nations friend who does fishing and we buy fish from him. You know, if the world worked like that, we'd have lots of fish. It's the seven mile long nets that are the problem, not the guy with a fishing rod."¹²⁶



Our Takeaway is that the Galiano Island community has observed serious declines in populations of most - if not all - species of fish that are valued for food, and that these declines have caused significant harm to local families, economies, and the community as a whole. We observe that this is an issue that affects the whole of the Salish Sea, and needs to be addressed at this scale. Overfishing, unfair regulations, and industrial consolidation were the most frequently cited causes for these declines, but several other potential causes were also discussed (see below).

Marine Mammals

Cetaceans (whales, dolphins, and porpoises) and pinnipeds (seals and sea lions) are commonly observed in the waters around Galiano Island. Southern Resident orca whales (Hul'qumi'num - Q'ul-Ihanamutsum; Latin - *Orcinus orca*), humpback whales (Latin - *Megaptera novaeangliae*), Steller sea lions (Hul'qumi'num - Shes; Latin - *Eumetopias jubatus*), California sea lions (Hul'qumi'num - Ts'axulus; Latin - *Zalophus californianus*), and harbour seals (Hul'qumi'num - 'E s-hw; Latin - *Phoca vitulina*) are all characteristic species of the Salish Sea that Interviewees spoke about.

Both cetaceans and pinnipeds were historically harvested by hwulmuhw mustimuhw. We have read accounts of pinniped hunting at Sqtheq (Porlier Pass).¹²⁷ Of whales, Florence James told us:

¹²⁶ Harris, G., & Bazdresch, A. (2022, February 6). George Harris Interview - One Island, One Earth project.

¹²⁷ See Cryer, B. M., & Arnett, C. (2007). *Two houses half-buried in sand: Oral traditions of the hul'q'umi'num' Coast Salish of Kuper Island and Vancouver Island*. Talonbooks.

"You're not going to see a whale. You have to go out, and you have to time them - that's what my mom said, they timed it. And they could hear it, they could hear the different sounds of the whales when they're blowing their air... And then they'd have to get on a canoe and go out, and my great grandpa could sing a song. He said if it didn't stop, it meant it wasn't gonna give its life. They always played fair. There was no overkill, no hurting them - to make them, you know, die in pain. Yeah, my great grandpa knew how to do that."¹²⁸

Florence also mentioned pinnipeds when discussing the foods of her ancestors:

"Their food would be halibut, cod, lingcod, rock cod. Seals - I love eating seal meat."¹²⁹

All Interviewees who spoke on this topic agreed that - with the notable exception of Southern Resident orcas - the other species mentioned above are more abundant now than they were in the 1960s, 70s, and 80s. Charlie Head remembered:

"As a kid, if you saw a seal everybody wanted to look. [laughter] They were so rare! I think that, yeah, the fishermen did their part in that."¹³⁰



Photo by: Wetland Restoration Consulting

Lloyd Baines explained that, prior to protections for pinnipeds and cetaceans that were enacted in the 1960s by the Department of Fisheries and Oceans, there was a bounty system designed to keep pinniped populations down:

¹²⁸ James, F., Fournier, S., & Thompson, M. (2021, November 16). Florence James Interview - One Island, One Earth Project.

¹²⁹ Ibid.

¹³⁰ Head, C., Baines, L., Georgeson, J., Wilson, R., & Wilson, S. (2021). Charlie Head, Loyd Baines, and John Georgeson Interview - Coast Salish Peoples of Galiano Society.

"Well, they used to pay us to get rid of them and they'd like you to try to harvest them. You get a sea lion, they're longer than this table. Not very easy to harvest."¹³¹

Since the introduction of protections for cetaceans and pinnipeds, Interviewees observed that their populations have rebounded in the region. In some cases, Interviewees framed these observations positively. Bowie Keefer told us:

"We are seeing the whales coming back, the humpbacks."¹³²

Barbara Moore told us:

"One big change is we have a lot more of the sea lions coming every year now than I can remember in the early years. I don't think they came. So I'm not sure what that is. But, you know, they've been here every year for several months at a time in droves, as you probably know, for the last five years... And before that, they would be intermittent."¹³³

In other cases, Interviewees had mixed or negative associations with these changes in pinniped populations. Bob Wilson observed:

"The warm weather brings up an increase of the California sea lions, and that's what's happening with a lot of the fish population, I believe. They're wiping out the species that were around when I was growing up."¹³⁴

We note that the findings of the Salish Sea Marine Survival Project support the observation that pinnipeds, and specifically harbour seals, are an important factor impacting salmonid populations.¹³⁵

¹³¹ Ibid.

¹³² Keefer, B., & Thompson, M. (2022, January 17). Bowie Keefer Interview - One Island, One Earth Project.

¹³³ Moore, G., Moore, B., & Thompson, M. (2022, February 7). Barbara and Gary Moore Interview - One Island, One Earth project.

¹³⁴ Wilson, B., Wilson, R., & Wilson, S. (2021). Bob Wilson Interview - Coast Salish Peoples of Galiano Society.

¹³⁵ Pearsall, I., Schmidt, M., Kemp, I., & Riddell, B.. (2021). Synthesis of findings of the Salish Sea Marine Survival Project, Version 1.0. Retrieved on May 4, 2022, from www.marinesurvivalproject.com

Charlie Head, Lloyd Baines, and John Georgeson also said that they felt that the increase in pinniped populations had negative effects on fish stocks. John Georgeson remarked:

"I mean, it's long overdue for a culling and a maintenance of the population... Anybody who works on the water knows the decimation they take to the salmon."¹³⁶

Most Interviewees who spoke on the topic recognized some level of competition between marine mammals and human beings for declining fish stocks. Pinnipeds came up frequently, but cetaceans were also mentioned. Carol Robson recalled:

"The black fish, or the killer whales, as we call them, they were a very large pod. And when they'd go through, dad would say 'no point in going fishing for a couple of days.' Because they'd clean the pass out as they [went]... So it was a healthy environment."¹³⁷

Some Interviewees remembered a time when fish and orcas were more abundant. Don Anderson recalled:



both

¹³⁶ Head, C., Baines, L., Georgeson, J., Wilson, R., & Wilson, S. (2021). Charlie Head, Loyd Baines, and John Georgeson Interview - Coast Salish Peoples of Galiano Society.

¹³⁷ Robson, D., Robson, C., Krug, K., & Thompson, M. (2021, September 27). Don and Carol Robson Interview - One Island, One Earth project.

“Back in the 70s, when I first went to sea I was 15. I did that for a couple of summers. Anyway, it was not uncommon to see a pod of orcas, it was an everyday occurrence. And I don't know what the population was then. Nobody really kept track of it... We just saw them everywhere.”¹³⁸

Unlike the other marine mammals mentioned in this section, orcas are widely recognized to have decreased in population over the last half-century in the Salish Sea. In addition to lack of food (declines in salmon populations), habitat conversion, pollution, and other commonly cited causes for this decline, Don observed that vessel traffic and associated noise pollution has a role:

“I think it's mainly the container ships that have caused the trouble. There's so many of them coming in here now, [and] the noise is just phenomenal. I don't know if you've ever been in an engine room of a boat. You can actually hear a ship two miles away. That's just with your human hearing. So you take the kind of hearing they have and you know, just mind boggling... So it's no wonder that the population shrunk.”¹³⁹



Our Takeaway is that the relationship between the Galiano Community and large marine mammals is complex: these animals inspire wonder (and likely benefit the tourism economy), but are also considered to compete for fish and to have played a role in declining fish stocks. Some (i.e., harbour seals) may be increasing at the expense of others (i.e., orcas). Those mentioned - with the notable exception of orcas - were observed to have become much more abundant in recent decades. It is possible that neither the system of bounties and harvest of the first half of the 20th century, nor the system of protections enacted in the second half, adequately reflects the complexity of this relationship.

¹³⁸ Anderson, D., Anderson, S., & Huggins, A. (2022, March 10). Sheila and Don Anderson Interview - One Island, One Earth project.

¹³⁹ Ibid.

Seaweed 🍱

We have observed that seaweeds, and especially kelps, are important components of marine ecosystems in the Salish Sea, and many of the Interviewees viewed them as a sign of ecosystem health. Discussion focused largely on bull kelp (Hul'qumi'num - Q'am'; Latin - *Nereocystis luetkeana*). Richard Charlie recalled to us:



"My mom used to just grab a kelp and tie her canoe to it and just sit there and jig right against the bull kelp, and catch lingcod, rock cod, salmon - just at the edge of those bull kelp beds. There was so much of that bull kelp, you could almost get off the canoe and walk across."¹⁴⁰

Hwumluhw mustimuhw have many uses for this species.

For example, Karen Charlie told us:

"The bull kelp is a really important one. We use that in some of our soups and drying for the winter. They have a lot of vitamins in there. The omegas and medicines, there's a lot of medicine in the bulb of the bull kelp... And it also marked safety, to not go near where the reefs are, the bull kelp - that was our marker."¹⁴¹

In "A Lifetime with Bulb Kelp," Rosemary Georgeson writes about growing up in Geogreson Bay:

¹⁴⁰ Charlie, K., Charlie, R., Huggins, A., & Thompson, M. (2021, November 5). Karen and Richard Charlie interview - One Island One Earth Project.

¹⁴¹ Ibid.

I remember as a kid growing up in Georgeson Bay at the bottom end of Active Pass

there used to be so much bulb kelp that it looked
like you could walk across the bay on it

all of Active Pass was lined on both sides from one end to the other
with big kelp beds

as the children of a fisherman from a long line of family who call the water home

we were raised to know that these beds of kelp
were so important to our way of life

the bulb kelp beds were medicines for us

they helped guide us as we learned to move up and down the coast

they were a place we would look to when we needed food
like other creatures such as the otter

when he could smell the kelp patches
he knew his dinner was right there in front of him"¹⁴²

Many interviewees identified kelp beds as key habitat for important marine species. Karen explained to us:

"We come and we fish a lot of lingcod. And those lingcod live in the bottom of the ocean. And those kelp beds were really important to the rockfish. Kelp beds were very, very important."¹⁴³

¹⁴² Sandilands, C., & Georgeson, R. (2020). A Lifetime with Bull Kelp. In *Rising tides: Reflections for climate changing times*. essay, Harbour Publishing.

¹⁴³ Charlie, K., Charlie, R., Huggins, A., & Thompson, M. (2021, November 5). Karen and Richard Charlie interview - One Island One Earth Project.

Over the past century, scientists have documented serious declines in the extent and populations of bull kelp in the Salish Sea,¹⁴⁴ which have also been observed locally. Charlie Head remarked:

"The kelp beds have disappeared, a lot of them. Used to be huge kelp beds, now there's not very much."¹⁴⁵

Interviewees who spoke on the topic felt that the loss of kelp ecosystems had negative impacts on fish. Levi Wilson explained to us:

"Cod is the type of fish around here that doesn't make it into the big narratives around the Gulf Islands. We talk a lot about salmon, but cod gets left out. The first time I went fishing, we went jigging for cod. We always get cod around kelp forests. And now that the otters are gone... the urchins don't get eaten, kelp forests get a lot smaller, the cod have less habitat to hide in. And they spread out in different ways and they don't congregate as much."¹⁴⁶

Richard Charlie echoed this sentiment:

"It's harder to try and catch lingcod nowadays, because - we don't know what's happening - it's probably because... bull kelp, where's their food going?"¹⁴⁷

Rosemary Georgeson writes:

¹⁴⁴ Berry, H. D., Mumford, T. F., Christiaen, B., Dowty, P., Calloway, M., Ferrier, L., Grossman, E. E., & VanArendonk, N. R. (2021). Long-term changes in kelp forests in an inner basin of the Salish Sea. *PLOS ONE*, 16(2).

<https://doi.org/10.1371/journal.pone.0229703>

¹⁴⁵ Head, C., Baines, L., Georgeson, J., Wilson, R., & Wilson, S. (2021). Charlie Head, Loyd Baines, and John Georgeson Interview - Coast Salish Peoples of Galiano Society.

¹⁴⁶ Wilson, L., Menzies, E., Huggins, A., & Thompson, M. (2021, July 21). Levi Wilson and Emily Menzies interview - One Island One Earth Project.

¹⁴⁷ Charlie, K., Charlie, R., Huggins, A., & Thompson, M. (2021, November 5). Karen and Richard Charlie interview - One Island One Earth Project.

“and with these huge beds of kelp getting smaller and smaller

to the point of not existing in Active Pass

also went the homes and food for all the creatures and ourselves

we were losing our way of life in the pass

cod got less

kelp beds got less until we rarely saw any.

What was getting bigger were the BC Ferries getting longer and deeper

they were churning up more of the bottom

and as they made their daily runs through the pass

there was more noise more vibration

also more ferries going through the pass every hour

one ferry was coming and one ferry was going all the time.

We knew the water was getting warmer on the coast

we were seeing new species coming

following the warmer water and their feed

with the water getting warmer there were changes

such as ocean acidification

changing the natural habitat and natural balance

we watched the migration of California sea lions into our bay and Active Pass

taking over where the kelp beds used to be

we saw mackerel move onto our coast

these things did not belong here

as we watched these changes happening

we also watched the loss of bulb kelp in our pass

we were witnessing the changes that Dad and the old ones said were coming.”¹⁴⁸

The Galiano Conservancy Association is participating in a collaborative project to map and monitor kelp and eelgrass populations annually across the Southern Gulf Islands,¹⁴⁹ to better understand this issue and aid future restoration efforts. The idea of restoring kelp ecosystems came up in several interviews. Levi Wilson asked:

"What do we need to do to bring back kelp forests? Because when they start coming back, then a lot of the fish resources that we need around here can start coming back.”¹⁵⁰



Our Takeaway is that some seaweeds, including bull kelp, are much less common in the waters around Galiano Island today than they were in the past. This loss has significant negative implications for Salish Sea marine ecosystems (as well as Galiano Island’s marine biocapacity). Efforts to study and, if possible, reverse these declines could have significant benefits for regional communities and ecosystems.

Shellfish, Crabs, and Urchins

In addition to fish and seaweeds, Interviewees discussed several other key marine resources, including shellfish, crabs, and sea urchins. We have learned that hwulmuhw mustimuhw have harvested these marine foods since time immemorial, and physically altered coastal ecosystems to enhance their productivity. Levi Wilson spoke to us at one such location, Sum’nuw (Montague Harbour):

¹⁴⁸ Sandilands, C., & Georgeson, R. (2020). A Lifetime with Bull Kelp. In *Rising tides: Reflections for climate changing times*. essay, Harbour Publishing.

¹⁴⁹ For more information, see <https://mayneconservancy.ca/kelp-bed-monitoring/>

¹⁵⁰ Wilson, L., Menzies, E., Huggins, A., & Thompson, M. (2021, July 21). Levi Wilson and Emily Menzies interview - One Island One Earth Project.

"Montague Harbour is part of a manufactured landscape... My ancestors, other ancestors from around here, over the course of eight to ten thousand years, decided that they were going to change the shape of the land and actually constructed a lot of the environment that we're in now. And so you can see here where the original part of the land was, and then above it has been centuries and centuries and centuries of deposits of various shells [and] other refuse that the archaeologists in particular call 'midden.' But it's not just a dumping ground. I stress a lot, this wasn't just, 'we have all this garbage and we need somewhere to put it.' It was, 'we have all this stuff that can help us turn this environment into something that's more practical, more powerful, more plentiful for everybody that's coming later.'"¹⁵¹

Sum'nuw continues to provide habitat for shellfish, as do other beaches and bays on Galiano Island. For some Interviewees, consuming shellfish has been a regular feature of day-to-day life. Janice Wilson remembered:

"Growing up, my family lived off the land and ocean. It was easy to go out and catch a fish for dinner, whether it be some sort of salmon or cod. You know, shellfish, just to be able to go to the beach and get a bucket of clams whenever or pick up some oysters off of the rocks for dinner."¹⁵²



All of the Interviewees who spoke on the topic observed that access to shellfish has become more difficult over the years. Janice remarked:

"It is not easy to get shellfish anymore."¹⁵³

Bob Wilson said:

¹⁵¹ Wilson, L., Menzies, E., Huggins, A., & Thompson, M. (2021, July 21). Levi Wilson and Emily Menzies interview - One Island One Earth Project.

¹⁵² Wilson, J., Wilson, R., & Wilson, S. (2021). Janice Wilson Interview - Coast Salish Peoples of Galiano Society.

¹⁵³ Ibid.

"Earlier this year, I went to dig some clams and was very disappointed on how few clams there's left on the beaches."¹⁵⁴

Interviewees observed similar difficulties in accessing sea urchins and crabs. Karen Charlie explained to us:

"The sea urchins - there's no sea urchins on Penelakut. So we have to come here to Galiano for the xixwe - that's the big red sea urchin - and the skwithi' - that's the small little green ones. The skwithi' have a different taste to the xixwe. The xixwe are really big and salty; the skwithi' are smaller and salty sweet. There's been a really big change for the sea urchin, because of the kelp."¹⁵⁵

Levi Wilson told us:

"It used to be really easy to get crabs off the dock, on the inside - big, big crabs. We used to take down salmon heads when my grandpa would come back from fishing. We'd just take the head, tie a rope around it, tie it to a rock, and then just leave it at the bottom for five minutes. Then you pull it up real slow, and you get Dungeness and rock crab, all big enough that you can keep. They don't exist in there anymore... You can't get them that close. You gotta go way out now to find things like that."¹⁵⁶

In addition to observing declines in access to and populations of these species, Interviewees expressed concern about the effects of pollution on their health and quality as foods. Emily Menzies told us that she has observed that the practice of boats illegally dumping septic waste in Montague Harbour is common and impacts shellfish:

¹⁵⁴ Wilson, B., Wilson, R., & Wilson, S. (2021). Bob Wilson Interview - Coast Salish Peoples of Galiano Society.

¹⁵⁵ Charlie, K., Charlie, R., Huggins, A., & Thompson, M. (2021, November 5). Karen and Richard Charlie interview - One Island One Earth Project.

¹⁵⁶ Wilson, L., Menzies, E., Huggins, A., & Thompson, M. (2021, July 21). Levi Wilson and Emily Menzies interview - One Island One Earth Project.

"Everybody likes to swim here, but they don't always know what they're swimming through. And I mean, part of what makes it so special, right, is the shells. People have been eating the shellfish here for thousands of years. And unfortunately, it's too polluted now with poop water. So my daughter, our daughter, we can't teach her that she can continue in the way of her ancestors to eat the shellfish here. You know, this place that's been specifically designed by human beings over thousands of years to be optimum conditions for cultivating shellfish, and yet, it can't be eaten because it's been poisoned."¹⁵⁷

Emily expressed frustration with the lack of enforcement of existing laws:



"I mean, how hard would it be to actually enforce the law that exists to make sure that boats don't dump?... We recognize that it's an enclosed space, it's the encircling place, right? Sum'nuw, right? And that pollution just gets stuck in there, you know? We want to be able to swim in there, we want to be able to harvest in there."¹⁵⁸

Karen and Richard Charlie expressed similar concerns about freighters, tankers, and bulk carriers that frequently occupy marine anchorages in the waters around Penelakut Island.

¹⁵⁷ Wilson, L., Menzies, E., Huggins, A., & Thompson, M. (2021, July 21). Levi Wilson and Emily Menzies interview - One Island One Earth Project.

¹⁵⁸ Ibid.

"I don't like the way they sit in our nice clean water where I'm eating. Probably three fourths of my food comes from the ocean, the clams and the oysters and the salmon. When we eat our skwithi' and xixwe out of the water, it's fresh out of the water. They come out of the water and they're still moving. We crack it open and we eat it and we're like drinking part of the water that's in them... One time I was sitting there eating and just enjoying my sea urchin and I'm looking over at the freighter and it's dumping out all its junk. They're polluting my ocean, [and] it's not just mine, it's for my grandchildren. It's for future and here they are just polluting and taking their garbage from wherever they were, passing through all different waters to come here, and sit for months, dirtying the area."¹⁵⁹



Our Takeaway is that shellfish, crab, and urchins continue to be important food resources for the Galiano Island community, but that population declines, reduced access to harvest areas, and pollution threaten this relationship. Nevertheless, there is clear evidence that hwulmuhw mustimuhw were able to manipulate coastal ecosystems to enhance populations of these species. Efforts to restore these populations,¹⁶⁰ regulate pollutants, and enforce existing regulations could yield significant benefits in the short and long term.

¹⁵⁹ Charlie, K., Charlie, R., Huggins, A., & Thompson, M. (2021, November 5). Karen and Richard Charlie interview - One Island One Earth Project.

¹⁶⁰ For example, see Olsen, J. (2019). *2014-2020 W̱SÁNEĆ CLAM GARDEN RESTORATION PROJECT FINAL REPORT*. Retrieved on March 5, 2022 from <https://wsanec.com/wp-content/uploads/2020/03/Clam-Garden-Report.pdf>

Community

It is clear to us, from the first two themes of 'Land' and 'Water', that the Galiano Island community of today relies much less directly on the land and water to sustain itself than it did in previous decades, to say nothing of previous centuries (the notable exception to this trend is community reliance on local freshwater resources, although even this is changing - see 'Freshwater' section). The following sections outline topics from our interviews that touch on how the community has evolved over time, how it has changed, and what this means in terms of sustainability, reconciliation, and the Ecological Footprint.



Food 🍲

As is readily apparent from the 'Land' and 'Water' themes, the availability and accessibility of foods derived from Galiano Island ecosystems was the most-discussed topic for our Interviewees. We think this interest reflects community interest in the topic more broadly, but may also have something to do with the subset of people we spoke to, and their life experiences.

Right from the start, Emily Menzies explained to us that:

"The reality is Galiano isn't and never has been self-sufficient unto itself. I mean, Indigenous people, no Indigenous person ever lived here and stayed here all year round. That's the point of the seasonal round, right, is that you move to where the resources are, when they are there. And it doesn't work if you're so tied to a little piece of property, and then you just kind of extract everything of value from it, and move on. That's not a very sustainable way of being, right?"¹⁶¹

While it may not be possible or desirable for the Galiano Island community to be fully self-sufficient in terms of food, it was clear to us from our interviews that most of the Interviewees felt that they were able

¹⁶¹ Wilson, L., Menzies, E., Huggins, A., & Thompson, M. (2021, July 21). Levi Wilson and Emily Menzies interview - One Island One Earth Project.

to harvest much more of their food from Galiano's ecosystems in the past. Janice Wilson explained that this was an intergenerational activity:

"We preserved food every year. You know, we'd jar salmon, halibut, we would freeze or jar deer meat for the winter months. It was an ongoing thing, we all get together and do it collectively. It was a learning experience, because the elders would teach the younger generation how to do it to keep it going within the family unit."¹⁶²

Bob Wilson recalled:

"We lived off the land and ocean a lot when growing up. And my dad used to always provide for us when we were little, and when we got a little bit older we contributed... Shooting deer was just something you did. We lived off the land shooting deer. We dug a lot of clams and picked oysters. We shot grouse, did a lot of fishing - cod fishing and salmon fishing. It was a good way to live... I think we all enjoyed it very much. It's quite a bit different than today."¹⁶³

Bob expanded on this point:

"I try to eat as much fish as I can. It's hard... I don't eat it as often as before, growing up. And that's not by choice. If I was able to have more access to wild game and fish and clams and ducks, crab, I would probably live off of that. But I don't have the freedom or the ability to do that. So I depend on Safeway now."¹⁶⁴

Shar Wilson added:

"There's so many barriers to doing that freely. Like, you can't just go get a deer or you can't just go and get a fish. There's a lot of costs and there's so many barriers in terms of a boat or a vessel. You can't just go out and do that... You know, we're fortunate, we can go out and we can get cod and we're fortunate that we can go out and get deer, but I know that a lot of people are having trouble doing that."¹⁶⁵

¹⁶² Wilson, J., Wilson, R., & Wilson, S. (2021). Janice Wilson Interview - Coast Salish Peoples of Galiano Society.

¹⁶³ Wilson, B., Wilson, R., & Wilson, S. (2021). Bob Wilson Interview - Coast Salish Peoples of Galiano Society.

¹⁶⁴ Ibid.

¹⁶⁵ Ibid.

She expanded on the point about lack of access to boats in a separate interview:

"We were salmon people, we all had boats at one time. And suddenly, we just, we don't have boats. It's becoming out of reach, and we want to break that."¹⁶⁶

We have learned that hwulmuhw mustimuhw in the Salish Sea have been speaking out about barriers to accessing traditional foods for a long time.¹⁶⁷ Karen Charlie shared with us:



"I've had many battles with people trying to tell me to get off their beach. It's very different. When I see a stranger coming up on my land, I don't say 'Hey, what the hell are you doing here? Go on, get out of here.' It's not in me. It's not the way that I was taught to talk to people. But people have a real easy time saying that to me when I'm trying to harvest something that I've always harvested, something that's in me, that I know I need."¹⁶⁸

Emily Menzies told us that lack of access to local foods is part of the reason why her family was living off of Galiano when interviewed spoke to her for this project:

"We didn't figure it out on Galiano, fully, because there was this overlap, where at the beginning there were a lot of food resources within the family - like the salmon, you know? And then there was a moment where there was not, and where we were really having to buy a lot of the food and then you're faced with these really terrible choices."¹⁶⁹

We have learned that reduced opportunities for the Galiano Island community to harvest food from the land and water is an especially pressing issue because there is relatively little suitable farmland available

¹⁶⁶ Wilson, S., Smith, J. L., Huggins, A., & Thompson, M. (2021, August 21). Shar Wilson and James Smith interview - One Island One Earth Project.

¹⁶⁷ See Thom, B. (2003, March 27). *Contemporary & Desired Use of Traditional Resources in a Coast Salish Community: Implications for Food Security and Aboriginal Rights in British Columbia* [Paper presentation]. 26th Annual Meeting of the Society for Ethnobiology, Seattle, WA, USA.

¹⁶⁸ Charlie, K., Charlie, R., Huggins, A., & Thompson, M. (2021, November 5). Karen and Richard Charlie interview - One Island One Earth Project.

¹⁶⁹ Wilson, L., Menzies, E., Huggins, A., & Thompson, M. (2021, July 21). Levi Wilson and Emily Menzies interview - One Island One Earth Project.

on the island. According to a recent report, “Early settlers found the soil unfriendly and water scarce and turned their attention to fishing, hunting, sheep, and fruit growing to make ends meet. Galiano was generally regarded as the least arable of all of the Southern Gulf Islands.”¹⁷⁰ George Harris recalled:

“We got here in '82, and I was like, ‘Okay, we're going to be organic farmers’... And we had an orchard, because the person that sold us the place said ‘oh, George, yeah, no, the orchard will make you a fortune,’ and ‘oh, you'll make a lot of money gardening.’ So we waited and we waited until the plums were ready.”¹⁷¹

After finding that he could not trade a full basket of plums for a deck of cards at the local grocery store at the time, George told us he reconsidered his plans.

“So I went home and I said to my wife, ‘Okay, forget the farming. We are not going to be farming to make a living!’”¹⁷²

Even the most dedicated gardeners told us that full self-sufficiency was not an achievable goal in their experience on Galiano Island. Barabara and Gary Moore told us that they have grown as much food as possible and have had considerable success and satisfaction, but they also stated that you just can't do everything.

Levi Wilson told us that hwulmuhw mustimuhw in the Salish Sea developed a system of agriculture suited to regional soils and climate that expanded the area of what we now call “Garry Oak” ecosystems:

“The point of those meadows was to grow camas bulbs, which was an important staple food for people... Indigenous peoples used that area - for food, for propagation, for cultivation - and actively maintained those sites, which was what made them as strong and vibrant as they were, made them as widespread as they were... Those ecosystems exist because Indigenous peoples created them and maintained them... It could go away if we're not careful.”¹⁷³

Camas meadow ecosystems are not the only form of agriculture that is in peril at a local level. Barry New told us that he felt there were fewer farms today than in the past:

¹⁷⁰ Masselink, D., Lawseth, A., Murphy, J., & Devine, N. (2017). *Southern Gulf Islands Food and Agriculture Strategy*. Retrieved on May 5, 2022 from <https://gulfislandsfoodco-op.org/wp-content/uploads/2018/09/SGI-Food-and-Agriculture-Strategy-2017.pdf>

¹⁷¹ Harris, G., & Bazdresch, A. (2022, February 6). George Harris Interview - One Island, One Earth project.

¹⁷² Harris, G., & Bazdresch, A. (2022, February 6). George Harris Interview - One Island, One Earth project.

¹⁷³ Wilson, L., Menzies, E., Huggins, A., & Thompson, M. (2021, July 21). Levi Wilson and Emily Menzies interview - One Island One Earth Project.

"People used to have far more going on with farming. I mean, more animals. Milk! There's been no milk cows on Galiano for so long, which is kind of weird. But restoring old farms, because there's so much potential there, I think especially young people that should get into it."¹⁷⁴



On the positive side, some Interviewees told us that they've observed more people gardening and growing some of their own food today than they had observed in the past. Gary Moore told us:

"One thing I think is really good is that there are a lot more people doing their own gardens and their own small places. And so there's been a great kind of renaissance of the value of growing your own food."¹⁷⁵

Geoff Gaylor observed:

"Food production - over the years that's gone a lot better, there's more people doing small scale food production, you know, like garlic and whatever, all sorts of stuff growing - which has been really good."¹⁷⁶

Still, the reality for most Galiano Island residents is that most food now comes from off-island. Bowie Keefer told us:

"To some extent we live off the land, but only as a marginal pleasure. Because like everybody else we buy our groceries at the grocery store."¹⁷⁷

The success of the Galiano Community Food Program,¹⁷⁸ the Galiano Conservancy Association's sustainable food systems program, and events such as Nettlefest suggest to us that the Galiano Island community remains invested in local food production and harvesting. When asked where they think the Galiano Island community can make significant improvements, "More Food Production" was one of the

¹⁷⁴ New, B., & Bzdresch, A. (2022, March 4). Barry New Interview - One Island, One Earth project.

¹⁷⁵ Moore, G., Moore, B., & Thompson, M. (2022, February 7). Barbara and Gary Moore Interview - One Island, One Earth project.

¹⁷⁶ Gaylor, G., & Bzdresch, A. (2022, January 31). Geoff Gaylor Interview - One Island, One Earth project.

¹⁷⁷ Keefer, B., & Thompson, M. (2022, January 17). Bowie Keefer Interview - One Island, One Earth Project.

¹⁷⁸ See <https://galianoclub.org/food-program/>

most common responses from participants in our Community Mail-Out Survey.¹⁷⁹ Some Interviewees told us they see food as an area that the community can come together around and settle differences. Jane Wolverton explained:

“Part of the reason we started the Food Program was to address food security, but also to address the divide and to really try to bring people together through the medium of food, and to honour the skills that are here on the island and look at how we can pass on those skills, whether those are canning, growing, hunting - all those things that we do need.”¹⁸⁰

This spirit of coming together around food and sharing resources has been an important part of island life since time immemorial, Karen Charlie told us:

“We fish for our people, we fish to feed our people. We catch our fish and then we bring it back to Penelakut and give it to the people that we know might be hungry - for feeding the people. And that's what we do with our deer meat too. Those are teachings that were passed down from our elders.”¹⁸¹

Karen told us that, despite the apparent scarcity of fish and other important foods in the Salish Sea today, she feels that it's still possible to bring back local foods:



¹⁷⁹ See Appendix D

¹⁸⁰ Wolverton, J., Krug, K., & Thompson, M. (2021, October 1). Jane Wolverton Interview - One Island, One Earth project.

¹⁸¹ Charlie, K., Charlie, R., Huggins, A., & Thompson, M. (2021, November 5). Karen and Richard Charlie interview - One Island One Earth Project.

"I think if more people were on board with our way of thinking that everything will be revitalized, start coming back and regrow. I think there will be enough, and we have to believe that there will be enough. I believe that there's goodness out there for change."¹⁸²

Richard Charlie added:

"I agree with my wife that, you know, you're saying 'is there gonna be enough?' Well, I think the land and the sea will replenish. If more people cared about what's going on, and start looking after and leaving a cleaner, better environment. Because right now, the way we're going, our food is disappearing. And that's what I'm afraid of. If we get rid of all the stuff that pollutes our air, our ocean, our grounds, Earth will be a happier person, it'd replenish our foods again. So we'll have enough."¹⁸³



Our Takeaway is that it has become harder, especially for hwumluhw mustimuhw, to harvest food from the land and waters that comprise Galiano Island. Pollution, lack of access, and depleted populations of important species are all implicated. The economics of local agriculture remain challenging. At the same time, we've observed growing interest in cultivating and harvesting local foods, and note that several local organizations are dedicated to supporting local food production, including the new Gulf Island Food Co-Op.¹⁸⁴ We see opportunities to support and revive both traditional hwumluhw and hwunitum food systems on and around Galiano Island, in ways that are complementary and mutually reinforcing.

Energy 💡

Energy is a central issue in the process of mitigating and adapting to climate change. We have learned that, prior to the second half of the 20th century, Galiano Island was not connected to the Provincial grid. Don Robson recalled to us his early years as a student of the school at the south end of the island:

¹⁸² Ibid.

¹⁸³ Ibid.

¹⁸⁴ See <https://gulfislandsfoodco-op.org/>

"I can almost see where my desk is, or was. We had an oil barrel for heat in there in the winter. And one of the kids in grade eight would get the contract to split firewood and come early and light the fire. And that was a huge contract. I think you got \$15 a month or something. So once you got that you were rich!"¹⁸⁵

Carol Robson recalled the days prior to electrification:

"It was an adventure. Every day was an adventure. There was no electricity. There was no phones. There was really - you were roughing it 100%. But also, there were beaches. There were some neighbours. It was an adventure every single day."¹⁸⁶

Don explained to us:

"If you wanted electricity you had to get your own little generator."¹⁸⁷

He continued to tell us that the early days of electrification on part of the island came as a result of an oversized generator.

"We owned the lodge down here, and my dad bought this big generator to run the lodge. And it was kind of an overkill. And he used to let this thing run 24 hours a day, which was unheard of... So my dad, they put [up] a few power poles, went up the road, up to the Bambrick store. And he was selling them electricity with no meter, just take a guess out and pay us so much. Then they got the idea to develop this thing further."¹⁸⁸

Don explained:

¹⁸⁵ Robson, D., Robson, C., Krug, K., & Thompson, M. (2021, September 27). Don and Carol Robson Interview - One Island, One Earth project.

¹⁸⁶ Ibid.

¹⁸⁷ Ibid.

¹⁸⁸ Ibid.

"So the community formed this Galiano Light and Power Company... It was all co-op. So, you've got your house, 'you want to hook up?' ... You couldn't hook up unless you bought a share, but then you were a shareholder, and you got to go to all the meetings and it was power at cost. No profit made, just enough to have the guy who looked after the generators. My dad was the lineman volunteer, no pay. They would have a pole raising bee on a Sunday. So I remember them going up Whaler's Bay, they'd go up and they put maybe four or five poles in, string the line, all volunteer, guys climbing the poles, stringing the line, drilling the holes, setting the poles in. Then, following Sunday they'd go a little further down the road and down another road and gradually it got down Georgeson Bay road. And I think they ended up with like 120 customers."¹⁸⁹

These early efforts resulted in the first consistent source of electricity for Galiano Island residents. However, then - as today - power outages due to winter storms were a common occurrence. Carol Robson remarked to us:

"And then it became a nightmare, because once people got electricity, it's like heroin. 'I have to have it!' And the wind would blow and the power would go out, and our phone would start to ring. Ollie Garner and dad were the two guys that would end up going out in the middle of the night, and they always took a bottle of whiskey with them and got it fixed. But it got to the point that they were fed up with it. It was way too much work and not getting paid for it."¹⁹⁰

Eventually, the Galiano Light and Power Company was absorbed in the Provincial grid. Despite having access to (more) reliable electricity, many Interviewees and survey respondents indicated to us that they still make use of the oldest energy source available on Galiano Island - wood. Gary Moore told us:

"We also grow our own firewood. And that's pretty important... There's enough firewood as just deadfall and windfall to go around. But it's not true everywhere in Galiano and there's great, a lot of need."¹⁹¹

We have observed that many island residents are now installing energy-efficient heat pumps if they can afford it. George Harris told us:

¹⁸⁹ Robson, D., Robson, C., Krug, K., & Thompson, M. (2021, September 27). Don and Carol Robson Interview - One Island, One Earth project.

¹⁹⁰ Ibid.

¹⁹¹ Moore, G., Moore, B., & Thompson, M. (2022, February 7). Barbara and Gary Moore Interview - One Island, One Earth project.

"You know, putting in our heat pump was probably the greatest thing I've ever done. Yes, it's very good for the environment. But it's also very good for me, because I don't need to get firewood. And it uses, you know, much less energy and firewood or electricity or propane. And it's very comfortable, so the one thing that we should all do is put in a heat pump, it's kind of a no-brainer."¹⁹²

During the course of this project, we have been made aware of Federal,¹⁹³ Provincial,¹⁹⁴ and local programs¹⁹⁵ designed to assist island residents in making energy-efficiency improvements to their homes. There are clearly significant resources being devoted to making improvements in this area. The Galiano Island community has also increased local solar capacity significantly in recent years: according to the Salish Sea Renewable Energy Co-Op,¹⁹⁶ at the time of writing there are four community solar installations and at least 52 households with private solar installations on the island, producing over 490,000 kilowatt hours per year of electricity and saving an estimated 160 tCO₂e annually.¹⁹⁷



Our Takeaway is that the Galiano Island community has grown much more dependent on access to grid-based energy since the days of no electricity and oil drums for heating. With this dependence comes vulnerability to the impacts of climate change, winter storms, and changes to the grid. There are many pathways available to island residents to invest in electrification, improve energy efficiency, and increase local energy production. Organizations exist to support these efforts. Additionally, better forest management (see 'Forests' section) could ensure that adequate firewood supplies are available to all island residents in case of emergency.

Transportation 🚣

Access to a variety of integrated transportation options is essential for residents of island communities, and many Interviewees spoke on the topic. At the beginning of this report, Levi Wilson reminds us that, since time immemorial, canoe travel has been the primary transportation method throughout the Salish Sea:

¹⁹² Harris, G., & Bazdresch, A. (2022, February 6). George Harris Interview - One Island, One Earth project.

¹⁹³ See <https://www.nrcan.gc.ca/energy-efficiency/homes/canada-greener-homes-grant/23441>

¹⁹⁴ See <https://betterhomesbc.ca/>

¹⁹⁵ See <https://transitionsaltspring.com/climate-action-coach-program/>

¹⁹⁶ See <https://ssrec.org/>

¹⁹⁷ Mommsen, T. (Personal Communication, May 27 2022).

"What I've been told is that the main source, the main lifeblood for connection, the main thing for connecting us was the waterways, was the ocean, was the different straits... So the whole island was accessed through our canoes... Your canoe is your connection."¹⁹⁸

We have learned that Galiano Island was a key location for hwumluhw mustimuhw traveling between the islands and the mainland across the Strait of Georgia. Florence James told us that several bays known as Qw'xwulwis on the east side of the island were important gathering places to prepare for the journey across the water:

"Yes, where the canoes used to go. They lived there in the summer, so they could go back and forth and fish. It was the easiest access. And my dad said it depended on weather, the north wind or the south wind, and then they'd move over to the north end and go to Porlier Pass because the tides would push. In the summertime it pushes like 8-10 knots and you can get across to the Fraser River really quick. But you gotta have both access, Active Pass or Porlier Pass. So that's why they were there."¹⁹⁹

Today, however, other forms of transportation have largely supplanted the canoe. Levi told us that this shift has transformed the water into a barrier, instead of a connector:

"Growing up, the water was a barrier, right? And traditionally, that wasn't the way it should be, the water should be the connection, the water should be the thing that allows us to travel to the various sites."²⁰⁰



Even as boats with various other methods of propulsion became more common than canoes in the early 20th century, marine transportation remained more practical than traveling over land for residents of the Salish Sea. Emily Menzies told us that this heavily influenced settlement patterns on islands like Galiano Island:

¹⁹⁸ Wilson, L., Menzies, E., Huggins, A., & Thompson, M. (2021, July 21). Levi Wilson and Emily Menzies interview - One Island One Earth Project.

¹⁹⁹ James, F., Fournier, S., & Thompson, M. (2021, November 16). Florence James Interview - One Island, One Earth Project.

²⁰⁰ Ibid.

"There's a reason why there's a south end hall and the north end hall. There's a reason why there's a south end ambulance and fire station and a north end fire station, and that they're separate entities and organizations. There were separate schools... And that is because the island was not passable."²⁰¹

Don Robson told us that, even when a road was first constructed to connect the north and south Galiano communities, it was very rough:

"So we, we didn't even know who lived in the north end - that was half a day trip to get up there and back again. The north end road, the best part was like the worst part of the Bluff road, where you can't pass each other. If you did meet another car - which was seldom - then you had to figure out how you were going to pass each other without going over a cliff or getting stuck in a big mud hole!"²⁰²

Janice Wilson recalled one island pastime that took advantage of these poor road conditions:

"They used to have races to the north end and back on a dirt road. They would time themselves. I think the best was 15 minutes [to the] north end and back, on a dirt road. You didn't want to meet them on the corner!"²⁰³

Galiano Island today is largely a ferry-dependent community. We have learned that, in the 1950s, there were interruptions in the private sector ferry services that had been available previously. Don told us that during this time period:

"If you were going somewhere, everybody flew. There were planes coming in left, right and centre, Whaler's Bay and down here."²⁰⁴

Carol Robson explained that intermittent ferry service limited who could live on Galiano:

"We didn't have a lot of people not from here, because for a few years, we didn't even have a ferry. We were isolated."²⁰⁵

²⁰¹ Ibid.

²⁰² Robson, D., Robson, C., Krug, K., & Thompson, M. (2021, September 27). Don and Carol Robson Interview - One Island, One Earth project.

²⁰³ Wilson, J., Wilson, R., & Wilson, S. (2021). Janice Wilson Interview - Coast Salish Peoples of Galiano Society.

²⁰⁴ Robson, D., Robson, C., Krug, K., & Thompson, M. (2021, September 27). Don and Carol Robson Interview - One Island, One Earth project.

²⁰⁵ Ibid.

The creation of BC Ferries in 1960 ushered in an era of more reliable ferry service (and less flying), allowing more people to move to Galiano Island. At first, the island remained fairly quiet, Sheila Anderson told us:

"There were busy times like on Friday, it would be a busy day, but otherwise it'd be very low traffic. It was like a sleepy little place. It'd be hours and hours before you heard a car."²⁰⁶

Sheila explained that, over the years, Galiano Island has become much busier:

"I think that's the biggest first impact of the increase in population on the island to me, is how much traffic there is every day. And the noise from that, and the pollution from that, and that the little quiet side roads that we have are suddenly supporting much more traffic than they were built to do."²⁰⁷

Bob Wilson also spoke about the traffic:

"The biggest change that I've noticed? Traffic! [laughs] It's just, I feel this island has been overpopulated for 20 years now, I would say, to my liking. I mean, people love coming and moving to the island and developing it, and a lot of people see that as a good thing. Personally, I would have preferred to keep it the way it was 30 or 40 years ago, myself. It was just like a nice, peaceful, good place to live back then."²⁰⁸

Sheila Anderson observed that the increase in traffic is not necessarily just limited to the roads on the island:

"Now when I go, like in August, up to the Bluffs, the place looks trampled. You know, it never used to look like that... It just feels like there's too much traffic in some of those places."²⁰⁹

Our Ecological Footprint analysis shows that transportation is the biggest contribution to the Galiano Island community footprint. It also concludes that part-time residents and tourists effectively double the footprint of the island community, and that their transportation footprint is higher than full-time

²⁰⁶ Anderson, D., Anderson, S., & Huggins, A. (2022, March 10). Sheila and Don Anderson Interview - One Island, One Earth project.

²⁰⁷ Ibid.

²⁰⁸ Wilson, B., Wilson, R., & Wilson, S. (2021). Bob Wilson Interview - Coast Salish Peoples of Galiano Society.

²⁰⁹ Anderson, D., Anderson, S., & Huggins, A. (2022, March 10). Sheila and Don Anderson Interview - One Island, One Earth project.

residents. Sheila told us she feels that it's not just the increased traffic, but the character of the tourist traffic that is concerning:

"So they're sort of in party mode- weddings or whatever, you know. There's a lot of driving around with that. And then all the guests come and then it's just everybody's in a hurry and all excited because it's a party, you know, and that's fine. But on a small island like this, that makes an impact that affects many, many people."²¹⁰

While we've observed many residents and visitors to the island availing themselves of the various active transportation options available (including walking, biking, e-biking, and kayaking), most traffic on the island consists of personal vehicles, the majority of which are still fueled by gasoline. Barry New remarked:

"Galiano is pretty resilient. But we need gas."²¹¹

We have observed that electric vehicles and electric vehicle chargers are becoming more common on Galiano Island. In terms of active transportation, a majority of respondents to our Community Mail-Out Survey²¹² reported that they use active transport to get around at least occasionally, but a majority also reported that they feel unsafe biking or walking on island roads, especially during the summer tourist season. When respondents were asked where they think the Galiano Island community can make significant improvements, "Public Transport", "Bike Lanes", and "Electric Cars" were three of the top five responses. Sheila Anderson told us that active transport has long been a community goal:

"The disappointment there is that years ago, back in I guess it was '93, we were asked as a community to identify what route we wanted for a bicycle lane. And we did that through the usual local government process, and it's pretty obvious - the main roads. And we were led to believe that from that point on, if any land was subdivided that was bordering on these routes, that they would have to insert a bike lane on that property. Never happened."²¹³

The Capital Regional District has been in the process of creating a transportation integration plan for the Southern Gulf Islands during the course of this project, with the most recent survey results broadly supporting more integrated transportation options throughout the islands.²¹⁴ To date, bike lanes have yet

²¹⁰ Ibid.

²¹¹ New, B., & Bzdresch, A. (2022, March 4). Barry New Interview - One Island, One Earth project.

²¹² See Appendix D

²¹³ Anderson, D., Anderson, S., & Huggins, A. (2022, March 10). Sheila and Don Anderson Interview - One Island, One Earth project.

²¹⁴ See <https://getinvolved.crd.bc.ca/sgi-transportation>

to appear on the island, and public transportation initiatives appear to have had mixed success. We have observed, however, that organizations like the Galiano Trails Society,²¹⁵ the Galiano Parks and Recreation Commission (GIPRC),²¹⁶ the Galiano Club,²¹⁷ and the Galiano Conservancy Association have made significant efforts to connect the island via walking and hiking trails. Bowie Keefer told us:

"So we are getting rather close to a trail network connecting this island from end to end, all the way from Sturdies Bay to Coon Bay. And that's because we're making progress."²¹⁸



Our Takeaway is that the Galiano Island community has become highly dependent on fossil-fuel intensive personal vehicle, ferry, and air transportation to access the mainland and surrounding island communities. At the same time, alternative modes of transportation are slowly becoming more viable and being adopted by some island residents and visitors. We observe that significant efforts are being made to find ways to support decarbonization of transport, while increasing affordability, convenience, and recreational opportunities. We also note that, from our perspective, the Salish canoe remains a compelling model for active, decarbonized, versatile, and community-based transportation, and could be included in transportation integration planning.

Housing

During the course of this project, we've observed that housing (and the lack thereof) has been a key issue and a flashpoint for the Galiano Island community. Associated issues include the affordability of land, the price of construction, and concerns over water availability (see 'Freshwater' section) and traffic (see 'Transportation' section).

Several Interviewees addressed the topic directly. We note, before continuing, that this discussion of the price of land and the affordability of housing concerns the unceded territories of hwulmuhw mustimuhw, and that the history of settlement and privatization of land and housing is also the history of the violent displacement and dispossession of hwulmuhw mustimuhw by hwunitum.²¹⁹

Jane Wolverton recalled that when she first came to Galiano Island, land was affordable for many island residents:

²¹⁵ See <https://www.galianotrails.com/>

²¹⁶ See <https://www.crd.bc.ca/parks-recreation-culture/parks-trails/giprc/trails>

²¹⁷ See <https://galianoclub.org/>

²¹⁸ Keefer, B., & Thompson, M. (2022, January 17). Bowie Keefer Interview - One Island, One Earth Project.

²¹⁹ For a detailed look at how this occurred in the Salish Sea, see Arnett, C. (1999). *Terror of the Coast - Land Alienation and on Vancouver Island and the Gulf Islands 1849 -1863*. Talon Books, Burnaby, BC.

"At that time, people could come together and buy land. And I think a number of people did that, and that's enabled them to stay. So that option is really tough now, unless you've got some other place to borrow some money from."²²⁰

George Harris explained that, when he started operating the Hummingbird Pub, his staff could afford to buy land:

"So the pub, in 1983, I think they were making about \$5.50 an hour, and now they're making about \$15.50 an hour. So that has gone up three times. Well, the price of a lot has gone from \$25,000 to \$400,000. So there's no possibility."²²¹

The price of housing has increased alongside the price of land. George continued:

"When you drive up the price of land and you drive up the price of housing, then it changes who can live here... So, the tragedy is that we will not have the diverse community, from an economic point of view, that we had 40 years ago, where anybody could make it."²²²

George told us that this effectively prices out the people who are employed in lower-wage occupations on the island:

"My number one is we have to have housing for the people that work on this island, the people that can't afford \$900,000 for a house. So housing was a crisis - it is now moved three or four steps beyond crisis. It's a human rights issue."²²³

The existence of two affordable housing organizations on the island,²²⁴ the publication of numerous articles in the local Active Page newspaper, and the appearance of 'YIMBY' ("Yes In My Backyard") signs on Galiano Island during the course of this project suggest to us that there are many people who share this goal. Some interviewees also linked the lack of affordable housing to the growth of the short-term vacation rental market (i.e., AirBnBs) on Galiano Island. Carol Robson told us:

²²⁰ Wolverton, J., Krug, K., & Thompson, M. (2021, October 1). Jane Wolverton Interview - One Island, One Earth project.

²²¹ Harris, G., & Bazdresch, A. (2022, February 6). George Harris Interview - One Island, One Earth project.

²²² Ibid.

²²³ Ibid.

²²⁴ See <https://gali.ca/> and <https://gigarhs.org/>

"One thing I want to say is how destructive I believe AirBnBs are... To try and find a place to rent for people that don't want to own anything - impossible. And that's been a bit of a plague on everywhere - the whole planet, basically."²²⁵

The Interviewees who spoke on the topic felt that the tension between affordability, development, and the desire to preserve island ecosystems is a defining issue for the Southern Gulf Islands region as a whole, and Galiano Island in particular. Sheila Anderson told us:

"I feel these islands, all of them - and Galiano especially - can't just endlessly keep inviting more people to live here. There has to be kind of a limit, I understand that, at which point, you know, the ecological health of a place cannot adapt and work with it. Some people think, well, why can't all that forest there just be cut up into five acre lots and have houses out there? Well, because then there's no undeveloped open space for wildlife anymore. So you're going to lose that. And then we might as well just all move to Victoria."²²⁶

We have observed that the preservation of a forest land base on Galiano Island (see 'Forests' section) has imposed some restrictions on development. Nevertheless, development has continued. Bob Wilson recalled:

"If you drive up [to] the north end and back in 1975, it would look totally different than if you drove up there today and back. It would be almost like a different place, because of the changes - more houses are being built, the roads are adjusted and paved. They weren't even paved all the way to the north end back then! So there has been a lot of physical changes through the land."²²⁷

Bob explained that this development has unintended impacts on island residents:

"With the increase of housing and population, it's hard to hunt the way we used to on this island."²²⁸

Don Anderson noted that, while development has continued, it would be much more intensive if island residents hadn't organized to limit it:

²²⁵ Robson, D., Robson, C., Krug, K., & Thompson, M. (2021, September 27). Don and Carol Robson Interview - One Island, One Earth project.

²²⁶ Anderson, D., Anderson, S., & Huggins, A. (2022, March 10). Sheila and Don Anderson Interview - One Island, One Earth project.

²²⁷ Wilson, B., Wilson, R., & Wilson, S. (2021). Bob Wilson Interview - Coast Salish Peoples of Galiano Society.

²²⁸ Ibid.

"We came *that* close. It was unbelievable. That's why the Islands Trust was even started in the first place, because you had Pillage Point... and Tragic Lakes."²²⁹

We have observed that these references to the 'Village Point' community on Mayne Island and the 'Magic Lakes' community on Pender Island are broadly representative of the Galiano Island community's dim view of suburban-style residential developments. Interviewees spoke not only of the amount of development, but the kind of development. Florence James observed:

"The homes are elaborate compared to what the people used to build. You had just very ordinary, just a home."²³⁰

Sheila Anderson told us:

"When I was a trustee, many years ago, there was a lot of talk about how to encourage sustainable living in the islands. And the end result was they published... this great big glossy book with lots of pictures of how to build your house, so it blends with the environment. And where is that? Who's gonna do that? Nobody. So I do think that in the future, we need something to protect us from megahome building. I really do... Digging a huge giant crater and having these massive two-storey bed and basement is ridiculous."²³¹

Gary Moore observed that most, if not all, construction materials for homes are sourced from off of the island today:

"You can compare it to, if we had controlled the forest, been able to produce building materials, build our own houses with local materials - that would be sustainable. As it is, every house that gets built here comes in on a truck from - most of it comes from the United States, frankly. So there's no way... I think we've pretty much sold out the underpinnings of sustainability."²³²

²²⁹ Anderson, D., Anderson, S., & Huggins, A. (2022, March 10). Sheila and Don Anderson Interview - One Island, One Earth project.

²³⁰ James, F., Fournier, S., & Thompson, M. (2021, November 16). Florence James Interview - One Island, One Earth Project.

²³¹ Anderson, D., Anderson, S., & Huggins, A. (2022, March 10). Sheila and Don Anderson Interview - One Island, One Earth project.

²³² Moore, G., Moore, B., & Thompson, M. (2022, February 7). Barbara and Gary Moore Interview - One Island, One Earth project.

We have observed that the COVID-19 pandemic has exacerbated the issue of housing in nearly every respect, from demand to cost and availability of building materials. Jane Wolverton told us:

"I'm encouraged [that] up to a couple years ago, it seemed that we were getting a lot more families and, you know, younger folks. And so I was really happy to see [that] because our median age was just growing and growing. But then, with COVID... the real estate stuff has really changed. That's been the last couple years, and that just changes your community."²³³

Returning to the fundamental tension between development (and housing affordability) and preservation (of ecosystems, water, community dynamics, access to harvest areas) that defines this difficult community discussion, George Harris asked:

"How do you solve that? I don't know if there is any actual solution, because we don't want our forests to be turned into subdivisions. Is that fair? That is fair. It is not fair that we have all of this, and the rest of the world has so little, but you know, what my little contribution will hopefully be is at least getting some housing for people that need it."²³⁴



Our Takeaway is that the Galiano Island community has diverse and sometimes conflicting perspectives on how to strike the right balance between development, housing affordability, and the preservation of existing social and ecological values. We have observed broad agreement among island residents that the construction of large, resource-intensive houses for vacation use (by either part-time residents or tourists through short-term vacation rentals) is an increasingly common form of development that exacerbates this issue. Creative, island-tailored solutions to housing are available²³⁵ and will be required to increase availability of affordable housing while reducing the (literal and figurative) human footprint on island ecosystems, but even the best approaches may require some tradeoffs.

Consumables and Waste 🗑️

Living on a small island poses serious limitations on the disposal of any non-compostable wastes. The Ecological Footprint analysis views consumer goods and wastes as flip sides of the same coin. If the Salish canoe makes for an excellent local example of circular economy, the automobile may be its opposite: landbound, carbon-intensive, and made of materials that are not locally available and will not naturally

²³³ Wolverton, J., Krug, K., & Thompson, M. (2021, October 1). Jane Wolverton Interview - One Island, One Earth project.

²³⁴ Harris, G., & Bazdresch, A. (2022, February 6). George Harris Interview - One Island, One Earth project.

²³⁵ See, for example, <https://www.saltspringsolutions.com/housing>

decompose. The evidence of tens of thousands of years of hwulmuhw mustimuhw habitation on Galiano Island is subtle but readily apparent to those who know what to look for; on the other hand, the evidence of less than two hundred years of hwunitum occupation is immediately obvious to anyone who has eyes (or feet to trip over it).

No Interviewee discussed septic fields. One area where the Galiano community appears to excel is in composting food and yard wastes,²³⁶ but this topic also did not come up.

A few Interviewees spoke to us about non-biogenic waste. When he first came to the island, Don Anderson told us:

"Nothing went off Island."²³⁷

Nothing, Sheila Anderson added, unless you count the ocean:

"There were the people that threw it off the dock or took it out in their boat and sunk it. That was a common thing!"²³⁸

Sheila told us that, when she first came to the island, the community "dump" was located in a depression in what is now Bluffs Park:

"It wasn't steep. It was just a slight slope. And you'd heave it as far as you could. So there was that. And then the other thing people did here before that - which we discovered on one of the properties we lived on - was they all had their own pit. And that's where they put all their [wastes]."²³⁹

We have also observed the results of this early practice, personally. Later, the Galiano Club established a landfill on a district lot owned by MacMillan Bloedel at the south end of the island. Don told us:

"And that's where the recycling depot started, ironically."²⁴⁰

Sheila added:

²³⁶ See Nuckhady, B. (2021). *Key Findings (Descriptive Statistics): Understanding Household Food Consumption and Food Waste Management in Galiano Island*.

<https://galianoconservancy.ca/wp-content/uploads/2022/05/Galiano-Household-Consumption-Survey-results.pdf>

²³⁷ Anderson, D., Anderson, S., & Huggins, A. (2022, March 10). Sheila and Don Anderson Interview - One Island, One Earth project.

²³⁸ Ibid.

²³⁹ Ibid.

²⁴⁰ Ibid.

"Just to the side of the dump. So maybe, 'no, don't throw that over. We'll take that.'"²⁴¹

Eventually, Don told us, the landfill was shut down:

"The whole reason it stopped was because of the CRD, [who] finally said there's no more landfills on the Gulf Islands. That's it. They regulated it, so it had to come off the island."²⁴²

Since then, island residents have hauled their garbage to off-island landfills. In the aftermath of the landfill closure, the Galiano Island Recycling Resources Society (GIRR)²⁴³ was formed as a mobile operation. Eventually, Don explained, they were able to purchase a permanent location in 2002:

"So finally, we bought the property across from the hardware [store]... and we just went from there. And it was the best thing that could happen."²⁴⁴

We have observed that the GIRR facility is a beloved institution on Galiano, and has been very successful at diverting recyclable and reusable materials from the landfill. Galiano residents take pride in the recycling and reuse culture that has been fostered on the island as a result. Nevertheless, as our Ecological Footprint results demonstrate, the island community remains a long way from having a truly circular economy, largely due to reliance on imported goods that are made from or packaged in non-compostable and non-recyclable materials. Many Interviewees expressed frustration with this issue, which they view as largely an upstream problem. Karen Charlie told us:

"Some people don't care. They don't care about recycling, they don't care about what they buy is eventually seeping back into the ocean or going up into the air... Some companies are just mainly about making the almighty dollar, you know, they don't think about what they're really doing to the earth."²⁴⁵



Our Takeaway is that the Galiano Island community has been very successful in encouraging and supporting a culture of reuse and recycling. Unfortunately, due to past practices of dumping on the

²⁴¹ Ibid.

²⁴² Ibid.

²⁴³ See <https://galianorecycles.ca/about-us/about-girr/>

²⁴⁴ Anderson, D., Anderson, S., & Huggins, A. (2022, March 10). Sheila and Don Anderson Interview - One Island, One Earth project.

²⁴⁵ Charlie, K., Charlie, R., Huggins, A., & Thompson, M. (2021, November 5). Karen and Richard Charlie interview - One Island One Earth Project.

island, there is a significant “legacy” of non-recyclable waste distributed across island ecosystems. The requirement that non-recyclable waste be landfilled off-island appears to have a limiting effect on the amount of waste Galiano households produce; nevertheless, all residents buy, use, and rely on consumer goods and technologies that are not designed with a circular economy in mind. Efforts to produce sustainable products for local use and consumption could help reduce the generation of wastes and allow time for upstream (i.e., off-island) industries to make improvements to their material practices.

Economy and Connection 🤝

Small island communities are often considered to have high levels of ‘social capital’, which can be defined as “resilience through dense social networks, collective action, norms of reciprocity, [and] relations of trust.”²⁴⁶ We have learned that reciprocity is a defining feature of hwumluhw cultures of the Salish Sea. Karen Charlie told us:

“Everybody shared, we all shared with each other and that was a normal thing to do. So whenever we get anything, we're dragging our boat around through the reserve and give that elder some fish, that elder some fish, that elder some fish.”²⁴⁷

Many Interviewees told us that living on a small island has always necessitated a culture of mutual aid. Carol Robson recalled:

“There was always challenges: somebody's well is going dry, somebody's got a couple of deer they're ready to share. It was a community where everybody helped everybody. There was no doctor. There was a nurse... but that was it. So if you had a bad accident, everybody helped any way they could. Because things happen.”²⁴⁸

Janice Wilson said, of her childhood:

²⁴⁶ Petzold, J., & Ratter, B. M. W. (2015). Climate change adaptation under a social capital approach – an analytical framework for small islands. *Ocean & Coastal Management*, 112, 36–43.
<https://doi.org/10.1016/j.ocecoaman.2015.05.003>

²⁴⁷ Charlie, K., Charlie, R., Huggins, A., & Thompson, M. (2021, November 5). Karen and Richard Charlie interview - One Island One Earth Project.

²⁴⁸ Robson, D., Robson, C., Krug, K., & Thompson, M. (2021, September 27). Don and Carol Robson Interview - One Island, One Earth project.

"The island was much less populated at the time and [it] seemed like everybody knew everybody. You know, we did have the big family circle, but outside the family circle everybody kind of knew everybody. And it was a really nice place to grow up, Galiano Island."²⁴⁹

Sheila Anderson told us that fewer services were available on the island when it was less populated:

"In those days, the hall was big enough to cope with any major event, and almost everybody could go (who would go, anyway). And then the shopping and supplies - we used to have, like, Friday's was it. That was the day you could get fresh veggies. And you couldn't just wander down to the vegetable store all the time, because they'd set up in the hall, and this was the beginning of Daystar... And if you didn't go Friday, you didn't get anything, you know, otherwise you shopped at the Corner Store. And that was it. And when I first came here, there wasn't even a liquor store... The guy came who lived, I think he lived on Mayne, and he'd come over with his boat and do a booze run."²⁵⁰

Several Interviewees mentioned the importance of sports and associated activities in maintaining connections within and between island communities. John Georgeson recalled:

"Yeah. Fondest memories, holy christ! Sports was good here, the little bit we had, but it was great. Competitive, and that was a great inter-Island, that kept us all united in the other islands."²⁵¹

Many Interviewees said they missed this small community, where services were more limited and every family knew every other family. John continued:

"I think the community was a lot more community, I guess. You had the Rod and Gun, the north end and south end hall. See, just for instance, the New Year's dances and all the places were filled up. With a small population, that just says it, with the population it was more community back then."²⁵²

Janice Wilson shared:

²⁴⁹ Wilson, J., Wilson, R., & Wilson, S. (2021). Janice Wilson Interview - Coast Salish Peoples of Galiano Society.

²⁵⁰ Anderson, D., Anderson, S., & Huggins, A. (2022, March 10). Sheila and Don Anderson Interview - One Island, One Earth project.

²⁵¹ Head, C., Baines, L., Georgeson, J., Wilson, R., & Wilson, S. (2021). Charlie Head, Loyd Baines, and John Georgeson Interview - Coast Salish Peoples of Galiano Society.

²⁵² Ibid.

"I wish it was like it was before. Yeah, I wish Galiano wasn't so populated... I know it never will be, but that's my wish."²⁵³

Bob Wilson observed that a smaller community meant more open space to enjoy:

"Everything seems to be private and fenced off now. Where before it was all open, it seemed like you could go wherever you wanted and not be bothered."²⁵⁴

Many Interviewees emphasized that social polarization following extensive clear-cutting by forestry giant MacMillan Bloedel in the 1970s and 80s (see 'Forestry' section) had a significant negative impact on community cohesion and access to natural areas. Nevertheless, Interviewees who arrived during this time still expressed a strong connection to the community. George Harris told us:

"We moved here out of the blue really with no, we did no research or anything. Moved here in 1982 with a one and a half year-old and a two week year-old into a completely dilapidated cabin... It'll be 40 years in a couple of months. And I have been amazed how completely satisfied, and happy, and feeling like I won the lottery that I ended up here to raise my family."²⁵⁵

George shared that when his family first visited the island, they stayed with friend:

"Then they said, 'Okay, well, there's a talent show tonight. Would you like to come with us?' And we said, 'Okay, let's go to the show.' So we went to the talent show at the community hall, and I swear, it was the worst talent - there was *no* talent. None, not nothing. And everybody is having so much fun! And I'm like 'Okay, this is a place that I could definitely see moving to.'"²⁵⁶

George continued:

²⁵³ Wilson, J., Wilson, R., & Wilson, S. (2021). Janice Wilson Interview - Coast Salish Peoples of Galiano Society.

²⁵⁴ Wilson, B., Wilson, R., & Wilson, S. (2021). Bob Wilson Interview - Coast Salish Peoples of Galiano Society.

²⁵⁵ Harris, G., & Bazdresch, A. (2022, February 6). George Harris Interview - One Island, One Earth project.

²⁵⁶ Ibid.

"We had the coffee shop, Burrill Brothers, which was the melting pot for Galiano. And it allowed for all different political, philosophical, cultural, religious - it was a tiny corner of the local general store. And we'd go in there and you'd be like, on benches, and you'd just jam yourself in there. And that was one of the most magical places that I've ever hung out in. Lunch was grilled cheese and tomato soup. That was it, and you got both... You just said "lunch," you didn't have to kind of decide what to eat."²⁵⁷

Many Interviewees discussed their favourite community gather places and institutions, some of which are gone and some of which remain to this day. Jane Wolverton explained that the Galiano Community Loan Fund²⁵⁸ took its inspiration from a couple that decided:

"Rather than invest money in, you know, stocks and bonds and so on, they would invest in this community. So Jane [Rule] did start a bit of a fund. And she lent money to people who couldn't get loans from conventional sources. But she also worked with them to get their finances in order."²⁵⁹

Jane (Wolverton) told us that the Galiano Island community in general relies a lot on these kinds of proactive, volunteer-driven services:

"You know, most of what we do here runs on volunteers. So it's a great opportunity to meet people and also to keep this great place going."²⁶⁰

She continued to say that one benefit of a growing community has been an increase in cultural diversity:

When I was first here, you had sort of the hippies and then you had some of the longer-term residents, and not much diversity in anything. And I'd say we're not a very diverse community, even, you know, racially, now. But then it was even less so, I think. But I think culturally, there's been much more diversity, there are more things that people have got involved with and things that kind of have sprung up organically."²⁶¹

On the other hand, Jane said, she worries about the direction the economy has taken as the island population has grown:

²⁵⁷ Ibid.

²⁵⁸ See <https://galianofund.ca/index.html>

²⁵⁹ Wolverton, J., Krug, K., & Thompson, M. (2021, October 1). Jane Wolverton Interview - One Island, One Earth project.

²⁶⁰ Ibid.

²⁶¹ Ibid.

"Tourism is a concern that I have, and I've been a tourist in other parts of the world, I know the impact that tourism has, and it's not great. I hope we can slowly transition to some other kind of economy that's not so tourism dependent. I mean, we had the resources, you know, resource industries, the logging and fishing. And we've always had some tourism, but it's become a more dominant thing. And I think that, unfortunately, it doesn't always add a lot to the community - people coming and going, coming and going, and it taxes our water resources quite a lot."²⁶²

George Harris also told us that the loss of traditional industries on Galiano Island had negative impacts on the community:

"I'm very optimistic about the island itself. You know, there's far less environmental degradation going on now than there was 30 years ago, and there's far more awareness as well, so that's all good. But it's this, you know, not being able to afford to move here and live here. And, you know, the kids that grew up here, they can't stay here because they can't buy a house, they can't get a job, whereas before there was industries that supported that. They could go into fishing, they could go into logging, they could go into marijuana growing. So that was a big part of our economy in the 70s and 80s. That's gone."²⁶³

Some Interviewees told us that the loss of these industries was particularly difficult for hwumluhw mustimuhw, and that more needs to be done today to acknowledge hwulmuhw mustimuhw living on Galiano Island. Bob Wilson said:

"Today I want to see more Indigenous events, more gatherings, more acknowledgement. In the near future, I think that's going to happen because of the society that we've started. But today, there's not enough."²⁶⁴

During the course of this project, we've witnessed hwulmuhw mustimuhw living on Galiano Island launch organizations, events, and exhibits to engage and educate the Galiano Island community, including the Coast Salish Peoples of Galiano Society,²⁶⁵ the grand opening of the Galiano Museum,²⁶⁶ and The Water

²⁶² Ibid.

²⁶³ Harris, G., & Bazdresch, A. (2022, February 6). George Harris Interview - One Island, One Earth project.

²⁶⁴ Wilson, B., Wilson, R., & Wilson, S. (2021). Bob Wilson Interview - Coast Salish Peoples of Galiano Society.

²⁶⁵ See <http://www.saraughtanaogh.ca>

²⁶⁶ See <https://galianomuseum.ca/>

We Call Home exhibit.²⁶⁷ We've observed that these initiatives and events have been well-received by many hwunitum residents in the community. Carol Robson told us:

"I think that what's happening with the First Nations [has] really been a long time coming. We grew up with the kids from the north end. And when they closed the school, they were bused... We'd never seen each other before."²⁶⁸

She continued:

"It was the baseball that really brought us all together... and the dances at the hall."²⁶⁹

As a result, she told us:

"Then we all fell in love with each other. And that created a bit of worry for the parents on both sides. Nobody really got married because it was kind of taboo. But our parents knew that we were hanging out together and they opened a basement up in the lodge for us to have parties. And everybody was welcome."²⁷⁰

We have observed that, despite the tight-knit community relationships that bind the island community together, there are several critical fault-lines that are cause for significant division and disagreement, and some of these fault-lines feature in this report (see the 'Forestry' and 'Housing' sections). When we look around, however, we see many examples of community members bridging these gaps. Emily Menzies shared a story with us about the start of her relationship with Levi Wilson:

²⁶⁷ See <https://www.thewaterwecallhome.com/>

²⁶⁸ Robson, D., Robson, C., Krug, K., & Thompson, M. (2021, September 27). Don and Carol Robson Interview - One Island, One Earth project.

²⁶⁹ Ibid.

²⁷⁰ Ibid.

"When Levi and I got together and we showed up, our first public appearance was at the wine festival, and we were like locked in arm-and-arm. And, like, people's jaws literally *dropped*. Like, I've never seen that before or since in my life, you know, you hear about it or read in a cartoon, but like, I literally saw people's jaws drop. Because I had been here at least a year, and so people knew that I worked for the Conservancy. Levi had lived here... you know, he's a redneck, is how people thought of him, then. You know, at the time, a lot of the Indigenous families on the island were not publicly Indigenous. There was folks within the Conservancy, for example, that really liked the idea of First Nations people, but really did not like the actual Indigenous people on the island, because they associated them as being like loggers and fishers and wood cutters... So, we literally created some sort of cognitive dissonance for person after person as we walked together."²⁷¹

Emily told us she felt optimistic about community members overcoming their differences:

"There's so many opportunities to heal this political divide, this social cultural divide, and it's so nice that it has been progressing over the last 10 years, right? It's a different community than it was 10 years ago."²⁷²



Our Takeaway is that, over the years, the Galiano Island community has developed, grown, and become somewhat more racially and economically diverse. Many residents cherish the volunteerism, unique talents (or lack thereof), and close-knit relationships that undergird community activities and services - this 'social capital' is clearly a very important part of island life. At the same time, the island community has become much more dependent on tourism to sustain itself, and traditional industries - including fishing and forestry - have been (nearly) lost, with negative impacts on the local economy and on hwulmuhw mustimuhw. Affordability for younger and less affluent residents has become a major concern. These and other pressing issues create opportunities for the island community to overcome divisions, organize around solutions, and to foreground the efforts and voices of hwulmuhw mustimuhw in the community.

Footprint

One of the last questions we asked Interviewees to answer was whether they felt the Galiano Island community was living sustainably. Responses ranged quite widely, with a general consensus that many

²⁷¹ Wilson, L., Menzies, E., Huggins, A., & Thompson, M. (2021, July 21). Levi Wilson and Emily Menzies interview - One Island One Earth Project.

²⁷² Ibid.

Galiano residents are working very hard to live sustainably, but that the community as a whole is a long way from true sustainability. Barbara Moore told us:

"Some people are very frugal and aware and work to have a very small footprint. But it's all over the map, and others are quite heavy consumers. Probably one could say that the proportion of people who are living sustainable lifestyles is perhaps a little higher on Galiano than it may be in the city, but in so much as Galiano is a microcosm of the rest of the world, none of us is living a really sustainable lifestyle, or we wouldn't be in this pickle! [laughter]"

Gary Moore chimed in:

"I acknowledge that everyone is trying it. At the place they find themselves, everyone's doing something, wants to help do a little bit more. And that, I think, is being cultivated more than it was 35 years ago."²⁷³

Geoff Gaylor told us:

"I wouldn't say we live off the land. No, we can't, you can't do that here. But, you know, I think we [are] really fairly gentle to the environment, it's what I call sustainable."²⁷⁴

Bowie Keefer responded:

"Humanity has the power to actually manage this, become wise stewards of the planet. And we've thus far not been wise, but I'm optimistic that we are capable of smartening up. And this community, I think we're smartening up. We've got an ethic that we all share - almost all, I think we all share. It's quite a strong ethic of preserving and protecting. And we can get smarter in terms of actually mobilizing the effort to do really good stewardship."²⁷⁵

Several Interviewees felt that living on a small island meant that the Galiano residents need unique approaches to sustainability. Jane Wolverton told us:

²⁷³ Ibid.

²⁷⁴ Gaylor, G., & Bazdresch, A. (2022, January 31). Geoff Gaylor Interview - One Island, One Earth project.

²⁷⁵ Keefer, B., & Thompson, M. (2022, January 17). Bowie Keefer Interview - One Island, One Earth Project.

"As islands, we're kind of a contained environment. You know, it's not like we're on the mainland, and you've got the mountains, you've got snowpack, you've got other options. You know, we are IT. And what we do here... we need to be always thinking of that and thinking how we can repair."²⁷⁶

Emily Menzies told us:

"Maybe capitalism isn't always the answer for a small community? Maybe we need to look at more cooperative and overlapping food cultures and food systems in order for the ecological footprint metaphor and models to really work."²⁷⁷

Levi Wilson shared with us:

"So, as I've been told by several Elders from many different nations, we didn't just have the right to exist in certain places, it was our responsibility to make sure that those resources persisted, existed, and were maintained. We talked about that with how Montague is a manufacturing landscape, and how camas meadows are a manufactured ecosystem, and how all of this was developed so that future generations have more food, more access. It is your responsibility to leave the area that you're using in the best possible shape for whoever comes next."²⁷⁸

This message about intergenerational stewardship resonated with many Interviewees. Karen Charlie observed that:

"You know, everybody that lives in this world has a footprint, eh? They're leaving a footprint. Everywhere you walk you leave a footprint. But I always try to think of how I'm leaving this world for my grandchildren."²⁷⁹

She continued:

²⁷⁶ Wolverton, J., Krug, K., & Thompson, M. (2021, October 1). Jane Wolverton Interview - One Island, One Earth project.

²⁷⁷ Wilson, L., Menzies, E., Huggins, A., & Thompson, M. (2021, July 21). Levi Wilson and Emily Menzies interview - One Island One Earth Project.

²⁷⁸ Ibid.

²⁷⁹ Charlie, K., Charlie, R., Huggins, A., & Thompson, M. (2021, November 5). Karen and Richard Charlie interview - One Island One Earth Project.

"So try and leave the place as good as it was or even better than when you first arrived. We're just passers by in this world. Try and do good, be good, be nice, be kind, be humble. Because you're just one speck in this world."²⁸⁰



Our Takeaway from these closing thoughts, and from this first attempt to capture an **Ecological Fingerprint** for a small island community, is that we as people are much more than just the sum total of our impact on the environment. As individuals, we all have basic (and sometimes extravagant) demands that must be met by our community and environment, but as members of a larger community we also all have knowledge, skills, and resources to contribute. Our challenges are significant, but each challenge creates opportunities, and it's up to us to meet these challenges in creative, inclusive, decolonial, and effective ways. We hope this report makes a contribution to recognizing and addressing these challenges, as well as recognizing the good work that has been done, that is being done, and that we believe will be done.

Interviewees

What follows is a brief introduction to the people we interviewed for this report, in their own words. When Interviewees didn't mention something of note concerning their background, we add it in italics. We are grateful to the community members who spoke with us - huy ch q'u!

Barbara and Gary Moore:

"We're at our dining table where all our important events happen. [laughs] Gary and Barbara Moore - I'm Barbara. And we're here in our house that we built in Therah about 35 years ago... And so we've, yeah, we've been here a long time. And the north end of Galiano and Therah is 160 acres of collectively owned and managed land: a cooperative community, we'll call it an intentional community. So that's where we are, in our house."

Barry New

"My name is Barry New. My family has a long history on Galiano... My grandfather arrived in 1913, and raised a family here. And my dad grew up here. And then my dad went to the big city, Vancouver, married - wife, kids - and we, my brothers and myself, grew up in Richmond. And I lived there till my 20s and traveled, and my dad retired... And so we live, it's called Rip point on Active Pass on Gulf Drive. And so that was my grandparents' retirement home. And my dad moved in when he retired. And my brothers came with him. So two arrived in the 80s and I returned from my travels in 2008, and I've been living here

²⁸⁰ Ibid.

full time since 2008. And I never really wanted to live anywhere else. I had like 25 years, 30 years in England, and had a good time, good experiences. But I always wanted to come back here, there's nowhere better I found."

Bowie Keefer:

"I'm Bowie Keefer and I have been involved with Galiano for about half of my life. I'm now 78 years old... I had a research business, which I'm still in, working on environmental technologies such as water purification and such as renewable energy and CO2 capture, and presently looking at possible strategies for stabilizing polar ice sheets against sea level rise. Anyway, we, we lived in Vancouver and we'd come to Galiano with our kids and they'd go horseback riding at Bodega ridge. And, and we were thinking, wouldn't it be great to live on Galiano? And about 28 years ago, we were able to buy some land which happened to be forest land on Galiano. And we, from that point, I've been living part time and then full time on Galiano ever since."

Carol and Don Robson

"I'm Carol May Robson. I was born in 1943 at St. Paul's in Vancouver. And my parents moved here when I was two. So that would have been 1945. And my parents lived here my whole life, our whole life."

"I'm Don Robson. I was born at St. Paul's Hospital in Vancouver in 1918 [laughter] - no, 1939, and moved to Galiano to start grade 2, and here we are."

Charlie Head, John Georgeson, and Lloyd Baines

Charlie, John, and Lloyd are members of the Coast Salish Peoples of Galiano Society.

Emily Menzies and Levi Wilson

"My name is Emily Menzies. I met Levi here on Galiano through floor hockey, actually, but we quickly realized that we had a really, a common interest in changing the status quo of the understanding of folks on the island around just what makes this place so special, and that people have been here cultivating this place for 1000s and 1000s of years... Prior to that, I came from Vancouver, which is where I mostly grew up. And I was born up in the Yukon Territory. My ancestors on my father's side are Scottish, for the most part, and on my mother's side are Scandinavian, Norwegian, Irish. And it's, it's been a real privilege to kind of work with Levi as, like, life and educational partners to kind of do this work together, and for raising our daughter that is off screen, but in the background there."

"Levi Wilson. And I'm a member of the Gitga'at First Nations with strong family connections to the Lamalcha peoples of what's now known as Penelakut Island. I lived most of my life on Galiano, save for a

few years when I've now gone off and done my careers elsewhere, being a teacher. And for most of my time on Galiano, being a carpenter and learning to be an educator."

Florence James

"I was born in 1947. I can describe to you how it looked where I was. I was only two years old."

From her bio for the Watersheds Forum:²⁸¹ *Florence James is a Coast Salish elder and educator from Penelakut Island, B.C. She is a fluent speaker of the Coast Salish dialect, Hul'q'umi'num. She has lived her life in the Gulf Islands, on Galiano and Penelakut Island, in the traditional territory of Puneluxutth'. She is an educator and lifelong learner who draws on both her traditional gifts and teachings from the Ancestors and her university-based education. Florence is a highly respected Elder in her community, widely known for her cultural expertise, her knowledge of and dedication to the environment, and her commitment to the care and education of young children.*

Geoff Gaylor

"We are on Galiano Island at a beautiful piece of property that we own here, three families. My name is Geoffrey Gaylor and I came here in 1975... In the past I've been pretty active, being the President of the Chamber of Commerce at one point. I've been in almost every board on this island from the golf course to the Health Care Center, and very active politically. And I, my history was to, my family bought a very small building supply here and expanded into a major business on the island where it supplies both home goods plus thing, and I recently just sold it, so my present thing is I'm retired."

George Harris

"My name is George Harris... Moved here in 1982 with a one and a half year-old, and a two week year-old into a completely dilapidated cabin. And so that's, all, it'll be 40 years, in a couple of months. And I have been amazed how completely satisfied and happy and feeling like I won the lottery that I ended up here to raise my, my family. Yeah, I just, I just can't. I don't know how, I don't know how it ended up here, but I'm sure happy I did."

George is also a former Galiano Trustee. Among other things, he created the Hummingbird Pub and the Gulf Islands Film and Television School (GIFTS).

Jane Wolverton

"My name is Jane Wolverton. I've been connected with Galiano since 1979. I'm a full time resident now."

²⁸¹ See <https://watershedsforum.ca/speaker/elder-florence-james/>

Jane is, at the time of writing, a Galiano Trustee, as well as a Community Evaluator for this project.

Janice Wilson

"My name is Janice Wilson and I grew up on Galiano Island. I lived here for most of my life. I moved away about 20 years ago, but I do spend a lot of time here still because I feel it's my home... my parents are Mary and Pat Wilson. Mary's mother was Georgina Bertie Georgeson, whose mother was Ellen Georgeson... My father's mother was born on Galiano Island. Her name was Rose Cook and she, her parents owned the Cook farm halfway up the island.

Karen and Richard Charlie

"Hello, my name is [Sha'altenaat] - that's my Hul'qumi'num name. I am Coast Salish. My English name is Karen Charlie and I come from Penelakut. And I have a big connection here to Galiano. My husband's mom lived here at one point and this was also his home in his younger years, this is my husband."

"My name is [Thaythits]. That's my Indian name. My English name is Richard Charlie. I'm from Penelakut, but yes, I'm also from here, Galiano. My mom lived in Porlier Pass when she was a young teenager and I also lived here with my auntie down on Porlier Pass for a good many years as a young child. It's good to be back home."

Shar and Bob Wilson

"Bob Wilson - lived on Galiano all my life except for a few years that I've moved away and then came back again... My parent's names were Pat Wilson and Mary Wilson. My grandparents were Bertie Head, Tom Head, and my dad's parents were Rose Cook and Andy Wilson."

"My name is Wihl Buun, Shar Wilson, and I'm Gitxsan, but I've been married into the Galiano family for over 36 years now... quite a while. So, we've been on and off Galiano for a few years but just recently moved back."

Shar is the Manager of the Coast Salish Peoples of Galiano Society, as well as a Community Evaluator for this project and an artist. Her artwork is included in this report.

Sheila and Don Anderson:

"Sheila Anderson is my name and I have been on Galiano, I first came to Galiano in 1965... My parents knew Galiano because my mother had had an uncle who lived here in the First World War. So they came here and actually purchased a property - in those days, it was quite affordable - and built a cabin. And that was where we spent our summers until I left, you know, grew up and left home... And Don and I, as a couple moved here later."

"1979! Don Anderson, I followed Sheila around the islands. And then we finally ended up on Galiano after several tries, at different islands... I got a job on a ship so I could accumulate time off. And it allowed us to live here. And she was able to bring up three young girls without me for 24 days [laughs] or thereabouts. And I'd come home for 24 days and go away again for 24 days. So it was probably a pretty good deal. And I did that for 21 years."

Sheila is a former Galiano Trustee, and currently sits on the Board of the Galiano Conservancy Association.

Glossary

Key Terms

Biocapacity - Biocapacity represents the productive potential of an area's biologically productive land and water surface; in other words, the capacity for ecosystems to regenerate plant matter. Biocapacity is measured in global hectares (gha).

BCIT Centre for Ecocities - An arm of the British Columbia Institute of Technology with the mission "to help cities and communities close their sustainability gap."

Tonnes of Carbon Dioxide Equivalent (tCO₂e) - Carbon Dioxide Equivalence expresses the impact of each different greenhouse gas in terms of the amount of CO₂ that would create the same amount of warming when released into the atmosphere. This enables reporting total greenhouse gas emissions with one measurement.

Carbon Sequestration - A natural or artificial process by which carbon dioxide is removed from the atmosphere and held in solid or liquid form.

Carrying Capacity - The number of people, animals, or crops which a region can support without environmental degradation.

Climate Crisis - Refers to the planetary threat posed by continued anthropogenic emissions of greenhouse gases into the atmosphere; the term has come to replace 'climate change' and 'global warming' in discourses concerning global climate.

Consumption-based Emissions Inventory (CBEI) - A form of greenhouse gas emissions inventory that enables a region to quantify the emissions that are attributable to activities of individuals that reside within that region. CBEIs do not replace traditional 'territorial' inventories (see below), but rather they are complementary to them. CBEIs include the emissions that are generated during the production, shipping, use and disposal of all goods consumed in the region, regardless of where they are produced, as well as the impacts of residents and local businesses while they are travelling outside the community's borders.

ecoCity Footprint Tool - A tool developed by Dr. Jennie Moore, with the capacity to create multiple outputs for a community using "bottom-up" data sets: a territorial greenhouse gas emissions inventory, a consumption-based greenhouse gas emissions inventory, and an **ecological footprint**. See ecocityfootprint.org

Ecological Fingerprint - An evaluation of the particular attitude, self-image and intrinsic values a community adopts with respect to global resource use.

Ecological Footprint - An estimate of how much biologically productive land and water area an individual or population needs to produce all the resources it consumes and to absorb the waste it generates; in other words, the area that would be required to support a defined human population and material standard indefinitely. It is measured in global hectares (gha), where a global hectare is a biologically productive hectare with globally averaged productivity for that year.

Ecosystem Services - The direct and indirect contributions of ecosystems to human well-being. Ecosystems services including provisioning, regulating, supporting, and cultural values.

Embodied Energy - Energy used in creating and delivering a material (e.g., consumable good or infrastructure), including energy used for extraction of raw materials, manufacturing and transportation of the end product.

Embodied Emissions - Greenhouse gas emissions associated with creating and delivering a material (e.g., consumable goods or infrastructure), including those associated with energy used for extraction of raw materials, manufacturing and transportation of the end product.

Exclusive Economic Zone (EEZ) - The area of the sea in which a given nation state asserts special rights regarding the exploration and use of marine resources. In Canada, the EEZ extends 370 kilometers offshore.

Food Miles - The distance food travels from where it is grown or made to where it is purchased or consumed by the end user.

Global Hectares (gha) - A global hectare (gha) is a unit of biocapacity, representing the productivity of a bioproductive hectare on earth with average productivity. There are just over 12 billion biologically productive hectares on Earth. Global hectares are often expressed in terms of global hectares per capita (gha/ca).

Global Footprint Network - An international nonprofit organization founded in 2003 with a mission “to help end ecological overshoot by making ecological limits central to decision-making.”

Islands Trust - The Islands Trust is a special purpose government mandated to preserve and protect over 450 Islands in the Salish Sea. The Province of British Columbia created the Islands Trust in 1974 in response to the potential environmental effects of dense residential subdivisions that were in development in the Gulf Islands. The mandate of the Island Trust is “to preserve and protect the Trust Area and its unique amenities and environment for the benefit of the residents of the Trust Area and of British Columbia in cooperation with municipalities, regional districts, improvement districts, First Nations, other persons and organizations and the government of British Columbia.”

Net Primary Production - The difference between the energy fixed by autotrophs and their respiration; most commonly equated to increments in biomass per unit of land surface and time.

One Planet Living - A lifestyle that, if adopted by everyone, could be supported indefinitely by the regenerative capacity of Earth's ecosystems.

Operating Energy - The energy used in the function of a product, building, vehicle, etc.

Operating Emissions - The greenhouse gas emissions associated with operating energy.

Overshoot - Global overshoot occurs when humanity's demand on nature exceeds the biosphere's regenerative capacity or supply. Such overshoot leads to a depletion of Earth's life-supporting natural capital, including the buildup of waste such as ocean acidification from excessive CO₂ or climate change from greenhouse gas accumulation in the atmosphere.

Rockfish Conservation Areas - Areas designated by Fisheries and Oceans Canada where any fishing activities that impact on rockfish, lingcod, or their habitat (including activities resulting in bycatch of these species) are prohibited.

Senior Government Services - Services provided by Federal and Provincial governments to the citizenry; in Canada, this includes military, health care, administrative, and other high-level services that aren't accounted for at the local level.

Sustainability Gap - The difference between the estimated Ecological Footprint of a population and the Ecological Footprint that would achieve "One Planet Living" (see above).

Territorial Emissions Inventory - Also known as a Sectoral Inventory, a territorial inventory identifies direct greenhouse gas (GHG) emissions from all sources within a region. This is the standard type of GHG emissions inventory compiled by local, regional, provincial and federal governments.

A standardized approach to territorial inventories is prescribed by the GPC (Global Protocol for Community-Scale Greenhouse Gas Emissions Protocol).

Two-eyed seeing - According to Mi'kmaw Elder Albert Marshall: "to see from one eye with the strengths of Indigenous ways of knowing, and to see from the other eye with the strengths of Western ways of knowing, and to use both of these eyes together"

Acronyms

BCIT - British Columbia Institute of Technology

CBEI - Consumption-based Emissions Inventory

CRD - Capital Regional District

CSPGS - Coast Salish Peoples of Galiano Society

CO₂/Co₂e - Carbon dioxide/Carbon dioxide equivalent

EF - Ecological Footprint

eF Tool - ecoCity Footprint Tool

EEZ - Exclusive Economic Zone

GCA - Galiano Conservancy Association

GFN - Global Footprint Network

gha - Global Hectares

gha/ca - Global Hectares per Capita (person)

ghg - Greenhouse Gas

GIRR - Galiano Island Recycling Resources

GPC - Global Protocol for Community-Scale Greenhouse Gas Emissions Protocol

ICBC - Insurance Corporation of British Columbia

MSW - Municipal Solid Waste

NPP - Net Primary Production

RCA - RockFish Conservation Area

SSREC - Salish Sea Renewable Energy Co-op