The Freshwater Footprint

Frequently Asked Questions

July 2026

Purpose

This guide explains the Islands Trust Freshwater Footprint project and answers the questions the community has asked about it. It is written in plain language for residents, trustees, and anyone interested in island water.

Background

Freshwater is the foundation of island life. The Freshwater Footprint project considered how much freshwater the Gabriola Island community has, how much it uses, and where the water supply faces the greatest pressure. It is the product of years of science, strong partnerships, and the knowledge of the community itself.

The project is a keystone of the Islands Trust Freshwater Sustainability Strategy, adopted in 2021. A hydrogeology consulting firm, GW Solutions Inc., developed the methodology and applied it to Gabriola Island as the first case study, with the final report delivered in March 2026. The results are now part of the evidence base for the Gabriola Official Community Plan review.

How to use this document

The guide is organised into nine themes, from the project itself through to where to learn more. Each theme begins on its own page, and every question is numbered so it is easy to reference. The Contents page lists every question and a Table of Questions link at the top of each page brings you back to it.

Words in blue are links to other parts of this guide and to more information on the internet. Questions and comments are welcome by email to freshwater@islandstrust.bc.ca.

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What is this project?

1. What is the Freshwater Footprint?

The Freshwater Footprint is a science-based way to measure the sustainability of an island's freshwater. It considers three elements together: how much water is used compared to how much nature replaces each year, the quality of the water, and hazards that are particular to islands, such as the risk of saltwater intrusion into the aquifer. The results are combined into maps that show where the demands on water are greater and where they are less.

2. Why is it called a footprint?

The freshwater footprint measures the influence that human water use has on the island's freshwater system. Areas where the freshwater footprint is lighter have more capacity to support water use, and areas where it is heavier are already under stress. The name reflects the practice of measuring the human mark on a natural system.

3. Why did Islands Trust do this work?

Islands in the Trust Area depend almost entirely on limited groundwater, the water stored in cracks, fractures, and faults in the bedrock beneath our feet. Land use decisions, particularly the density of lots and the intensity of groundwater use that density brings, affect that water. The project is a keystone of the Islands Trust Freshwater Sustainability Strategy (FWSS), a ten-year strategy adopted in 2021. Its purpose is to give trustees, planners, and the community solid evidence for decisions about land and water.

4. Who did the work?

Islands Trust retained GW Solutions Inc., a hydrogeology and water resources consulting firm, through a procurement process that involved a request for proposals issued by the Province and evaluated by Islands Trust staff in September 2024. Islands Trust staff directed the project, and many others contributed: the Regional District of Nanaimo, provincial ministries, Island Health, independent experts, community water champions, and Gabriola residents who shared their local knowledge.

5. Why was Gabriola Island chosen for the first case study?

Gabriola is one of the best-studied islands in the region with respect to water resource management. It has more than ten years of groundwater monitoring records at several wells by the Regional District of Nanaimo's Drinking Water and Watershed Protection program, which has supported water testing and community engagement for decades. Starting where the data is strongest gave the new method its fairest test.

6. Is this the same as the OCP review?

The Freshwater Footprint project and the OCP review are connected but separate processes. The Freshwater Footprint is a science project. The Gabriola OCP review is a planning process that sets policy for the island. The results of the freshwater footprint are one important source of evidence for the OCP review. See What does it mean for planning? for how the two fit together.

7. What did the project produce?

The project produced four groups of deliverables. The first is the consultant report: the methodology, the Gabriola case study, and appendices covering hydrographs, geological cross-sections, and the community water survey. The second is a geospatial data package containing the mapped layers for groundwater recharge, water use, hazard, and water quality, with full spatial metadata. The third is the public engagement record: workshop materials, presentations, and answers to community questions, including this guide. The fourth is the planning products derived by staff, including the draft OCP maps.

8. Who paid for the project?

Islands Trust funded the project as part of implementing the Freshwater Sustainability Strategy. The work was delivered under a fixed contract awarded through the public procurement process, and it builds on data and monitoring that partner agencies, particularly the Regional District of Nanaimo and the Province, have invested in over many years.

9. What does planning-scale mean?

Planning scale means the scale at which patterns across the island are reliable: comparing areas, regions, and neighbourhoods rather than judging single properties. A planning-scale study answers questions such as where caution is warranted and where policy should look next. It does not answer whether a particular lot has water; that remains the job of a site-specific assessment by a qualified professional.

How was the work done?

10. What steps did the project follow?

The project began by assembling the existing science: past groundwater studies, well records, water quality tests, climate data, and land use information. The team then built an updated picture of the island's aquifers, calculated a water balance comparing water use to natural replenishment, mapped water quality patterns, and assessed island hazards such as saltwater intrusion and poor water quality. Finally, they combined these results into the Freshwater Footprint maps, including the Freshwater Hazard map.

11. How was the community involved?

Community input shaped the work throughout. Residents completed a water use survey. Two public workshops were held in spring 2025, one online on water monitoring and one in person on developing the freshwater footprint method. The team interviewed local water operators and community groups. On March 23, 2026, the Gabriola Island Local Trust Committee held a special public meeting where the consultant presented the results and answered questions.

12. What data did the project use?

The evidence base for this project is substantial. The water quality database alone drew on results from about 540 groundwater samples collected between 1985 and 2025. The team used registered well records from the province's GWELLS database, water licence records, long-term monitoring wells, climate records, census information, and parcel-by-parcel land use data.

13. What is the relevance of a survey?

The community water use survey conducted for this project reflects the views of the households that answered, not the whole island, and the report treats it that way. It was used to add local context, not to prove statistics. One thing to know when reading the survey charts: people could pick more than one answer to some questions, so the percentages can add up to more than 100. The full survey results are in Appendix E of the consultant report. Surveys are one social science tool among several, and residents with important knowledge are not always reached by them, which is why the project added workshops and interviews, and why structured resident interviews are part of the path for future work.

14. Is this work peer reviewed?

The project was reviewed the way scientific consulting for government is reviewed, through layered professional checks rather than an academic journal. The study proposal was prepared by a Licensed Science Officer who is a professional geoscientist with competency in hydrogeology and water resource management, and the project was carried out by professional geoscientists and engineers at GW Solutions, with internal review by the firm's senior professionals.

In British Columbia this work is regulated: professional geoscientists and engineers are registered with Engineers and Geoscientists BC, must follow professional practice standards and ethics, and take professional responsibility for their work under stamp and seal. Islands Trust's planning and professional staff reviewed the outcomes, and the method builds on earlier regional studies that received formal external professional review.

15. How are community questions being answered?

Questions have arrived through the survey, the workshops, the special meeting, letters, and email, and more arrive as the OCP review continues. Staff compile them and respond through documents like this guide, public meetings, and staff reports to the Local Trust Committee. Clear public questions are part of how the work improves. If yours is not answered here, send it to freshwater@islandstrust.bc.ca.

16. How long did the project take?

The project took about a year and a half from procurement to final report, building on decades of previous research and years of strategic projects. The request for proposals was issued in September 2024. Field engagement, data compilation, and modelling ran through 2025, with the workshop series in spring 2025 and a full draft report that September. Results went to Trust Council in February 2026, the Gabriola Island Local Trust Committee held its special public meeting in March 2026, and the final report was delivered that same month.

17. What earlier work does the project build on?

The freshwater footprint is a capstone, not a first step. Earlier Freshwater Sustainability Strategy projects built the aquifer conceptualisation for the Trust Area, updated the groundwater regions, and mapped groundwater recharge potential. Groundwater availability assessments in the Southern Gulf Islands came first and received formal external professional review, and the lessons from that review, especially about water demand assumptions and uncertainty, were carried into the Gabriola work. Each layer strengthened the next.

How does island water function?

18. Where does Gabriola's freshwater come from?

Meteoric water, which is rain, snow, and fog that land on the island terrane, is the entire supply. An island aquifer cannot borrow water from a neighbouring valley the way mainland aquifers sometimes can, because the island is surrounded by salt water, and the aquifers below the sea hold dense, saline groundwater. Freshwater transport from one island aquifer to another, even within the same geological unit, is rare and in most cases non-existent. Most of the replenishment happens in winter, when rain is abundant and plants use little water. Summer adds almost nothing, so the island lives off stored winter water during the dry months.

19. What is groundwater recharge?

Groundwater recharge is the share of rain that soaks down into the rock and refills the aquifer, instead of running off to the sea or evaporating off leaves and plants. On Gabriola, most of the island receives roughly 200 to 400 millimetres of groundwater recharge in an average year. Higher elevations of the island recharge the most; low coastal ground recharges the least.

20. What is a water balance?

A water balance is an accounting of water in and water out. Water arrives as precipitation; it leaves through evaporation, plant use, runoff to the sea, groundwater discharge, and pumping from wells. The project built this accounting on a fine grid across the whole island, so the balance can be examined for any area, which is what makes the aquifer stress calculations possible.

21. What is the freshwater lens?

The freshwater lens is the body of fresh groundwater beneath an island that floats on top of denser, saline groundwater, thickest under the middle of the island and thinnest at the coast. The depth to that saltwater interface was mapped across Gabriola as part of the study. Where the lens is thin, wells have less freshwater to draw on and the hazard of saltwater intrusion is higher. The shape of the lens follows topography and groundwater recharge: high ground with strong groundwater recharge builds a thicker lens, while low coastal ground carries a thin one. The lens is not static; it responds to seasons, sea level, and pumping, which is why deep wells close to the shoreline carry a higher risk of drawing up saline water.

22. What is aquifer stress?

Aquifer stress compares how much groundwater people use each year against how much nature puts back. The project used five categories: low (less than 5 percent of groundwater recharge is used), moderate (5 to 10 percent), high (10 to 20 percent), extreme (20 to 40 percent), and very extreme (more than 40 percent). The thresholds are deliberately cautious, because a healthy share of groundwater recharge must stay in the ground to feed creeks, wetlands, and the coastline.

23. Why does the risk of saltwater intrusion deserve attention and adaptation?

Saltwater intrusion can take a water supply away permanently. Under every island sits a lens of fresh groundwater floating on top of heavier saline water. If wells near the coast pump too hard, or sea level rises, salt water can be drawn upward or inland into the freshwater. When that happens it is the aquifer that turns saline, not just the well; a contaminated well cannot simply be flushed and restored, because the water body feeding it has changed. The study found saltwater intrusion is the most significant hazard for Gabriola's aquifers, and that the risk can reach up to about 500 metres inland in low-lying areas.

24. How is the risk of saltwater intrusion detected?

Increases in chloride and total dissolved solids are early warning signs of saltwater intrusion into aquifers. Chloride is the salt signal: rising chloride in a well suggests sea water is mixing in. Total dissolved solids, or TDS, measures all the minerals in the water. High TDS often means the water is coming from deep, old fractures in the rock, where natural contaminants such as fluoride, arsenic, or manganese are more common. Watching these two indicators tells us a lot about the health of the aquifer.

25. What are groundwater regions?

Groundwater regions are the planning units the method uses: areas of the island grouped by how their groundwater behaves. Each region works like a water budget zone, the unit where water supply and water demand are compared. Gabriola was first divided into eleven groundwater regions in the late 1970s under provincial water allocation planning, defined on watershed boundaries and groundwater conditions, and the Freshwater Sustainability Strategy updated this framework with modern science. Fractured bedrock can vary a lot from one lot to the next, so the method assesses conditions across these broader regions rather than pretending to predict a single well.

26. Is Gabriola one connected aquifer?

In an important sense, yes: Gabriola is one connected unit basin of groundwater, linked through a broad, island-wide fracture network, and the study treats it that way. The bedrock beneath Gabriola is one connected geological system, and the project built a single conceptual model of the whole island before any dividing lines were drawn. Groundwater regions do not contradict that connection; they are practical planning units within it. Water conditions genuinely differ from one part of the island to another, in groundwater recharge, in depth to salt water, and in demand.

It helps to know that the word aquifer means a water-saturated mapped geological unit capable of providing sufficient groundwater to support ecological, agricultural, industrial, and domestic needs, and islands differ in how theirs are mapped. Some islands have distinct sand and gravel aquifers, such as the Quadra sands on Denman and Hornby. Salt Spring has several geologically distinct regions that are mapped as separate aquifers. Islands like Gabriola and Galiano, whose shape follows the lateral trend of the Nanaimo Group bedrock, are mapped as a single aquifer.

Connected does not mean uniform. In fractured sedimentary bedrock, groundwater moves through networks of cracks, fractures, and faults rather than through evenly porous material. Where fractures are open and connected, water moves readily; where they pinch out, it barely moves at all. Two wells a few hundred metres apart can behave very differently, and conditions can change with depth in the same well. The island-wide pressure system is connected, but the connection is slow and uneven, which is why a single mapped aquifer can hold real, lasting differences in groundwater recharge, storage, and water quality from one part of the island to another.

It helps to picture the travel path of a single molecule of water. In fractured bedrock, groundwater moves only a few metres per year, so the water drawn from a well today entered the ground long ago and comes from long-term storage. Groundwater levels in wells are therefore best understood as measurements of hydraulic pressure in the fracture system rather than as a direct gauge of stored volume. When well levels decline, the pressure in the system is declining, which may not mean the volume of groundwater is falling. Conditions at the surface, particularly forests and water bodies at higher elevations with saturated soils, contribute to the pressures that support operational water levels in wells.

Groundwater regions capture exactly those differences. The Province divided the islands into water management regions as far back as the 1970s water allocation plans; Galiano, one mapped aquifer, carries more than a dozen, and Gabriola carries eleven. The Freshwater Sustainability Strategy updated this regional framework with modern science through the aquifer conceptualisation work, which treats each island as a whole geological system while refining the regions within it. The freshwater footprint method inherits both: the whole-island conceptual model came first, and the regions serve as the water budget zones where supply and demand are compared. One aquifer and many regions are not competing ideas; they are the same system described at two scales, and sound planning needs both.

The geology beneath the island explains why the connection behaves the way it does. Gabriola is built of the Nanaimo Group, a layered sequence of sandstones and mudstones deposited roughly 70 to 90 million years ago and gently tilted by later west coast mountain building. The sandstone layers are hard and hold little water within the rock itself; nearly all of the groundwater lives in the cracks, fractures, and faults that break the layers in the shale sections of the geology. Fractures near the surface tend to be open and connected, and they tighten with depth as the weight of the overlying rock closes them. Most wells on the island draw their water from a small number of productive fracture zones rather than from the whole thickness of rock.

Depth changes the water as well as the plumbing. Shallow groundwater is young, recently recharged, and generally fresh. Deeper fractures carry older water that has been in contact with the rock for a long time, dissolving minerals as it sits, which is why deeper wells often show higher total dissolved solids and naturally occurring fluoride, manganese, or arsenic. Drilling deeper is therefore not a guaranteed remedy for a struggling well; it can trade a quantity problem for a quality problem. The water quality indicators in the freshwater footprint were designed to read exactly this signal.

A connected system means that wells share their behaviour with their neighbours. Pumping one well lowers the pressure in the fractures around it, and in a dense neighbourhood many wells drawing on the same fracture network can interfere with one another, particularly in late summer when the system is at its lowest. No single well causes the pattern, and no single well can fix it; the meaningful unit is the cumulative demand of an area compared to the groundwater recharge that area receives. That is the calculation the freshwater footprint performs for each groundwater region, and it is why planning decisions about density are made for areas rather than for individual wells.

In summary, Gabriola is one connected groundwater basin that behaves differently from place to place. The island's freshwater is stored in a fracture network that fills with winter rain, moves slowly, and responds to pumping as a shared pressure system supported by the forests and wetlands above it.

What did we learn?

27. How much water does Gabriola use?

The study estimates total demand of up to about 740,000 cubic metres per year, which is about 740 million litres, or an island-wide average of roughly two million litres per day, roughly 300 Olympic swimming pools. This figure is estimated water use: how much water is drawn, estimated from land use, occupancy, and regional metering patterns. Licensed water volumes are recorded separately and describe entitlements rather than actual use. Demand peaks in summer because of higher occupancy, outdoor watering, and visitors.

28. How much stress is Gabriola's water supply under?

The stress on Gabriola's water supply varies, and place matters. Most of the island falls in the low to moderate aquifer stress categories. Some densely developed areas with small lots, including the Sands in the north, the village core, and the Descanso Bay area, are in the high to very extreme categories. The finding is that water stress differs sharply from place to place, and planning should respect those differences.

29. What did the study find about water quality?

Overall, groundwater quality on Gabriola is good. Most samples meet water quality guidelines, and the patterns in the data tell a hydrogeological story: a small share of samples had naturally occurring fluoride, arsenic, or manganese from the rock itself, and chloride and TDS levels helped map where sea water or deep mineralised water is mixing into the fresh groundwater. Bacteria results are a reminder to look after wells: total coliform bacteria appeared in up to 60 percent of samples, and E. coli in about a third, usually reflecting well construction and maintenance rather than the aquifer itself. Regular testing and a sound surface seal are the best protection.

The study did more than take a snapshot; it established background concentrations for key indicators, including chloride, total dissolved solids, and nitrate, so that future samples can be compared against a known baseline. Nitrate, the classic marker of septic and agricultural influence, was below drinking water guidelines in every sample, which is encouraging news for a rural island. A baseline of this kind turns routine well tests into monitoring: any result that stands out from the background can be investigated early, before a local concern becomes a regional one.

30. Are groundwater levels falling?

The long-term monitoring records do not show a general island-wide decline. Six monitoring sites on Gabriola have ten or more years of records; most show stable trends, and one shows a moderate decline. Groundwater levels in wells reflect the hydraulic pressure of the fracture system rather than a simple volume of stored water, and wells usually recharge to full levels over winter.

In summer, pumping lowers the pressure in the system at the same time as dry conditions reduce the support from forest watershed ecosystems and saturated upland soils, so seasonal declines are expected. A persistent long-term decline indicates a declining pressure system, and in some cases an overall loss of stored volume, called groundwater mining, can contribute to lower well levels. An information gap is that monitoring is thin near the community centres and in areas of high well density, which is why one of the study's first recommendations is more monitoring in exactly those places.

The monitoring record itself is worth knowing. Four of the six long-term sites are provincial observation wells, and two are volunteer wells monitored through the Regional District of Nanaimo; the full hydrographs are published in the report appendices for anyone to examine. A healthy record shows a seasonal saw-tooth pattern: levels fall through the dry months and recover with the winter rains. The question that matters is whether each winter brings levels back to where they were, and for most of the monitored sites on Gabriola, it does. Every new monitoring well added in the years ahead will make the answer to this question stronger.

31. How do estimates, assumptions, and data gaps affect the results?

Estimates, assumptions, and data gaps set the scale at which the results should be used. Like every regional water study, this one uses estimates and stand-ins where direct measurements do not exist: water demand is estimated from land use and occupancy, and lot size and population density stand in for cumulative pressure. These approaches are appropriate and defensible at the planning scale, comparing areas of the island, but not for judging a single property.

The report names its data gaps plainly, as professional practice requires: metered water use, surface water monitoring, and monitoring wells in some developed areas. The conclusions are drawn where the data supports them, and the gaps themselves became recommendations, a to-do list for making the next assessment even stronger.

The method is built so that uncertainty leans in the protective direction. The aquifer stress thresholds are set cautiously, the results are reported as classes rather than precise numbers, and a class boundary does not shift with every small change in the data.

32. What did the study find about ecosystems?

Ecosystems are built into the method rather than added on. The aquifer stress thresholds are deliberately cautious so that a healthy share of groundwater recharge stays in the ground to feed creeks, wetlands, and the coastline. The study mapped areas where groundwater and surface water are likely connected, so future monitoring can protect those links. It formally recognises aquifers, wetlands, springs, creeks, and forested recharge areas as natural infrastructure, assets the community depends on.

The groundwater recharge methodology draws on Precipitation Interception Potential, a methodology developed in-house at Islands Trust by the Senior Freshwater Specialist working with a co-op student. It maps how forest canopy intercepts precipitation before it reaches the ground, refining the groundwater recharge assessment and strengthening the scientific case for retaining forest cover in groundwater recharge areas.

Streams and wetlands received their own attention. Many of Gabriola's creeks are ephemeral, flowing only in the wet season, and no continuous streamflow records exist for the island. The study therefore mapped where groundwater and surface water are most likely connected, so that future monitoring can be placed where it will tell us the most. Groundwater discharge in these connected areas supports baseflow and keeps water temperatures stable, which is life support for wetland and stream ecosystems through the dry months.

33. Did the study consider climate change?

The study considered climate change directly. The water balance uses long-term climate records, and the analysis recognises the seasonal imbalance that climate change is expected to sharpen: wetter winters, drier summers, and more demand in the dry season. Sea level rise and storm surge add to the saltwater intrusion hazard at the coast.

In March 2019, the Islands Trust Council declared a climate emergency in the Trust Area, directing staff to include a central focus on equitable climate change mitigation, adaptation, and resilience in strategic planning. The Freshwater Sustainability Strategy and the Freshwater Footprint carry that direction into water, where island communities feel a changing climate first: in longer, drier summers, in the timing of winter rains, and in rising seas pressing on the freshwater lens. Climate adaptation means monitoring climate, streamflow, and groundwater so trends are measured rather than assumed. It means protecting the natural infrastructure that buffers the island through dry years: forest cover that feeds groundwater recharge, and wetlands that hold water on the land. It means managing summer demand.

What does it mean for planning?

34. What is the Freshwater Hazard Map?

The Freshwater Hazard Map is the principal spatial product of the project. The map combines aquifer stress, saltwater intrusion hazard, lot and population density, and water quality indicators into one picture, classed from low to high hazard. Central and southern Gabriola generally show a lower freshwater footprint; Descanso Bay and the community centres show a higher one, and the Sands area shows the highest, driven by saltwater intrusion risk.

Reading the map well means remembering what the classes are. The low, moderate, and high classes are relative comparisons across the island, not absolute verdicts on any property. A higher class is a flag that says look closer here: it may reflect saltwater intrusion hazard near a coastline, aquifer stress in a densely developed area, or water quality indicators, and knowing which driver applies in an area tells the reader far more than the colour alone. The map is a place to begin asking good questions, not a place where the questions end.

35. How is the Freshwater Footprint being used in the OCP review?

The OCP review draws on the freshwater footprint results when weighing land use designations, density, and water-related policies. The hazard mapping helps answer a basic planning question: are the plans for growth in line with what the island's water can support? Areas of higher hazard may call for more caution or stronger requirements; areas of lower hazard may present fewer constraints.

36. What do the buffering and filtering on the Freshwater Hazard Area map mean?

Buffering and filtering are the steps that turned the raw science map into a practical planning map. The raw science map is a fine grid of coloured cells, technically called a raster map. That is excellent for analysis, but awkward for planning, which works parcel by parcel. Staff converted the science map into the Freshwater Hazard Area, the parcel-based planning layer proposed for the draft OCP, in careful steps. The hazard grid was converted to smooth map shapes. A 30-metre buffer was added around the hazard areas to account for mapping uncertainty and for adjacent hazard conditions. A parcel was included in the Freshwater Hazard Area when more than 10 percent of it fell inside the buffered hazard area. Finally, filters removed parcels where the mapping does not apply, such as parks, protected areas, and other non-residential lands.

37. Does the map tell me whether my property has water?

The map does not tell you whether your property has water, and that is the most important limitation to understand. The freshwater footprint is a planning-scale study: it shows patterns across the island, not conditions on a single lot. It does not confirm water availability, well performance, or development feasibility for any specific property. Where a development proposal needs that certainty, a site-specific assessment by a qualified professional is still required.

38. Will the map change what I can do with my land?

The map by itself will not change what you can do with your land. Maps do not make rules; the Local Trust Committee does, through the OCP and Land Use Bylaw process, which includes public input. The freshwater footprint provides evidence-based information and data to planners and trustees to help make decisions. Any policy that flows from it, such as area-specific requirements to demonstrate water availability, would be decided through that public process.

39. What is proof of water?

Proof of water means showing that a reliable, safe water supply exists before land is subdivided or rezoned. The study suggests such requirements could be calibrated, stronger in areas of higher hazard and lighter in areas of lower hazard, using groundwater regions as the unit rather than one blanket rule for the whole island.

The Province publishes guidance on well testing and water supply assessment. Land Use Bylaws and Development Approval Information bylaws of the Islands Trust direct when proof of water analysis is required, and in complex cases Islands Trust staff establish a Terms of Reference to guide the assessment.

40. What is the Critical Aquifer Recharge Area map?

The Critical Aquifer Recharge Area map identifies the parts of the island that matter most for groundwater recharge and aquifer replenishment. Other areas provide essential groundwater recharge too, but these areas have the greatest influence on water resources and watershed ecosystems. As a proposed map for the draft OCP, it shows where land use change may have greater implications for infiltration, groundwater recharge, and long-term groundwater sustainability.

41. What is a development permit area?

A development permit area, or DPA, is a planning tool under provincial law that lets a local government set guidelines for how development proceeds in defined areas, for example to protect the natural environment or manage hazards. Galiano Island has a groundwater protection DPA informed by groundwater recharge mapping. Whether and how Gabriola uses DPAs for freshwater is a policy decision for the Local Trust Committee through the OCP process.

42. Will the maps be updated over time?

The maps will be kept current as the science improves. The derivation of the planning layers is recorded step by step, so they can be regenerated when new monitoring data arrives, when the parcel fabric changes, or when the underlying consultant data is updated. The OCP process provides the venue for adopting updated maps when that becomes appropriate.

How is our water governed?

43. Who is responsible for water on the islands?

Several governments share responsibility for freshwater in the Islands Trust Area. The Province owns and licenses groundwater under the Water Sustainability Act and keeps the well registry. Island Health regulates drinking water systems that serve the public. Regional districts run monitoring and stewardship programs, such as the Regional District of Nanaimo's Drinking Water and Watershed Protection program. Islands Trust is the land use planner: it decides what gets built where, which shapes water demand. Well owners are responsible for maintaining and testing their own wells.

44. Do I need a licence for my well?

If the well serves a single home for drinking, cooking, washing, and garden use, that is domestic use, and no licence is required in BC. Any other use is non-domestic: commercial operations, irrigation for farming, and water systems serving multiple homes all require a water licence under the Water Sustainability Act, which has been in force since February 29, 2016. Licence applications are administered by the Province; the GWELLS registry records wells, and the BC Water Calculator helps estimate water demand for licence applications. The study observed that a significant share of non-domestic users in the area appear not to hold licences yet, and recommends better awareness and uptake.

45. Did the project check whether individual operators hold licences?

The project did not review the licence status of individual operators. Reviewing individual properties, operators, or licence files was outside the project's scope. The project estimated island-wide demand using each well's recorded use type, so larger water users are counted in the totals. Concerns about a specific operation are a regulatory matter for the Province, and the Local Trust Committee can direct staff to seek information through a resolution.

46. How is hauled water tracked?

Some households and businesses buy hauled water to top up their supply, especially in dry months. Water sold in bulk from Gabriola sources is metered, but water hauled over from Nanaimo is not specifically tracked. Changes in delivery patterns over time are an early signal of seasonal water stress in particular neighbourhoods, which is why the study recommends collecting this information.

What can I do to protect our water?

47. What can well owners do to protect their water?

Well owners can protect their water through four habits. Test the water regularly, including after heavy rains. Keep the well in good repair; a sound surface seal and secure cap keep surface contamination out. Watch and record the water level and any changes in taste or clarity; long records from private wells are valuable science.

48. How often should well water be tested?

Well water should be tested on a regular schedule. Test for bacteria at least once a year and after events that could affect the well, such as flooding or work on the wellhead. Test the broader chemistry, including chloride and TDS, the saltwater intrusion indicators, every two to three years, and more often near the coast or after a change in taste. Testing goes through accredited laboratories, and results can be compared against the Guidelines for Canadian Drinking Water Quality.

49. How can households reduce water use when it matters most?

Household reductions matter most in summer, when the aquifers receive almost no groundwater recharge. The levers are familiar and effective: fix leaks promptly, choose efficient fixtures, water gardens from storage rather than the well, let lawns brown in summer, and shift heavy uses like laundry away from peak weeks.

50. Can rainwater harvesting help?

Rainwater harvesting can help as a supplement. Collecting winter rain into storage for summer gardens, livestock, and fire protection reduces the draw on wells at the driest time of year. For drinking water, treatment and Island Health requirements apply, and harvested rainwater is an engineered storage response rather than new supply; the rain that falls on the island is still the whole budget.

51. How can residents contribute to the science?

Residents can contribute to the science in practical ways by noting when a well changes character, and reporting observations to freshwater@islandstrust.bc.ca. The Regional District of Nanaimo's WaterSmart and Drinking Water and Watershed Protection programs offer conservation resources and volunteer monitoring opportunities.

What happens next?

52. What happens next with the project?

The consultant's work is complete and the final report was delivered in March 2026. The results now live on in two ways. First, the Gabriola OCP review continues to draw on the freshwater footprint evidence as draft policies are refined through the public process. Second, the report's recommendations give staff and partner agencies a work plan for the coming years: more monitoring near community centres, support for water system operators, tracking of bulk water, better data sharing between agencies, and stronger licensing uptake.

53. Will other islands get a Freshwater Footprint?

The method was strategically designed for the whole Islands Trust Area, and Gabriola was the case study. Applying it elsewhere depends on data availability and direction from trustees. The Gabriola case study showed that even data-rich islands have gaps to fill, so building monitoring and data partnerships is part of the path for every island.

54. How will progress be tracked over time?

Progress will be tracked through monitoring and adaptive management. The report recommends expanding groundwater monitoring near community centres and high-demand areas, supporting water systems to monitor and share data, tracking bulk water deliveries, and re-establishing climate and streamflow stations. The Freshwater Sustainability Strategy that the project belongs to carries an annual review, so what is learned each year feeds back into the work.

55. When will the OCP review conclude?

The draft OCP is in active public review, with edits reflecting trustee and community feedback presented at Local Trust Committee meetings through 2026. From there the process follows the statutory steps for adopting a community plan: further readings, referrals, and a public hearing before adoption. The timing of each step is set by the Local Trust Committee, and the review page carries the current schedule. Community members can follow each milestone there, and formal public notice is given ahead of a public hearing.

Where can I learn more?

56. What is the Islands Trust Freshwater Sustainability Strategy?

The Freshwater Sustainability Strategy (FWSS) is the ten-year strategy, adopted in 2021, that organises Islands Trust's freshwater work from 2022 to 2032. It is built around science programs for groundwater and watershed sustainability, cultural knowledge and engagement, and freshwater reporting, with collaboration across agencies throughout. The Freshwater Footprint is one of its keystone projects.

57. What is the Islands Trust Freshwater Atlas?

The Freshwater Atlas is the spatial home of the freshwater science: the maps and data layers produced by the FWSS science programs, organised so staff and decision-makers can find and use them. Deliverables from the Freshwater Footprint project, including the Gabriola geospatial data, take their place within it.

58. Where can I read the full report?

The complete consultant report, covering the methodology, the Gabriola case study, and the appendices, is posted on the Islands Trust website: Islands Trust Freshwater Footprint report. The staff reports and meeting records of the Gabriola Local Trust Committee are on the Gabriola OCP review page.

59. How do I find records about my well?

The Province's GWELLS well registry holds well construction records, depths, and reported yields, searchable by address or map. The Regional District of Nanaimo's Depth2Water site shows monitoring well data for the region.

60. Where can I watch the project presentations?

The March 23, 2026 special business meeting, including the staff presentations, the consultant presentation, and the moderated question and answer session, was recorded, and the recording and presentation files are posted to the meeting event page. The full agenda package is available through the Gabriola OCP review page.

61. How can I stay involved?

Community members can stay involved throughout the review. Follow the Gabriola OCP review page for meetings and engagement opportunities, attend Local Trust Committee meetings, and write to freshwater@islandstrust.bc.ca with questions or local knowledge; resident observations are part of the science.

62. Where can I see the maps?

The maps can be viewed in three places. The draft OCP maps, including the Freshwater Hazard Area and the Critical Aquifer Recharge Area, are part of the draft OCP on the Gabriola OCP review page. The science maps and figures are in the consultant report and its appendices. The underlying geospatial data layers were delivered with full spatial metadata for use in mapping systems.

63. Who do I contact about the OCP review itself?

Freshwater questions go to freshwater@islandstrust.bc.ca. Questions about the OCP review as a whole, covering process, timelines, and policies beyond water, go to the planning team through the Gabriola OCP review page or northinfo@islandstrust.bc.ca. Both routes reach staff who will answer or pass the question to the right person.

Key references, collected in one place:

- Islands Trust Freshwater Footprint report (GW Solutions, methodology and Gabriola case study)
- Islands Trust Freshwater Sustainability programs
- Gabriola Official Community Plan review
- Provincial well registry (GWELLS)
- Regional District of Nanaimo well monitoring (Depth2Water)
- Island Health drinking water programs
- Guidelines for Canadian Drinking Water Quality (Health Canada)

Questions that are not answered here may be sent to freshwater@islandstrust.bc.ca. This guide is a living document and will be updated as the OCP review proceeds.

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