Denman Island Local Trust Committee
Regular Meeting Addendum

Date: April 9, 2024
Time: 10:00 am
Location: Denman Activity Centre
1111 Northwest Rd, Denman Island, BC

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Islands Trust

MEMORANDUM

DATE OF MEETING:	April 9, 2024
TO:	Denman Island Local Trust Committee
FROM:	William Shulba, Senior Freshwater Specialist
	Planning Services
COPY:	Denman Island Planner, Marlis McCargar
SUBJECT:	Groundwater

PURPOSE

At their February 13, 2024 regular business meeting, the Denman Island Local Trust Committee passed the following resolution:

DE-2024-019 that the Denman Island Local Trust Committee request an update from staff regarding the status of the Freshwater Sustainability Strategy with regards to the Denman Island Local Trust Area.

The purpose of the memorandum,

- To provide an update on the status of current freshwater projects focused on the Denman LTA,
- To provide information about previous projects of Freshwater Sustainability Strategy in the Denman LTA, and
- To provide information on potential future projects of the Freshwater Sustainability Strategy in the Denman LTA.

BACKGROUND

In December 2020, the Islands Trust received a grant of $245,000 of provincial funding through the Healthy Watersheds Initiative (HWI) to develop a Freshwater Sustainability Strategy (FWSS) and for related projects. The development of the FWSS ($125,000) involved Indigenous Knowledge Holders and representatives of several government agencies including the Province, water purveyors, consultants, community organizations, Islands Trust Staff and Trustees as part of an advisory committee that contributed to the development of goals, objectives and actions.

In December 2021, the Islands Trust Council received the Islands Trust Freshwater Sustainability Strategy. This document sets out a vison and actions to address freshwater supply challenges, support climate action, and protect water resources over the longer term. The strategy also identifies how Islands Trust will work with key partners in other government agencies, First Nations, community groups, and island residents. The implementation of the strategy is required to maintain the momentum of the ongoing work sponsored by the Islands Trust Council and lead by the Regional Planning Committee. There are opportunities for Local Trust Committees to endorse LTA specific projects that leverages and supports the implementation of the strategy.

The FWSS document is on the Islands Trust website:
https://islandstrust.bc.ca/document/freshwater-sustainability-strategy/

The purpose of the freshwater sustainability strategy is to support research, advocate for water literacy, and provide open public access to knowledge about freshwater and that freshwater sustainability is a key lens through which Islands Trust land use decisions are made.

The Islands Trust Freshwater Sustainability Strategy was developed with the overarching goals:

- Protect ecosystems and the health of watersheds and groundwater,
- Collaborate with First Nations and Indigenous organizations to create understanding of cultural and spiritual values of water and how they interrelate to ecosystems and community well-being in decision making,
- Preserve or enhance quantity and quality of drinking water sources for current and future Trust Area residents, and
- Enable British Columbians to enjoy the islands' water for recreation, aesthetic, and spiritual purposes.

ANALYSIS

Historical Groundwater Resource Projects

Freshwater focused work has been occurring on Denman and Hornby islands since the 1970s. A 1979 report from the Province of British Columbia Ministry of Environment Water Investigations Branch *Preliminary Review of Groundwater Conditions and Availability, Denman Island, British Columbia* provided general information on groundwater resources including geology, groundwater occurrence, recharge, and recommendations.

The 1994 *Water Allocation Plan for Denman and Hornby Islands* was produced by Ministry of Environment, Lands, and Parks with the goal to sustain healthy water resources by identifying water demands and ensuring that water use is compatible with the goals of a sustainably environment. The policy for the water allocation plans were to subdivide the region into watershed areas and a water allocation plan shall be prepared for each watershed area. Water licence decisions were made in accordance with approved plans. The plan provided general watershed information, watershed hydrology data, instream flow requirements, water demand data, and recommendations. Water allocation plans for Denman Island have not been updated since and in discussions with provincial staff due to the changes in land-use, water demand, and climate the water allocation plans are considered but less relied on in recent water authorizations.

In 2001 a Master's of Science thesis by Deanne Katnick from Simon Fraser University called *Sedimentology, Stratigraphy, and Provenance of the Upper Cretaceous Nanaimo Group, Denman and Hornby islands, British Columbia* *that* described the geology of the aquifers of the islands.

In 2014 an Geological Survey of Canada report *The hydrogeological characteristics of the Upper Cretaceous De Courcy Formation (Nanaimo Group), from a subsurface core, groundwater observation well, Cedar, British Columbia* was undertaken to determine rock type and mechanics of the geology of Denman with respect to groundwater properties.

Islands Trust Freshwater Sustainability Strategy Projects

In 2018 the Islands Trust undertook a preliminary aquifer conceptualization project with a limited budget and scope to test emerging methods to utilize existing research and groundwater wells database to create three-dimensional models of Denman and Hornby Islands. This project informed further groundwater work and in 2021 the models were updated in the *Islands Trust Area Aquifer Conceptualization* project.

In 2021 the *Islands Trust Area Groundwater Recharge Potential Mapping* project assessed the spatial variability of groundwater recharge potential across Denman Island. The steps to achieve the Groundwater Recharge Potential Mapping across the Study Islands are as following:

1. Review the previous hydrogeology, hydrology, and geology studies;
2. Compile existing datasets that are required to assess the spatial variability of groundwater recharge;
3. Identify data gaps required to improve understanding of aquifers and groundwater recharge;
4. Provide open access to input and output results for incorporation into Islands Trust Freshwater Atlas;
5. Provide information on the contribution to groundwater recharge by any land parcel or area; and
6. Uphold the Islands Trust mandate to preserve and protect groundwater resources for sustainable water use through improved understanding of the spatial variability of groundwater recharge.

Concurrently with the above projects in 2021, Provincial hydrogeology staff who were external members of those projects contributed funds to undertake a project updating aquifer mapping and considering the likelihood of hydraulic connection between surface watercourses and groundwater. These project reports are unpublished but the data will be available in the Islands Trust Freshwater Atlas.

NEXT STEPS

Currently there are no planned Freshwater Sustainability Strategy projects specifically for Denman Island. In fiscal year 2024/25 the Islands Trust Area Water Balance project will commence with Gabriola Island as the case study island and that project is endorsed by the Gabriola Local Trust Committee. That project will address data gaps and analysis need in the Trust Area to help determine next steps to advance the methodology on other islands.

Submitted By:	William Shulba, P.Geo, Senior Freshwater Specialist	March 26, 2024
Concurrence:	Renée Jamurat, RPP, MCIP, Regional Planning Manager	March 26, 2024