

J. W. Webber
ARDA Supervisor
Community Water Supply Div.

J. C. Poweraker, Head
Groundwater Section
Hydrology Division

Water Rights Branch

August 4

76

Groundwater Resources of Saltspring Island

0239013

In reply to your recent request for information on the above subject we have prepared the following preliminary notes. Please note our comments are brief due to the limited time given for this preparation. We are currently undertaking a more detailed assessment of our groundwater data on Saltspring Island, however this analysis will not be completed for some time.

In the northern region of Saltspring Island, running East-West through Cusheon and Maxwell Lakes there are groundwater problems with both water quality and quantity. Unfortunately, the most populated areas are also in the northern region.

Water Quality

Of the total of more than 600 wells and springs on our Groundwater Section files for Saltspring Island, approximately seventy-five percent are drilled wells in the northern region of the Island. In three areas, in the northern region salt-water encroachment has occurred. These are Scott Point, Southey Point and Erskine Point (see map). To add to the water quality problem, there are two areas in the northern region where the groundwater is not potable. Faults and fractures may act as conduits, carrying non potable brines from deep seated bedrock locations to the surface in an area to the north-east of St. Mary's Lake. These salt springs are responsible for the island's name. There is also a smaller area of brine groundwaters just north of Ganges. Waters in these areas contain total dissolved solids (TDS) of over 20,000 parts per million (ppm).

In the northern region, outside of the previously mentioned areas our analysis of wells show the water quality is good. The Groundwater according to our analysis has normal TDS ranging from 100-800 ppm for the remainder of the Island. At present the Groundwater Section has on file approximately 120 complete chemical analysis which have been collected from nearly all parts of the island. These show no problems with water quality in the southern half of the island.

QPK 4/8/76

Water Quantity

Of the 385 records which report well yields, over half have flows of two gallons per minute (gpm) or less. Many wells have yields of less than one gpm. The majority of the higher yielding are located at the southern end of the island. In fact the two wells with the highest yields are near Musgrave Landing and Weston Lake. The well yields are reported to be as high as forty and fifty gpm respectively. This variation in well yields may in part be due to a difference in bedrock geology and structure. The northern area is basically sandstones and shales whereas the southern half is principally granodiorite (see maps attached).

In the northern region a large percentage of the population is serviced by Improvement Districts or Water Utilities. The majority are drawing water from the lakes. According to our information on file only the smaller utilities are utilizing the groundwater resources. These are Scott Point Waterworks, Erskine Heights Utility, Cedarlane Utility, Bastedo Utility and Romac Enterprises Utility (see attached list).

Two of the above Water Districts have water quality problems. Both Erskine Heights and Scott Point Waterworks have over pumped the limited groundwater reserves in their area and induced saltwater encroachment. Romac Enterprises Utility are experiencing water shortage problems. Erskine Heights Utility have been forced to abandon their well because of deteriorating water quality and are presently drawing water from Maxwell Lake. Scott Point Waterworks is presently searching for an alternative supply. They have drilled several wells on the peninsula in an attempt to replace or augment their existing supply.

Attached are copies of the following maps:

1. Aerial Mosaics of Saltspring Island
2. Lithology (Geology) of Saltspring Island
3. Structure (Geology) of Saltspring Island
4. Population Distribution Maps of Saltspring Island
5. Watershed Maps of Saltspring Island

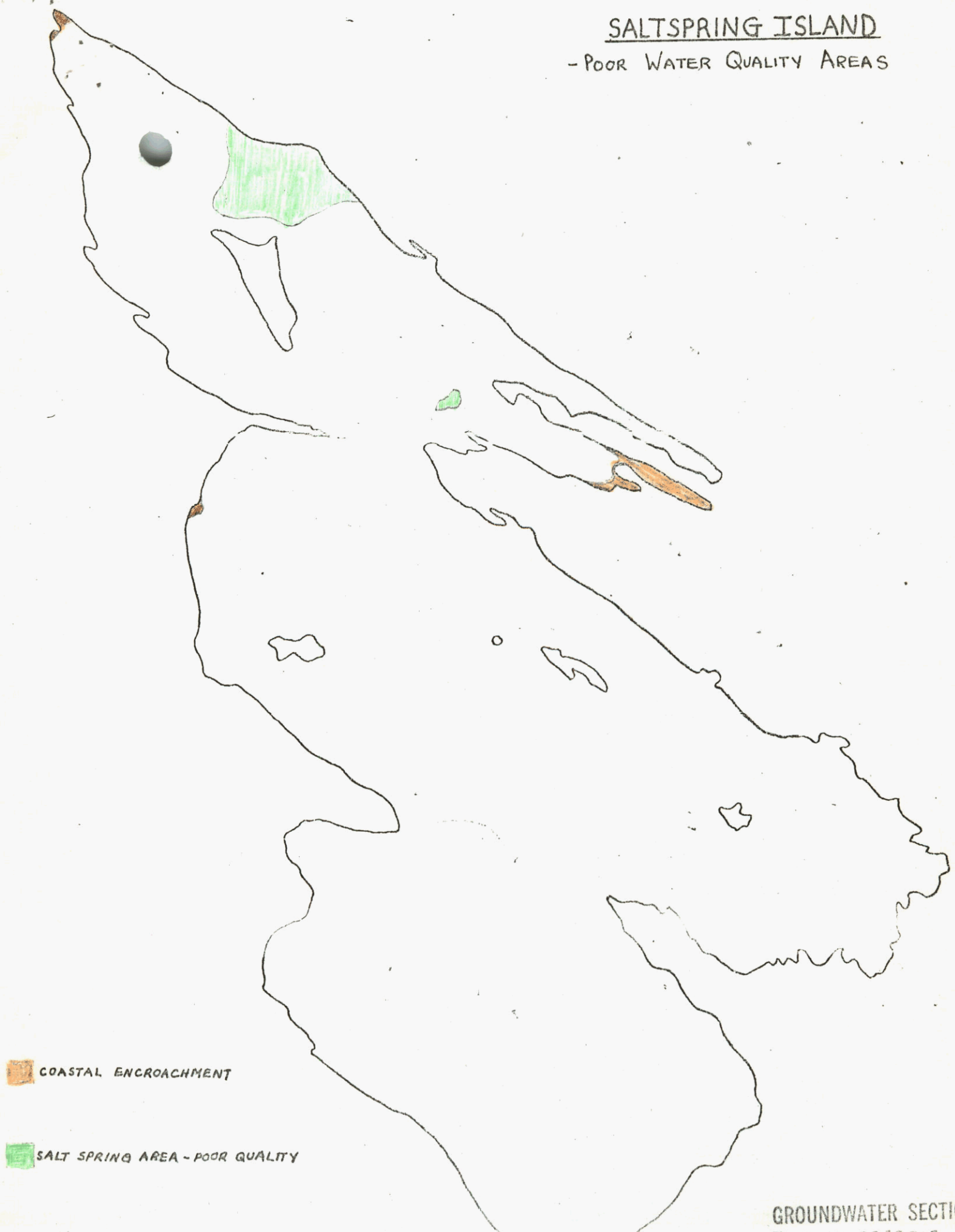

J. C. Poweraker

Communities on Saltspring Island using Groundwater

| <u>Name of Authority</u> | <u>Approximate No. of Users</u> | <u>Comments</u> |
|---------------------------|---------------------------------|---|
| Bastedo Utility | 5 | One Well supplying water, yield not known, in process of changing name and transferring ownership. |
| Cedarlane Utility | 16 | Three Wells supplying water, 1 & 2 - combined capacity 6.8 gpm, 3 - 10 gpm, no problems at present. |
| Erskine Heights Utility | 6 | Present well source not potable drawing water from Maxwell Lake. |
| Romac Enterprises Utility | 14 | Two Wells supplying water, 1 - 4.5 gpm, 2 - 13 gpm, well yields greatly diminished in summer, water shortage. |
| Scott Point Waterworks | 39 | Present well source not potable, have drilled several new wells to replace old supply. |

SALTSPRING ISLAND

- POOR WATER QUALITY AREAS



 COASTAL ENCROACHMENT

 SALT SPRING AREA - POOR QUALITY