

IAH network on “Coastal aquifer dynamics and coastal zone management” QUESTIONNAIRE

IAH national committees, IAH members and non members from all around the world involved in SWI and SGD research and management are kindly asked to fill in the questionnaire in this page with as many details as possible.

A world database will be set up and made available, with basic coastal aquifer main characteristics.

We expect to gather standard and comparable information on the knowledge level and hopefully the state of the art of the research on SWI and SGD, and coastal aquifer management methods adopted around the world

1)	Location of aquifer (country, more specific location):	Coastal British Columbia, Canada
2)	Reported by:	Diana M. Allen
3)	Type of medium (karst, porous, fracture)	Fracture and porous
4)	Type of aquifer (phreatic or confined)	Phreatic in general; however, fractures lead to confined behaviour
5)	Main lithology - (e.g. gravel, sand and clay)	Interbedded sandstone-dominant and mudstone-dominant formations; isolated areas of crystalline rock
6)	Hydrochemistry: fresh or saline	Fresh and saline in isolated areas along the coast; some salt springs
7)	Saltwater intrusion: lateral from sea or lakes - upconing	Lateral from ocean, often along discrete fractures, possible upconing
8)	Aquifer geometry: hydraulic characteristics	Transmissivity values range from 10^{-4} to 10^{-5} m ² /s
9)	Aquifer parameters: storage - annual water pumping - (in MCMA - millions cubic meters, annually)	Mean annual precipitation ranges from 800-1000 mm; recharge uncertain; storage uncertain due to fractured rock; low pumping except in local areas
10)	Depth of aquifer (water level and bottom) - water level 5-30 m - aquifer depth - 50-200 m	Fractured rock aquifer - depth of active flow zone estimated at 200 m; Water table near surface; total aquifer depth on islands (~200 m)
11)	Major chemistry (anions - ?; Cations - ?):	Calcium-bicarbonate or sodium-bicarbonate or sodium-chloride
12)	Major salinity sources:	Seawater and dissolution of carbonate minerals
13)	Population:	Total population among 13 islands is 23000. In general groundwater is used for domestic water supply, and agricultural purposes.
14)	Aquifer status: special features - e.g. thermal springs, major faults,...	Groundwater flow is fracture dominated via joints, bedding planes, fracture zones, and faults; some natural thermal springs
15)	Investigation methods - e.g. water level measurements, EC (electrical conductivity profiles), TDEM (geophysical),	Fracture mapping, water levels, water chemistry, isotopes, hydraulic testing; geophysics (borehole, EM, resistivity, flow meter)
16)	Numerical hydrological modeling, chemical and isotopic methods, age determination, IR survey, seepage meters (for Submarine Groundwater Discharge, SGD)	Groundwater flow and transport modeling; recharge modeling; chemical and isotopic methods; aquifer property assessment; discrete fracture modeling; risk assessment; chemical indicators
17)	Monitoring methods applied and duration - water level measurements, EC (electrical conductivity profiles - seasonal)	Provincial monitoring wells (levels measured hourly at present, monthly historically; chemistry sampling every 5 years); baseline chemistry and isotopic sampling on several islands; time series analysis of water chemistry in domestic wells; water level time series analysis; provincial water chemistry following incidents leading to salinization
18)	Management methods:	Water supply system wells are managed; local water stewardship
19)	Aquifer management actions:	Limited aquifer scale management; single wells are managed
20)	Identification of existing or potential problems:	During the summer months, when recharge rates are at their lowest and when population increases due to summer residents and tourists, quality (increased salinity) and quantity (dry wells) are impacted; higher risk of salinity where well density is high;
21)	Annexes:	
22)	Observations:	