

Provincial Observation Well Network Review British Columbia

Volume I of II

prepared for

Water Stewardship Division
BC Ministry of Environment

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EXECUTIVE SUMMARY

This draft report summarizes the results of a review of the *Provincial Observation Well Network*. The main purpose of the review was to develop a method or strategy to recommend where observation wells need be located in the province to help protect, manage and sustain the ground water resources of British Columbia.

The project involved the development and application of two suites of weighted criteria that were applied to 923 classified aquifers in the province and to 574 BCGS areas (1 : 20 000 map scale) having 10 or more water wells. The top-rated aquifers and BCGS areas in each MOE region were compared for commonality and resulted in the identification of a small number of key areas in each region containing high priority aquifers.

The majority (74%) of the existing 144 observation wells in the network meet the Ministry objectives for monitoring and are strategically placed in most of the priority aquifers and key areas. The major portion of the existing network is focused in the core groundwater use areas of the province. Monitoring ground water conditions in these developed areas should be the prime purpose of the network.

While the remaining 26% of the network (37 wells) do not cover high priority aquifers in the key areas, they are nevertheless still important and should be retained. Most of these have long periods of monitoring record in excess of 20 years of record, 7 of the sites are currently used as a key wells reporting on ground water conditions for forecasting water supply outlook at the River Forecast Centre (RFC) website, 11 of the sites are situated in aquifers that have not yet been classified and mapped, and several of the sites are higher elevation sites that may be suitable for climate response monitoring. Ten of the sites were recently established and have less than 5 years of record being available.

A small number of sites (2 in the Skeena /Omenica/ Peace) should be considered for replacement. Eight (8) sites are recommended for the installation of pressure transducers to improve continuity of recording and 4 sites in the Kootenay/Okanagan Region need to be considered for deactivation, closure or returned to land owners. During the period 2003 to 2008, the Ministry deactivated, closed or returned to land owners 42 observation wells.

It is recommended that expansion of the network be targeted to a relatively small number (e.g. 6) key areas in each Ministry region where it is anticipated that observation well data will be needed to support local water services planning and water management decision making. During the next 10 to 15 years, an

additional 50 to 75 new observation wells may be required following the rate of well establishment that was achieved by the Ministry from 2003 to 2008 when 29 new wells were established. Expansion of the network needs to be integrated with other planned ground water activities for example; water management planning, ambient ground water quality monitoring, priorities for well record processing, future ground water licensing plans and research. Partnerships with local governments, other provincial and federal agencies, and water districts would assist in enhancing ground water monitoring in the key areas. The prime components of this monitoring approach involve; key areas, priority aquifers, communities dependent on ground water for drinking water supplies and other major users of ground water (e.g. agriculture and industry).

The quality, continuity and availability of water level and water quality information from the observation well network can be enhanced with water quality sampling protocols, timely interpretation of data and technological improvements including additional telemetry stations and more reliable instrumentation such as pressure transducers.

The current network of wells due to their proximity to pumping wells and stressed aquifers is not entirely suitable to monitor the effects of climate change. Further research, planning and consultation are therefore needed to design a climate response network for ground water. Similarly, networks designed to monitor the potential effects of other emerging issues such as: coal bed methane development, Pine Beetle infestation and deforestation, and drilling of geo-exchange wells would need further research, discussion and planning,

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ACRONYMS

AWQM	Ambient Water Quality Monitoring
AGQMA	Ambient Groundwater Quality Monitoring and Assessment
BCACS	British Columbia Aquifer Classification System
BCGS	British Columbia Geographic System
CBM	Coal bed methane
DWIMP	Drinking Water Information Management Project
EC	Environment Canada
EPD	Environmental Protection Division
EMS	Environmental Monitoring System
GAOB	Groundwater Assessment of the Okanagan Basin
GIS	Geographic Information Systems
GSC	Geological Survey of Canada
GWL	Groundwater Level (MoE website)
ID	Improvement District
MoE	Ministry of Environment
MoHL&S	Ministry of Healthy Living and Sport
MWLAP	Ministry of Water, Land and Air Protection
NGWA	National Ground Water Association
QA/QC	Quality Assurance and Quality Control
RFC	River Forecast Centre (MoE website)
SCADA	Supervisory Control and Data Acquisition
SoE	State of Environment
SWA	Saskatchewan Watershed Authority
TRIM	Terrain Resource Information Management
USGS	United States Geological Survey
WACC	Water, Air and Climate Change Branch
WAMR	Water and Air, Monitoring & Reporting Section
WELLS	Ground Water Wells Database
WSACS	Water Sampling Analysis Computer System
WSD	Water Stewardship Division
WWD	Waterworks District

Provincial Observation Well Network Review British Columbia

A. INTRODUCTION

1. Background and Purpose

The Water Stewardship Division (WSD) of the Ministry of Environment (MoE) currently operates a network of 144 active observation wells in the Province. Objectives for the network were formalized by the Ministry in 2005 (Appendix A).

This draft report summarizes the results of a review of the *Provincial Observation Well Network*. The main purpose of the review was to develop a method or strategy to recommend where observation wells need be located in the province to help protect, manage and sustain the ground water resources of British Columbia. Funding for the project was provided by MoE under Contract CWSEN09025.

2. Project Objectives, Deliverables and Scope of Work

The five main objectives of the review were:

1. Provide an overview/summary of the current status of the observation well network in each Ministry of Environment region (Figure 1) including current monitoring objectives (for both water levels and water chemistry).
2. Develop or adapt a method (with criteria), which will provide the framework to systematically select and prioritize areas and aquifers for groundwater monitoring in British Columbia.
3. Utilize this method to identify priority areas and aquifers where observation wells should be located in the province.
4. Establish to what degree the existing Provincial observation well network corresponds with the above priority locations and criteria (identifying if there are gaps or overlaps).
5. Make recommendations in prioritized order on the existing observation well network, on a region-by-region basis, as to where new observation wells need to be established, or where existing observation wells may need to be deactivated or modified.

Specific deliverables that were required for the project are outlined in Appendix B. The work was carried out in three principal phases:

Phase 1 involved establishing weighted quantitative and qualitative criteria for assessing aquifers and areas in each MoE region, applying the criteria and prioritizing the aquifers and areas.

Phase 2 involved examining the history and location of existing observation wells in each MoE region, the information being obtained from the existing wells and their relationship to the priority aquifers and areas that were identified in Phase 1.

Phase 3 involved developing an overall monitoring strategy for the province and regions, and providing recommendations for establishing new observation wells.

Scope of the work included several key aspects:

- (a) Planning and holding a one-day workshop with MoE regional and headquarters staff involved in the network and invited individuals from federal and local governments, ground water consulting firms and public health to discuss what criteria need to be considered for determining where observation wells are established.
- (b) Conducting interviews with MoE regional and headquarters staff by telephone and in person to discuss their perspectives on network operations, groundwater issues and priorities for establishing observation wells.
- (c) Preparing and sending a questionnaire survey to 50 individuals with water districts, consulting firms, local government, federal agencies, researchers, environmental health officials and well drilling contractors to assess their needs and suggestions for observation well information.
- (d) Contacting 5 other provincial jurisdictions across Canada to determine their criteria for establishing observation wells.
- (e) Developing and applying a set of ranking criteria in all 5 MoE regions to prioritize aquifers and areas for monitoring and providing recommendations where new wells need to be established and where existing wells need to be retained, modified or deactivated. Details on the ranking criteria used and their application is provided below in Section B 5 on Criteria and Application.

The specific criteria that were developed under item (e) were based primarily on the results of the workshop, discussions with Ministry staff and previous work conducted to prioritize ground water monitoring in the Okanagan and Cariboo regions (Kohut, 2005 and 2007).

3. Acknowledgements

Numerous individuals in the Water Stewardship Division assisted during the course of this project by providing valuable information and timely comments and suggestions. Individuals from other sectors including well drilling contractors, federal and local government officials, water districts and ground water consulting firms participated in the one-day workshop and/or provided written or verbal comments in response to the survey questionnaire. A contact list of all persons that contributed and provided assistance is provided in Appendix C. The Ministry steering committee for the project was co-chaired by K. Ronneseth and M. Graham and included C. Ballek, P. Lapcevic, C. Lee, S. Staplin, M. Wei, T. White and R. Zimmerman.

B. PHASE 1

1. Workshop Results

A one-day workshop with 30 participants was held on October 24, 2008 in Richmond to obtain input on the approach and criteria that should be used to plan and prioritize areas for ground water monitoring and determine where observation wells should be located. The workshop also provided an opportunity to identify current and potential issues related to network structure and operations. Ministry of Environment staff involved in the network were joined by 8 invited participants representing the interests of federal, local government, health authorities and the ground water consulting sector.

A copy of the proceedings of the workshop (Azar, 2008) is provided in Appendix D. A brief summary of the top criteria that were identified by each of the four breakout groups at the workshop is shown in Table 1. There was an overall consensus achieved on the prime criteria that need to be considered, namely:

- (a) the importance of considering the degree of quantity and quality concerns in aquifers,
- (b) the importance of having adequate geographical coverage,
- (c) the importance of including operational factors such as costs.

Interestingly, these criteria are generally similar to guidelines for designing hydrologic networks wherein the World Meteorological Organization (1994) recommends that spacing of observation wells in a network needs to consider:

- (a) the size of the area;
- (b) the hydrological complexity of the area;
- (c) the objectives of the network; and
- (d) financial limitations.

The workshop also identified a number of operational and management issues that have been included in the following section on issues.

2. Ground Water and Network Issues

Ministry staff in each regional office and headquarters were contacted prior to and after the October 24, 2008 workshop to identify possible ground water issues or concerns related to the network. Questionnaires (Appendix E) were provided to Ministry staff and followed up with telephone interviews. Headquarters staff in Victoria and regional staff in Nanaimo office were also visited in person. A summary of the issues that were identified is provided in Appendix F. It is evident that there were numerous local and regional concerns related to ground monitoring in the province and the operation of the network. Overall ground water concerns were generally centered on:

- (a) increasing ground water use,
- (b) ground water and surface water interactions,
- (c) ground water quality and public health,
- (d) effects of climate change,
- (e) potential effects of coal-bed methane extraction, geothermal development, pine beetle infestation and well drilling practices, and
- (f) future ground water regulation and licensing.

Operational concerns with the network were centered on:

- (a) funding and staff resources,
- (b) monitoring equipment type and operation,
- (c) availability and continuity of long-term data, and
- (d) security of sites.

While it has not been possible to examine and address each of these issues in this review, their identification has been important in determining the criteria that need to be considered in prioritizing aquifers and areas for monitoring and developing an appropriate approach to monitoring during the next 10 to 15 years. A number of the key issues are discussed further under Section D1 of this report under Monitoring Strategy for Province And Regions.

3. Results of Questionnaire Survey

Twenty three (23) responses (45% return) were received to the questionnaire survey (Appendix E) that was sent to potential users of observation well information to determine their interests, knowledge of Ministry observation well network website, degree of use and recommendations for observation well sites. A summary of these responses is provided in Appendix G indicating high interest among the respondents, the majority being water districts and engineering consultants. Most respondents were also familiar with the Ministry websites for observation well information and generally queried the sites on a monthly or seasonal basis for current and historic trends. Apart from recommending specific sites and areas for new observation wells there were some recommendations for improved website reporting, keeping information up to date and having real time data through telemetry (e.g. SCADA) installations.

The observation well network was previously included in a client survey in early 2008 to assess the quality of services provided by the Water and Air Monitoring and Reporting Section (WAMR) and to improve the relationship between WAMR and its clients (Xue and Di Paula, 2008). This previous survey, however, was not focused specifically on observation well information and clients solely outside of other government agencies.

4. Results of Jurisdiction Review

Five provincial jurisdictions across Canada were contacted to determine their criteria for establishing observation wells. The jurisdictions included Alberta, Saskatchewan, Manitoba, Nova Scotia and New Brunswick. A summary of information obtained from these jurisdictions is provided in Table 2.

Only one of the jurisdictions, New Brunswick, currently reports a set of criteria that they are following for their network of 10 observation wells that was re-established in 2001 after being terminated in 1992 due to budget constraints. Their current network is operated in partnership with the Water Survey of Canada (Environment Canada). The New Brunswick criteria include: geology, spatial coverage, manageable numbers of wells, funding requirements, human impacts

and compatibility with other networks such as hydrometric sites using similar real-time monitoring technology (e.g. common SCADA systems). The other four jurisdictions are currently planning or developing their criteria. Alberta is developing criteria based on available GIS information and moving towards combined ambient and effects monitoring. Saskatchewan also monitors the effects of large private wells and Manitoba is considering having monitoring requirements with licensing of large wells. Common issues reported by other provinces included monitoring the effects of coal bed methane development, global warming, large-scale developments and increased public awareness of watershed concerns.

5. Criteria Selection and Application

Based on the results of the workshop, individual comments received from Ministry staff and a review of 5 other jurisdictions in Canada, the following main criteria were identified for determining priority areas and locations for establishing new observation wells. These criteria have been grouped into three levels based on their relative importance from highest to lowest.

Level I Criteria (Aquifer-based hydrogeology and water use)

1. Aquifer area, geology and hydrology (Aquifer Classification and Ranking)
2. Quantity and quality concerns including threats to sustainability and water quality, human health issues, existing and new developments, e.g. coal bed methane, geo-exchange wells.
3. Existing water use, well density, population and water systems dependent on ground water.
4. Ground water management area planning and future regulation.

Level II Criteria (Geographical, BCGS area-based)

1. Number of aquifers and wells.
2. Location of other monitoring sites, e.g. climate stations, hydrometric and snow survey sites.
3. Surface water interaction and community watersheds.
4. Sensitive ecological areas e.g. Parks and Protected areas.

Level III Criteria (Operational)

1. Regional balance and biogeoclimatic representation.
2. Economic sustainability, cost of establishing and maintaining wells including; access, construction, equipment and long-term site security versus available resources (funding and staffing).
3. Representative recharge areas without significant well interference.
4. Duration of monitoring e.g. minimum 10 years.

5. Partnership opportunities, e.g. with Federal and local governments, Water Districts, universities and others.

As a first step for determining the priority areas for monitoring it was decided to apply Level I criteria, where measurable either quantitatively or qualitatively, to each classified aquifer in each of the 5 regions of the province encompassing 923 aquifers. This was carried out using Excel® spreadsheet templates and criteria weightings for each unconsolidated aquifer and each bedrock aquifer, as shown in Tables 3 and 4 respectively. Well densities in each aquifer were measured as the number of wells per square kilometer; the per or “/” sign is implied in the spreadsheet templates.

The bedrock aquifer template is similar to the unconsolidated bedrock template but considers lower yielding wells. Further details on aquifer criteria used are provided in Section 6 below and Appendix H. The criteria rankings rely heavily on the classified aquifers identified and mapped under the *British Columbia Aquifer Classification System* (BCACS) that was developed to identify and classify *developed aquifers* in the province to assist with management of groundwater (Berardinucci and Ronneseth, 2002).

The second step involved applying a combination of Level I and II criteria to 1 : 20 000 scale BCGS areas for each region where 10 or more water wells are reported encompassing 574 BCGS areas. This was carried out using an Excel® spreadsheet template and criteria weightings for each area as shown in Table 4. This second step captures areas where there may be wells in unclassified aquifers and areas where there are groups of aquifers and other factors such as the proximity of climate and hydrometric stations, parks and protected areas and community watersheds. Ranking of BCGS areas enables the use of a convenient grid over a large region and consideration of areas where groups of aquifers are concentrated and those areas where there may be wells and water supply systems but where no aquifers have been classified to date. Further details on BCGS area criteria used are provided in Section B6 and Appendix H.

The results of these two steps for each region were compared and rolled up into a priority listing for each region. The general approach was to compare approximately the top 25 % of unconsolidated aquifers and bedrock aquifers with a comparable number of the top-rated BCGS areas in each region and colour code the BCGS with matching aquifers where there was commonality (i.e. where a BCGS area contained one or more of the top-rated aquifers). This usually resulted in 20 to 40 high priority aquifers being identified in each region. There were no BCGS areas without aquifers short-listed in this process. Since there was considerable variability among the number of bedrock versus unconsolidated aquifers in each region, the percentage of bedrock aquifers in the Lower Mainland Region was somewhat higher at 54 % representing only 20 bedrock aquifers. Some regions (e.g. Vancouver Island) were also subdivided into sub regions (main island and Gulf Islands) where appropriate due to their

different physiographic settings. It became evident in comparisons of top-rated areas and aquifers that the priority aquifers were grouped in a small number of key or core ground water use areas. A small number of key areas and their high priority aquifers were identified for each region and sub regions where appropriate. Some Level III criteria such as regional balance and other factors including the location of existing observation wells, were also considered in recommending a strategic monitoring plan for each region with a minimum number of observation wells for each priority aquifer. Existing observation wells in each priority aquifer were also identified. The general process for this approach is shown in Figure 2 and is similar to the approach followed in previous work conducted to prioritize ground water monitoring in the Okanagan and Cariboo regions (Kohut, 2005 and 2007). It should be noted that some important criteria that have been identified by others including ground water recharge areas, degree of ground water interactions with surface water, surface water licensing considerations, biological importance, contaminated sites and public interest, for example, were not included in the templates due to lack of specific information being available and/or time constraints for compiling this information. Assessing the degree of ground water and surface water interaction for an aquifer or area was not attempted as there have been very few studies of hydrologic interactions in British Columbia and the relationships can be complex. Examination of available surface water licensing data or streamflow data within the boundaries of an aquifer could be a potential source for investigation but this was not carried out. Further discussion on the ranking process and roll up is provided in Section B7 of this report under Results of Ranking Process.

While the ranking approach followed is fairly rigorous, it can be subjective, simplistic and limited in some areas by the availability of current and accurate information. The process, however, enables a systematic examination of a significant amount of relevant information to enable the comparison of different aquifers and areas. Criteria weightings may also be biased in some cases and ratings are dependent on the judgment of the person(s) completing the ratings. Ultimately any decision to prioritize an aquifer or area for monitoring will depend upon a particular situation and specific conditions at that time. The rankings, therefore, should be used only as a guide to assist discussion, planning and making decisions on observation well site selection.

6. Baseline Information Examined

Various types of baseline information from various sources were obtained and compiled including :

- (a) major watershed boundaries,
- (b) classified aquifers,
- (c) well locations and well density,
- (d) community watersheds,
- (e) active climate stations,

- (f) active snow courses and snow pillows,
- (g) active hydrometric stations,
- (h) locations of ground water supply systems and sources,
- (i) reported ground water quantity and quality concerns,
- (j) current or planned ground water research/planning projects,
- (k) areas of Mountain Pine Beetle infestation,
- (l) estimates of current ground water use,
- (m) location and number of reported irrigation wells and well yields,
- (n) estimates of population served by ground water,
- (o) number of parks and protected areas, and
- (p) potential areas for future ground water licensing.

A brief discussion of each of these information items, sources for the information and their significance where used as factors or criteria to the ranking process is provided in Appendix H.

7. Results of Ranking Process

The actual ranking process involved completing the Excel® templates for each aquifer and BCGS area in each MOE region. As the points were assigned, Excel® automatically generated the scores and completed the sum score out of a maximum of 100 for each aquifer. The individual ranking sheets for each aquifer and BCGS area are contained in Appendices L, M and N (Volume II). During preparation of the final drafts of this report some minor computational errors were observed in the Excel® templates in the summing of scores and rounding of numbers. As these minor errors were applied consistently in the same manner to all aquifers, no corrections were made to adjust the final score ratings to be more precise.

7.1 Vancouver Island Region

A summary listing of all 202 classified aquifers in the Vancouver Island Region is provided in Appendix I (Table 1). Tables 6 and 7 show the descending ranking scores for the unconsolidated and bedrock aquifers respectively. The top 25% of the aquifers have been highlighted in green background. As the islands within the Georgia Basin comprise a unique physiographic part of the Vancouver Island Region a separate table was prepared covering descending ranking scores for the BCGS areas in this sub region. Table 8 shows the descending BCGS ranking scores for the main portion of Vancouver Island and Table 9 shows the descending ranking scores for BCGS areas that include the Gulf Islands and South Coast Islands watershed areas. A comparable number of BCGS areas have been highlighted in green background to facilitate comparison with the high priority aquifers.

Tables 10 and 11 compare the top rated unconsolidated and bedrock aquifers respectively with the top-rated BCGS areas in the main Vancouver Island sub-region. Tables 12 and 13 compare the top rated unconsolidated and bedrock aquifers respectively with the top-rated BCGS areas in the Gulf Islands and South Coast Islands sub-region. BCGS areas have been colour coded and grouped into a small number of core sub areas where high priority aquifers are situated. Table 14 outlines 17 key areas recommended for monitoring in 4 sub regions with their respective key unconsolidated and bedrock aquifers. Further discussion on the number of observation wells recommended for these areas and aquifers is provided in Section D1 of this report.

7.2 Lower Mainland Region

A summary listing of all 157 classified aquifers in the Lower Mainland Region is provided in Appendix I (Table 2). Table 15 and 16 show the descending ranking scores for the unconsolidated and bedrock aquifers respectively. The top 25% of the unconsolidated aquifers have been highlighted in green background in Table 15 while 54 % representing 20 bedrock aquifers are highlighted in Table 16. Table 17 shows the descending ranking scores for BCGS areas in the region.

Tables 18 and 19 compare the top rated unconsolidated and bedrock aquifers respectively with the top-rated BCGS areas. BCGS areas have been colour coded and grouped into a small number of key sub areas where high priority aquifers are situated. Table 20 outlines 9 key areas recommended for monitoring in 4 sub regions with their respective high priority unconsolidated and bedrock aquifers. Further discussion on the number of observation wells recommended for these areas and aquifers is provided in Section D1 of this report.

7.3 Thompson/Cariboo Region

A summary listing of all 194 classified aquifers in the Thompson/Cariboo Region is provided in Appendix I (Table 3). Table 21 and 22 show the descending ranking scores for the unconsolidated and bedrock aquifers respectively. Approximately the top 25% of the unconsolidated aquifers and bedrock aquifers have been highlighted in green background in Tables 21 and 22. Table 23 shows the descending ranking scores for BCGS areas in the region.

Tables 24 and 25 compare the top-rated unconsolidated and bedrock aquifers respectively with the top-rated BCGS areas. BCGS areas have been colour coded and grouped into a small number of key areas where high priority aquifers are situated. Table 26 outlines 10 key areas recommended for monitoring in 2 sub regions with their respective priority unconsolidated and bedrock aquifers. Further discussion on the number of observation wells recommended for these areas and aquifers is provided in Section D1 of this report.

7.4 Kootenay/Okanagan Region

A summary listing of all 206 classified aquifers in the Kootenay/Okanagan Region is provided in Appendix I (Table 4). Table 27 and 28 show the descending ranking scores for the unconsolidated and bedrock aquifers respectively. Approximately the top 25% of the unconsolidated aquifers and bedrock aquifers have been highlighted in green background in Tables 27 and 28. As the Kootenay/Columbia River drainage system comprises a unique physiographic portion of the region a separate table was prepared covering descending BCGS ranking scores for this sub region. Table 29 shows the descending BCGS ranking scores for the Okanagan/Kettle sub region and Table 30 shows the descending ranking scores for BCGS areas for the Kootenay/Columbia sub region.

Tables 31 and 32 compare the top-rated unconsolidated and bedrock aquifers respectively with the top-rated BCGS areas in the Okanagan/Kettle sub region. Tables 33 and 34 compare the top-rated unconsolidated and bedrock aquifers respectively with the top-rated BCGS areas in the Kootenay/Columbia sub region. BCGS areas have been colour coded and grouped into a small number of key areas where high priority aquifers are situated. Table 35 outlines 15 key areas recommended for monitoring in the 2 sub regions with their respective priority unconsolidated and bedrock aquifers. Further discussion on the number of observation wells recommended for these areas and aquifers is provided in Section D1 of this report.

7.5 Skeena/Omenica/Peace Region

A summary listing of all 163 classified aquifers in the Skeena/Omenica/Peace Region is provided in Appendix I (Table 5). Tables 36 and 37 show the descending ranking scores for the unconsolidated and bedrock aquifers respectively. Approximately the top 25% of the unconsolidated aquifers and bedrock aquifers have been highlighted in green background in Tables 36 and 37. Table 38 shows the descending ranking scores for BCGS areas in the region.

Tables 39 and 40 compare the top-rated unconsolidated and bedrock aquifers respectively with the top-rated BCGS areas. BCGS areas have been colour coded and grouped into a small number of key areas where high priority aquifers are situated. Table 41 outlines 7 key areas recommended for monitoring in the region with their respective priority unconsolidated and bedrock aquifers. Further discussion on the number of observation wells recommended for these areas and aquifers is provided in Section D1 of this report.

C. PHASE 2

1. Network History

The Observation Well Network in British Columbia was established in 1961 when the Groundwater Division of the British Columbia Water Resources was formed in Victoria to investigate the ground water resources of the province. The first observation wells comprised a number of unused dug wells and small diameter (1.25 inch cased) drilled wells in the Fraser Valley and Okanagan Valley (Ministry of Environment, 1983). Many of the early observation wells were established in conjunction with ground water test drilling and exploration programs using mud rotary drilling techniques. These test drilling programs were aimed at finding viable water supplies for communities (e.g. Williams Lake, Smithers). Ground water research programs primarily in the Okanagan Valley and Salmon River Valley during the early 1970s resulted in several new wells added to the network. During the 15 year period from 1967 to 1982 the network increased from 73 to 138 wells and comprised 158 active wells in 2006 (Kohut, 1983 and Ministry of Environment, 2009b). In 1977 a formal program for establishing new observation wells was introduced, a classification system for active wells was developed and a review program on the status of each well was initiated. In 1977 when drought conditions were prevalent in the province, several new observation wells were established across the province to monitor the effects of the drought. A small set of observation wells (10 sites) with long-term records (15 to 20 years) in the major drainage basins of the province were also included for the first time in the Snow Survey Bulletin. These wells continue to provide information on ground water conditions and are now reported through the River Forecast Centre website at <<http://www.env.gov.bc.ca/rfc/>>.

In 1982-83 the field operations, maintenance and data collection functions of the network were transferred from Victoria headquarters to Ministry regional offices. At that time, the majority of wells were monitored by local private observers under contract or other agreements with the Ministry. Wells were monitored either manually or with Stevens Type F chart recorders. A fact sheet on the network was completed in 1997 about the program for public information. Due to budgetary restrictions during the mid 1990s, new wells were only established through partnership initiatives with water districts, municipalities or other government agencies. In the late 1990s new well establishment was focused on IA aquifers.

In 2002 the responsibility for establishing new wells in the network was transferred to regional offices and since that time improved instrumentation involving the use of Thalimedes™ dataloggers, pressure transducers and telemetry have been introduced to automate the data collection with the need for local observers greatly reduced. In 2005 the Ministry formalized the monitoring objectives for the Observation Well Network Data processing and timely availability and access to network information has also been greatly improved

since the 1980s with the advent of computer technology and use of the internet. Long term hydrographs for the active observation wells are available at MOE Groundwater Level (GWL) website at <https://a100.gov.bc.ca/pub/gwl/> . Between 2003 and 2008, 29 new observation wells were established. However, during this same period 42 wells were deactivated, closed or returned to land owners.

2. Existing Observation Wells

Basic information on the 144 active observation wells in the Province is provided in Appendix J for each MoE region. The current distribution of active wells in each region is shown in Figure 3 in comparison with the distribution of classified aquifers. While there is a relatively even distribution of developed aquifers among regions there is a large variability in monitoring activity and number of observation wells. Sixty eight percent of the current network is in the Okanagan/Kootenay Region and Vancouver Island Region. Given the significant number of aquifers in the Lower Mainland, Skeena/Omineca/Peace and Thompson/Cariboo regions they appear under represented in numbers of observation wells.

In terms of the areas occupied by classified aquifers these only amount to 23,000 km² or <3% of the provincial land area. The largest area distribution of aquifers is in the Thompson/Cariboo and Skeena/Omenica/Peace regions (Figure 4) where large bedrock aquifers have been mapped. These two regions combined presently have a relatively small number of observation wells (<20 % of the network).

With regard to the number of wells reported in each region (Figure 4), the majority of these are found in the Vancouver Island, Okanagan/Kootenay and Lower Mainland regions. Given the large number of wells in the Lower Mainland Region it appears under represented in the number of observation wells. The Skeena /Omineca /Peace and Thompson/Cariboo regions appear to be better represented in numbers of observation wells when their total number of well records is considered. A larger number of observation wells in the Lower Mainland, Thompson/Cariboo and Skeena/Omenica/Peace regions would be necessary to achieve a better regional balance for ground water monitoring.

A review was conducted of each observation well by examining available hydrograph records at the MoE Groundwater Level (GWL) website and determining the quality of the hydrograph, relevant network objectives being met and likely factors affecting water level response. Results of this review are summarized in Appendix K for each MoE Region and where specific recommendations are provided for each well. Current and historic water quality sampling frequency and parameters analyzed for each observation well were also examined and discussed under Section D2.

These findings indicate that the majority of the wells in the network meet one or more of the network objectives and need to be retained, especially those with long periods of historic record. A small number of sites (2 in the Skeena /Omenica/ Peace, OW89 and 199) should be considered for replacement . Eight (8) sites namely:

OW320, 345 and 373 Vancouver Island,
OW279, 305, 362 and 366 Kootenay/Okanagan and;
OW200 in Skeena /Omenica/ Peace regions;

are recommended for the installation of pressure transducers to improve continuity of recording and 4 sites in the Kootenay/Okanagan Region (OW53, 105, 119, 173) need to be considered for deactivation, closure or returned to land owners. A series of 6 piezometer sites at Osoyoos could also be discontinued if they are no longer needed to monitor water quality.

3. Relationship of Existing Wells to Priority Aquifers and Areas

Active well locations were compared with the key area and priority aquifer listings that were developed for each of the MoE regions. Existing observation wells matching the priority unconsolidated and bedrock aquifers are listed in Tables 42, 43, 44, 45 and 46. It was found that 107 of the existing observation wells are situated within high priority aquifers in key areas indicating that the majority (74%) of existing wells have been strategically placed for core areas of ground water use. Appendix O (Volume II) contains map figures for each region that show the general location of the key monitoring areas, priority aquifers and locations of existing observation wells in the priority aquifers.

While the remaining 37 existing network wells or 26% of the network are not situated in high priority aquifers in the key areas, they are nevertheless still important and should be retained. 65% of them have long periods of monitoring record in excess of 20 years of record. On Vancouver Island, for example, OW 228 has 55 years of record and along with 6 other of the sites is currently used as a key well reporting on ground water conditions for forecasting water supply outlook at the River Forecast Centre (RFC) website. Eleven of the sites are situated in aquifers that have not yet been classified and mapped, and several of the sites are higher elevation sites that may be suitable for climate response monitoring (e.g. OW 83, 115, and 82). Ten of the sites were recently established and have less than 5 years of record being available. A listing of the 37 observation well sites that are not in priority aquifers in the key areas is provided in Table 47.

D. PHASE 3

1. Monitoring Strategy for Province and Regions

There is a high level of interest in the Province among water purveyors, local governments, engineering consultants, planners and researchers for understanding and quantifying ground water availability and variations in ground water quality (spatial and temporal). Frequent quantity issues identified include concerns about the sustainability of ground water supplies, potential impacts of land development on water supplies, location of ground water recharge areas, surface water/ground water interactions, well interference, future water demand and conservation measures. There are also much wider, provincial and regional concerns with regard to the potential effects of the mountain pine beetle infestation and climate change on water supplies.

As ground water level measurements from observation wells are a principal source of information for assessing the effects of hydrologic stresses acting on ground water systems (Rivera et al, 2004), the observation well network in British Columbia will play an important role for determining changes to the overall water balance and flow regimes in priority aquifers where future licensing of ground water extraction may be considered. Ground water level measurements can be used to determine how these stresses affect ground water recharge, storage and discharge (Taylor and Alley, 2001).

Rivera et al (2004) recommend that observation wells in Canada should be completed in both stressed and natural environments, and be tied into climate and stream flow (hydrometric) networks. Rivera et al (2004) report that the impacts of climate variability and change on ground water recharge are not well understood and this is a major deficiency in current ground water models.

The majority of existing wells in the observation are situated in areas relatively close to pumping wells and not particularly suited for monitoring the effects of climate change. A separate provincial climate response network of observation wells would be needed to monitor the effects of climate change and would require more research and planning. A few of the existing observation wells may be appropriate for this purpose.

Potential concerns related to coal bed methane projects, effects of pine beetle infestation, geo-exchange wells and other issues may also require specific monitoring. These issues need further research, discussion and planning to determine how and where monitoring would be appropriate and effective. While some observation wells may be needed to address specific issues that arise, the network needs to move away from being driven by many different issues and be focused on ground water sustainability in key areas where it is anticipated that

observation well data will be needed to support local water services planning and future water management decision making. New issues and site-specific projects may also reduce the availability of existing resources for maintaining and enhancing the quality of monitoring in key areas such as the Gulf Islands, Abbotsford, Langley, Osoyoos and Grand Forks.

In 1999, the Office of the Auditor General of British Columbia recommended that the Province ensure regular monitoring of ground water usage and levels in all developed aquifers across the province. Given the large number of developed aquifers (923) that have been identified in the province, it will require more stewardship and partnership initiatives involving communities, water users and other stakeholders to improve the current monitoring coverage of aquifers in the province.

A draft Ministry report (MWLAP, 2002) on *A Groundwater Monitoring Strategy for British Columbia*, outlines several guiding principles that may be considered fundamental for a groundwater monitoring strategy. Many of these principles are still relevant today and are reproduced in part below:

- (a) A practical and achievable monitoring program which provides various intensities of monitoring (priority and phased approach), reflects public interests and needs and balances environmental, social, economic and health implications;
- (b) Utilization of the Aquifer Classification System for Groundwater Management in British Columbia. This method of identifying and prioritizing aquifers for different types of management attention is essential in an era of limited budget resources. It provides a means of facilitating more systematic management....;
- (c) Integration of the various groundwater quality monitoring programs to maximize available resources and link water quality data from different sources (e.g. EMS and WSACS and WELLS);
- (d) Standard sampling protocols and analytical and QA/QC methodologies to ensure consistent and comparable water quality data;
- (e) Involved partners sponsoring, planning and participating in groundwater monitoring and sharing resources and data. For example, those resource managers engaged in well protection, aquifer protection planning and community aquifers;
- (f) Regular and appropriate reporting of results to improve decision making for groundwater protection and resource management. Groundwater knowledge will be shared and made readily available to all parties.

The Ministry's *Draft Water, Land and Air Quality Monitoring & Reporting Strategy* (Air & Water Monitoring & Reporting Technical Committee, 2002), encourages shared stewardship and partnerships with a focus on areas affected by human impacts. While these latter objectives are focused on quality monitoring activities they are also be relevant to quantity monitoring. The *Vision for British Columbia's Ministry of Environment's Groundwater Observation Network* (Ministry of Environment, 2005) calls for monitoring priority aquifers and basins, supporting ground water studies such as the *Groundwater Assessment of the Okanagan Basin (GAOB)* and encouraging partnerships where beneficial.

The U.S. Geological Survey (USGS), an agency that has collected water-level data for more than a hundred years (Taylor and Alley, 2001) suggests:

- (a) establishing stable, base networks of water level monitoring wells;
- (b) carrying out long-term (years to decades), systematic measurements of water levels to provide essential data needed to evaluate changes in the resource over time, to develop and calibrate ground-water models and forecast trends, and to design, implement, and monitor the effectiveness of ground-water management and protection programs;
- (c) increasing the number of climate-response wells and long-term monitoring of naturally occurring fluctuations in ground water levels to develop more complete ongoing assessments of droughts and the cumulative effects of other climatic phenomena;
- (d) collecting data from areas that represent the full range in variation in topographic, hydrogeologic, climatic, and land-use environments;
- (e) monitoring aquifers substantially affected by ground water pumping, areas of future ground water development, surficial aquifers that serve as major areas of ground water recharge, and links with water quality and surface water monitoring;
- (f) evaluating networks periodically to ensure that adequate water-level data are being collected for present and anticipated future uses, and;
- (g) increasing interagency cooperation and coordination in constructing and maintaining observation well networks, collecting water level measurements, and sharing and disseminating data to address issues relevant to the participating agencies.

It may be ideal as a long-term goal to establish observation wells in each of the 29 hydrologic zones that have been delineated in the province. Miles and Associates (2003) examined the distribution of the observation well network in 2003 and found 16 of the zones had observation wells. Existing observation wells, however, are unevenly distributed in the 16 zones with the majority of wells concentrated in 4 of the hydrologic zones where ground water use is more extensive. These zones can be viewed at the *iMap* website (Ministry of Agriculture and Lands, 2009.)

Similarly it may be ideal to establish observation wells in each of the 14 biogeoclimatic zones that have been mapped in the province (Ministry of Forests, 1991). These zones represent classes of ecosystems under the same regional climate and their distribution varies with elevation. In the Kelowna area for example, there are five biogeoclimatic zones and it may not be practical to have an observation well in each zone in any particular area. Even relatively small bedrock aquifers may include 2 or more biogeoclimatic zones. These zones can be viewed at the *BC Water Resources Atlas* websites (Ministry of Environment, 2009a).

Based on the above factors and results of ranking the classified aquifers and BCGS areas in the province, consideration should be given to focusing or targeting future expansion of the network in a relatively small number (e.g. 6) key areas in each of the Ministry regions. These are areas where it is anticipated that observation well data will be needed to support local water services planning and water management decision making, including possible regulation or licensing of ground water use. Under British Columbia's Water Plan, entitled *Living Water Smart*, the province plans to regulate ground water use in priority areas and large groundwater withdrawals (Ministry of Environment, 2009c). The major part of the existing network is focused in the core groundwater use areas of the province and monitoring ground water conditions in these developed areas should be the prime purpose of the network. The key areas and priority aquifers that have been identified in each region could form the framework for network expansion. The prime components of this monitoring strategy are key areas, priority aquifers, communities dependent on ground water for drinking water supplies and other major users of ground water (e.g. agriculture and industry).

Expansion in the key areas should also be integrated with other planned ground water activities for example including; water management planning (e.g. Township of Langley), ambient ground water quality monitoring (e.g. Abbotsford and Grand Forks), well record processing priorities, licensing plans and research studies. A priority, for example, should be given where feasible for the processing of water well records in key areas and priority aquifers.

Suggested numbers of wells for each key area are provided in Tables 42, 43, 44, 45 and 46 with key objectives that focus on monitoring groundwater/surface water relationships, recharge and discharge mechanisms, fundamental aquifer characteristics and impacts of groundwater withdrawals. Due to the varied nature and relatively large amount of information that needed to be examined and linked for this project, it was not possible to examine and recommend any specific monitoring locations at this time or set more specific site objectives. Specific site objectives will need to be refined and further investigations carried out before establishing each monitoring well.

Tables 42 to 46 provide a guide only and other factors may also need to be considered on the priorities in each region. While expansion with an additional 160 new wells would be optimum in the key areas over the long-term, this would depend upon actual needs for monitoring information in these areas. During the next 10 to 15 years, an additional 50 to 75 new observation wells should be considered in the priority aquifers. This follows the rate of well establishment that was achieved from 2003 to 2008. Site specific priorities for these new observation wells will need to be determined by regional staff based on their information requirements and available resources.

It would also be advantageous to identify and engage local governments, water districts, other provincial and federal agencies and discuss their anticipated needs for observation well information in the key areas. Establishing partnerships with these entities could enable future cost-sharing arrangements and assist in securing long-term sites for monitoring. In the 2003 document on *Canadian Framework for Collaboration on Groundwater*, for example, a federal-provincial working group recommended that a national groundwater monitoring system be established comprised of a network of networks (Rivera et al, 2003). Recently in the US, the Federal Advisory Committee on Water Information approved the *Framework for National Ground Water Monitoring Network* (NGWA, 2009). The objective of this proposed network is to have confidence in the compatibility of data, identify and fill data gaps for coverage of the principal and major aquifers, manage the data, and make it accessible through a portal to users of the information.

2. Ground Water Quality Monitoring

Observation Well Network

A brief review was conducted of the current water quality sampling frequency for each observation well in each region. Table 48 shows the sampling frequency for observation wells during the 2002 to 2008 period. Sampling of individual wells range greatly from a low of once in seven years to a high of twice each year for 6 consecutive years. Sampling frequency also ranges widely among the regions and there is no standard schedule in place covering all regions. Most samples are analyzed for major physical and inorganic parameters following the

Drinking Water Package available from Maxxam Analytics Inc. Some regions also include bacteriological sampling for total coliforms, fecal coliform and *E. coli*, with analysis of these parameters at CanTest Laboratories. A standard suite of parameters covering all regions has not been adopted. Variations in sampling frequency and parameters tested for observation wells vary among the regions and appear to depend upon several factors such as: number of existing observation wells, available resources for monitoring, site remoteness and accessibility, objectives for sampling, protocols followed and regional priorities.

Ballek examined historic available water chemistry data from observation wells in IA aquifers and concluded that the sampling that has occurred to date is insufficient for statistical evaluation or determination of seasonal effects (Ministry of Environment, 2008). He recommended that the sampling frequency needed to be increased to quarterly for new observation wells and IA aquifer observation wells with little or no monitoring history. After the initial rigorous sampling period, data can be reviewed to assist in defining an appropriate reduced schedule.

With regard to analytical parameters he recommended the following:

- (a) analysis of dissolved metals in every sample. Gaps in data from sporadic sampling schedules impact trend analyses. When standard parameters are occasionally omitted from the analytical suite, it compounds the difficulties in data interpretation;
- (b) discontinuing analyses of total metals. A properly constructed domestic well will provide water mostly free of sediment for domestic use or include filters for industrial applications, provide sufficient residence time for settling of suspended solids (livestock), or not be affected by metals in sediments (agriculture);
- (c) evaluate continued analysis of parameters that are below detection limits throughout the history of most wells (Be, Bi, Sb, Sn, Te, Ti, Tl, U, V, Zr, ...). Monitoring should be continued if potential sources have been identified or if the philosophy of the sampling is to “analyze everything to be safe”;
- (d) include mercury in the standard suite of analytes. Mercury should be a target parameter due to the known health effects, incidence of natural cinnabar formations, prevalence of industrial use, association with mining activities, and expected contribution from compact fluorescent bulbs discarded in landfills that may impact many aquifers in the province;
- (e) a thorough review of the potential of groundwater contamination by organic contaminants should be performed regularly and analyses performed when appropriate. Groundwater contaminated with organic compounds can result in severely impaired water and require difficult and expensive treatment processes. A limited list of organics (BTEX and PAH’s) was analyzed once in observation well 355 (Aquifer 172). Pesticides were analyzed once in observation well 62.;

- (f) continue local or regional studies for appropriate non-standard analytes (e.g. radiochemistry in Nelson and Radium Hot Springs).

Ballek also stressed the importance of:

- (i) reviewing analytical results within seven days of being entered into EMS to provide opportunities for re-analysis of the submitted sample, if necessary;
- (ii) conducting a critical assessment of the measured parameters regularly to ensure that they are and will continue to be appropriate for meaningful evaluation of the site, and;
- (iii) having a standard parameter suite.

A minimum sampling frequency for observation wells of once every three years may be adequate for assessing long-term water quality trends for some parameters. Historically this has been applied on a somewhat arbitrary basis and sampling results have not always been regularly reviewed and interpreted. More frequent sampling including twice yearly, during wet and dry periods, is being undertaken at some sites and takes into consideration seasonal variations.

One of the challenges of obtaining representative water quality samples from observation wells is that they are not being pumped on a regular basis such as domestic wells or community wells and they need to be pumped for a sufficient length of time to obtain a representative sample. Historically, observation well construction methods have been highly variable and all wells are not necessarily free of sediment or products of casing corrosion such as iron and lead particulate matter. Some wells may also contain iron bacteria and algae slimes. Bedrock observation wells may pose additional issues for sampling as they are not normally cased completely throughout their length and ground water quality may be naturally stratified with depth. Before considering an observation well for long-term water quality trend monitoring it would be beneficial to examine all existing water quality available for the well and other factors such as well construction, to determine if any of the results can be relied upon with confidence as being representative and complete for the parameters of interest. It may be prudent to set specific water quality monitoring objectives for each observation well rather than conducting arbitrary sampling every two to three years to determine trends that might not be entirely achievable. Specific objectives for sampling might include for example: determining seasonal variations, determining if the water quality varies with depth and, checking specific parameters for anomalous values exceeding drinking water quality guidelines.

Further discussions among Ministry staff to decide on a standard parameter suite, sampling frequencies and protocols, and setting sampling objectives for observation wells would be beneficial. Consideration could also be given to updating the *Ambient Groundwater Quality Sampling Manual for Ambient Groundwater Quality Monitoring Network, Observation Well Network, and Community Well Drinking Water Sources* (MWLAP, 2004).

In addition to monitoring ground water quality in observation wells, regional Ministry staff are also involved in Ambient Groundwater Quality Monitoring and Assessment Program (AGQMAP) activities and other ground water quality monitoring studies. A summary of current ground water quality monitoring activities in MoE regions is provided in Table 49. A brief discussion of the AGQMAP is provided below.

Ambient Groundwater Quality Monitoring and Assessment Program

The *Ambient Groundwater Quality Monitoring and Assessment Program* (AGQMAP) was developed in 1984 and initially targeted three areas with ground water quality concerns attributed to non-point sources of quality degradation. These areas included a number of unconfined sand and gravel aquifers in the Langley-Abbotsford area (nitrate), unconfined sand and gravel aquifers (Aquifers 193 and 194) at Osoyoos (nitrate) and sand and gravel aquifers in the Cowichan Estuary (salt water). A fourth area at Grand Forks with elevated nitrate concerns in an unconfined sand and gravel aquifer (Aquifer 158) was added in 1989. Groundwater monitoring carried out was part of a larger provincial Ambient Water Quality Monitoring (AWQM) program that included surface water quality monitoring.

Initially, ground water quality monitoring was focused on sampling domestic wells and small diameter piezometers constructed to obtain samples at depth in the areas of concern. Regular sampling of observation wells to assess long-term trends was also initially included as part of the overall AGQMAP.

The AGQMAP has evolved over the years to include community wells in some areas and has expanded into several other areas and IA aquifers in the province including Merritt, Cache Creek, Duncan and Oliver (Table 49).

Cui and Wei (2000) reviewed the status and future direction of the AGQMAP and recommended several guiding principles that included for example:

- (a) establishing monitoring sites in aquifers where ground water is being used by communities for domestic or other purposes;
- (b) involving partners in sponsoring, planning and participating in monitoring and sharing resources and data;

- (c) integrating various ground water quality monitoring programs to maximize available resources;
- (d) integrating ground water quality monitoring with well protection or aquifer protection planning;
- (e) standardizing sampling protocols and analytical and QA/QC methodologies to ensure consistent and comparable water quality data;
- (f) having regular and appropriate reporting of results to improve decision making on ground water protection and resource management.

These recommendations are still appropriate today and mirror in part some of the recent recommendations made by C, Ballek for observation wells (Ministry of Environment, 2008). Future expansion of the observation well network would also benefit by being more integrated with other ground water activities such as, ambient ground water quality monitoring and water management planning, ground water licensing plans and research. Sampling protocols developed for both observation wells and ambient ground water quality monitoring need to be more consistent and aligned to support statistically valid trend analyses or forecasting.

Future Monitoring

Ground water quality monitoring in observation wells and aquifers may need to be focused in the key areas and specific aquifers in each Ministry region where it is anticipated that observation well data will be needed to support local water services planning and water management decision making. Opportunities for monitoring with other government agencies (other ministries, local governments, federal and health authorities), water purveyors and university researchers would be beneficial. Some of these new monitoring partnerships are already prevalent in MoE regions.

3. Environmental Trends Reporting

The BC State of the Environment (SoE) report, *Environmental Trends in British Columbia: 2007*, (Ministry of Environment, 2009d) reported an increase in the percentage of observation wells with declining ground water levels for the 2000 to 2005 reporting period compared to previous reporting periods in 1998, 2000 and 2002. This indicator shows the proportion of observation wells that appear to have decreasing water levels as a result of human activities. The indicator is not intended to show whether there are long-term declines in ground water level due to variations in climate.

Possible reasons for the increase in the percentage of observation wells showing a declining trend from 20% during the 1995-2000 period to 44% during the 2000-2005 period were touched upon briefly in the 2007 report. The 2000-2005 data shows that ground water levels were not declining everywhere across the province, but rather in local areas where ground water withdrawal and urban development have been intensive. Among the wells showing water level decline in 2000-2005, 17 (39%) were in the Vancouver Island-Gulf Islands area, 18 (41%) in the Okanagan/Kootenay region, 6 (14%) in the Thompson/Cariboo region, 2 (4%) in the Lower Mainland and 1 (2%) at Tumbler Ridge in the Skeena/Omineca/Peace region.

A further analysis was undertaken to examine possible reasons for the increasing number of wells with declining trends during 2000-2005. Table 50 lists the observation wells showing the declining trend in 2000-2005. Seven of the sites examined were established in the late 1990's in areas of ground water quantity concern and would have had insufficient data when they were checked for 1995 - 2000 trends. The majority of sites declining from 2000-2005 are also influenced by neighbouring pumping wells. It is probably significant that 80 percent of the wells showing a declining trend from 2000 to 2005 are situated on the east side of Vancouver Island and in the Okanagan valley where there is a high degree of ground water use. Overall precipitation in these areas was near or below normal for much of 2000 - 2005 as evidenced by representative climate stations at Nanaimo and Kelowna (Table 51 and Figure 5). Although ground water use data is not available it is probable that ground water use increased during the 2000 - 2005 period in these areas due to the overall drier than normal climate conditions. During the 1995 - 2000 period, overall annual precipitation at Nanaimo and Kelowna was generally at or above normal (Figure 5).

Based on the above analysis, it appears that the increase in the number of wells showing a declining trend from 2000 to 2005 could be explained by:

- (a) inclusion of 7 more well sites with sufficient data in areas of ground water quantity concern;
- (b) increased ground water use and subsequent well interference effects in high water demand areas (east coast of Vancouver Island and the Okanagan Valley) during a period of below normal precipitation.

4. Wells Reported at River Forecast Centre

In 1977, a small set of observation wells (10 sites) with long-term periods of record (15 to 20 years) were selected to monitor the effects of drought conditions and forecast water supply conditions in the major drainage basins of the province. Local observers reported end-of-month water levels directly to Victoria where they were incorporated into the *Snow Survey Bulletin* that was issued monthly during the Jan 1 to May 1 period. These wells now include 18 sites that

provide monthly information on ground water level conditions that are reported at the River Forecast Centre website at <<http://www.env.gov.bc.ca/rfc/>>.

The existing monitoring sites are listed in Table 52 indicating their general location in relationship to available mapping of major watersheds, drainage basins, hydrologic zones and biogeoclimatic zones. These sites currently cover 7 of the 14 biogeoclimatic zones in the province. In terms of forecasting water supply conditions in various parts of the province relative to seasonal climate conditions these wells need to represent general ground water conditions in the major drainage basins where there is significant ground water development. Relatively shallow observation wells completed in unconfined sand and gravel aquifers or bedrock aquifers where they respond to seasonal recharge effects (precipitation events, snowmelt or streamflows) would be best suited for this purpose. Ensuring representation of each biogeoclimatic zones in the province would be of secondary importance.

Table 53 shows the general location of the River Forecast Centre observation wells in relationship to key areas, priority aquifers and biogeoclimatic zones in each MoE region. Fourteen (14) of the wells are situated in key areas with high priority aquifers. The remaining four (4) wells namely; OW35 (Stump Lake), OW80 (Clinton), 82 (Barkerville) and 115 (Mission Ridge) are located outside of the key areas for monitoring. Seven (7) of the wells are situated in the Kootenay/Okanagan Region and none are located in the Skeena/Omineca/Peace Region.

Based on the original purpose for reporting ground water level conditions at representative sites to assist with water supply forecasting and monitoring the effects of drought, the following criteria are proposed for these wells:

- (a) observation wells that primarily respond to seasonal (annual) and long-term (years) effects of climate and runoff variations;
- (b) observation wells not significantly affected by nearby pumping wells;
- (c) relatively shallow observation wells completed in unconfined sand and gravel aquifers or bedrock aquifers where they respond to seasonal recharge effects (precipitation events, snowmelt or streamflows);
- (d) observation wells with 10 or more years of available water level data with few data gaps;
- (e) observation wells located in a high priority aquifer and key area for monitoring;
- (f) wells that provide coverage in each region of the province and in each major drainage basin outlined in the *Snowpack and Water Supply Outlook for British Columbia* where priority aquifers have been identified.

Considering the above criteria, each of the existing 18 observation wells was examined to determine its suitability for reporting purposes. A detailed examination, however, of each site to determine the local hydrogeologic conditions, relationships to nearby surface water bodies and correlation with precipitation, streamflow, and surface water stage data has not been completed.

Recommendations for each of the existing wells are provided in Table 52. Three (3) of the existing sites, namely; OW260 (Quesnel), OW80 (Clinton) and OW180 (Armstrong) are significantly influenced by local pumping conditions and their reporting could be discontinued at the River Forecast Centre website. A potential replacement well for OW180 would be OW294 at Lumby. Reporting of OW35 (Stump Lake) at the River Forecast Centre website could also be discontinued as it is located outside of the key areas for monitoring. OW82 (Barkerville) and OW115 (Mission Ridge) are located close to key areas (Quesnel and Kelowna) for monitoring and are situated in higher elevation recharge areas that respond to seasonal (annual) and long-term (years) effects of climate and runoff variations. They should be retained for reporting at the River Forecast Centre.

It is apparent that some major drainage basins in the Skeena/Omineca/Peace region are not adequately represented by the wells reporting at the River Forecast Centre, although OW82 (Barkerville) provides some coverage. OW124 (Charlie Lake) may also be a suitable candidate to include for the Peace area. New wells, however, would need to be constructed and monitored for at least 10 years to expand coverage for this region. Consideration should also be given to incorporating some of wells utilized at the River Forecast Centre within a future climate response network. This however, would require more research and planning.

E. CONCLUSIONS

As a result of this review, the following conclusions are made:

1. Based on input from the workshop, a brief survey of other jurisdictions and previous studies, two sets of weighted criteria were developed and applied to assess the priority of 923 classified aquifers in the province and 574, (1 : 20,000 scale) BCGS areas having 10 or more water wells.
2. The top rated aquifers and BCGS areas in each MoE region were compared for commonality and resulted in the identification of a small number of key areas in each region containing high priority aquifers.
3. All existing wells (144) in the network meet one or more of the Ministry's network objectives for monitoring. This may be due in part to the general nature and broad base of the objectives as they were originally derived from previous classification categories for observation wells.
4. 87 of the existing observation wells (60 %) have long-term hydrograph records of 20 years or more. These are of excellent quality for most purposes of analysis.
5. Currently the majority of the existing observation wells (74%) are strategically placed for monitoring in most of the priority aquifers and key areas of the province that were systematically identified.
6. While 26% of the network (37 wells) does not cover high priority aquifers in the key areas, these wells are nevertheless still important and should be retained. 65% of them have long periods of monitoring record in excess of 20 years of record, 7 of the sites are currently used as a key wells reporting on ground water conditions for forecasting water supply outlook at the River Forecast Centre (RFC) website, 11 of the sites are situated in aquifers that have not yet been classified and mapped, and several of the sites are higher elevation sites that may be suitable for climate response monitoring. Ten of the sites recently established have less than 5 years of hydrograph record available.
7. A small number of sites (2 in the Skeena /Omenica/ Peace, OW89 and 199) should be considered for replacement. Eight (8) sites namely:

OW320, 345 and 373 Vancouver Island,
OW279, 305, 362 and 366 Kootenay/Okanagan and;
OW200 in Skeena /Omenica/ Peace regions;

would benefit with the installation of pressure transducers to improve continuity of recording and 4 sites in the Kootenay/Okanagan Region (OW53, 105, 119, 173) are candidates for deactivation, closure or return to

land owners. During the period 2003 to 2008, the Ministry deactivated, closed or returned to land owners 42 observation wells. A series of 6 piezometer sites at Osoyoos could also be discontinued if they are no longer needed to monitor water quality.

8. The majority of existing wells in the network are situated in areas relatively close to pumping wells and stressed aquifers and are not particularly suited for monitoring the effects of climate change or emerging issues such as coal bed methane extraction and Pine Beetle infestation.
9. There is a high level of interest from water districts, local government planners, ground water consultants and researchers for observation well information and data quantifying ground water availability and variations in ground water quality (spatial and temporal).
10. An increase in the number of observation wells showing a declining trend from 2000 to 2005 compared to the previous SoE reporting period of 1995 to 2000 appears to be due to the inclusion of 7 additional well sites having sufficient data, increased ground water use and subsequent well interference effects in high water demand areas (east coast of Vancouver Island and the Okanagan Valley during a period of below normal precipitation).
11. A series of criteria were developed for wells that report at the River Forecast Centre on ground water level conditions to assist with water supply forecasting and monitoring the effects of drought. Based on these criteria, reporting at four (4) of the existing sites, namely; OW260 (Quesnel), OW80 (Clinton), OW180 (Armstrong) and OW35 (Stump Lake) could be discontinued. A potential replacement well for OW180 would be OW294 at Lumby. The Skeena/Omineca/Peace area is not adequately represented and new wells would need to be established and monitored for at least 10 years to expand coverage.

F. RECOMMENDATIONS

The following recommendations are provided for consideration:

1. While expansion of the network with an additional 160 new wells would be optimum in the key areas over the long-term, this would depend upon actual needs for monitoring information in these areas and available resources. A more prudent approach during the next 10 to 15 years, would be to establish an additional 50 to 75 new observation wells in the key areas and priority aquifers. This follows the rate of well establishment that was achieved by the Ministry from 2003 to 2008.

2. Expansion of the network should be targeted in a relatively small number (e.g. 6) key areas in each Ministry region where it is anticipated that observation well data will be needed to support local water services planning and water management decision making. Candidate areas and specific aquifers for each MoE region are listed in this report (Tables 14, 20, 26, 35 and 41). The prime components of this monitoring approach involve; key areas, priority aquifers, communities dependent on ground water for drinking water supplies and other major users of ground water (e.g. agriculture and industry).
3. Integrate the expansion of the network with other planned ground water activities for example; water management planning, ambient ground water quality monitoring, priorities for well record processing, ground water licensing plans and research.
4. Identify and engage local governments, water districts, other provincial and federal agencies and discuss their anticipated needs for observation well information in the key areas. Developing a presentation or workshop format would facilitate the discussions.
5. Establish partnerships with others outlined in 4 above, to enhance ground water monitoring in the key areas.
6. Research and plan the development of a small separate provincial network of observation wells (e.g. 10 to 15 wells) to monitor effects of climate change (i.e. Climate Response Network). A few existing high elevation wells in the network (e.g. OW 115 Mission Creek) may be suitable. Some wells may need to be relatively shallow (e.g. < 30 m deep) and situated in portions of unconfined aquifers that are removed from the potential effects of pumping wells and where natural soils and vegetation will be maintained.
7. Improve the quality, continuity and availability of water level and water quality information from the observation well network with enhanced water quality sampling protocols, timely interpretation of data and technological improvements including additional telemetry stations and more reliable instrumentation such as pressure transducers.
8. Develop a standard parameter suite and set specific water quality objectives for each observation well rather than conducting arbitrary sampling every two to three years to determine trends.
9. Update the *Ambient Groundwater Quality Sampling Manual for Ambient Groundwater Quality Monitoring Network, Observation Well Network and Community Well Drinking Water Sources*.

10. Consider subcontracting the routine maintenance, operation and sampling of selected observation wells in some areas to local, qualified and trained individuals or firms having this capability.
11. Review, check and update the status of all site agreements and possible changes in well and property ownership for all existing observation wells.
12. Review the status of all historic deactivated wells to ensure they meet the closure requirements of the *Ground Water Regulation*. Some sites may need to be checked in the field to ensure they do not pose a safety or environmental risk (e.g. uncapped wells).

G. CLOSURE

This report was prepared in accordance with generally accepted engineering and consulting practices. The material contained in this report is intended for use by the Ministry of Environment. This report is based on data and information available to the author and contributors from various sources at the time of its preparation and the findings of this report may therefore be subject to revision. Data and information supplied by others has not been independently confirmed or verified to be correct or accurate. Any errors, omissions or issues requiring clarification should be brought to the attention of the author. The author and all contributors accept no responsibility for damages suffered by any third party as a result of any unauthorized use of this report.

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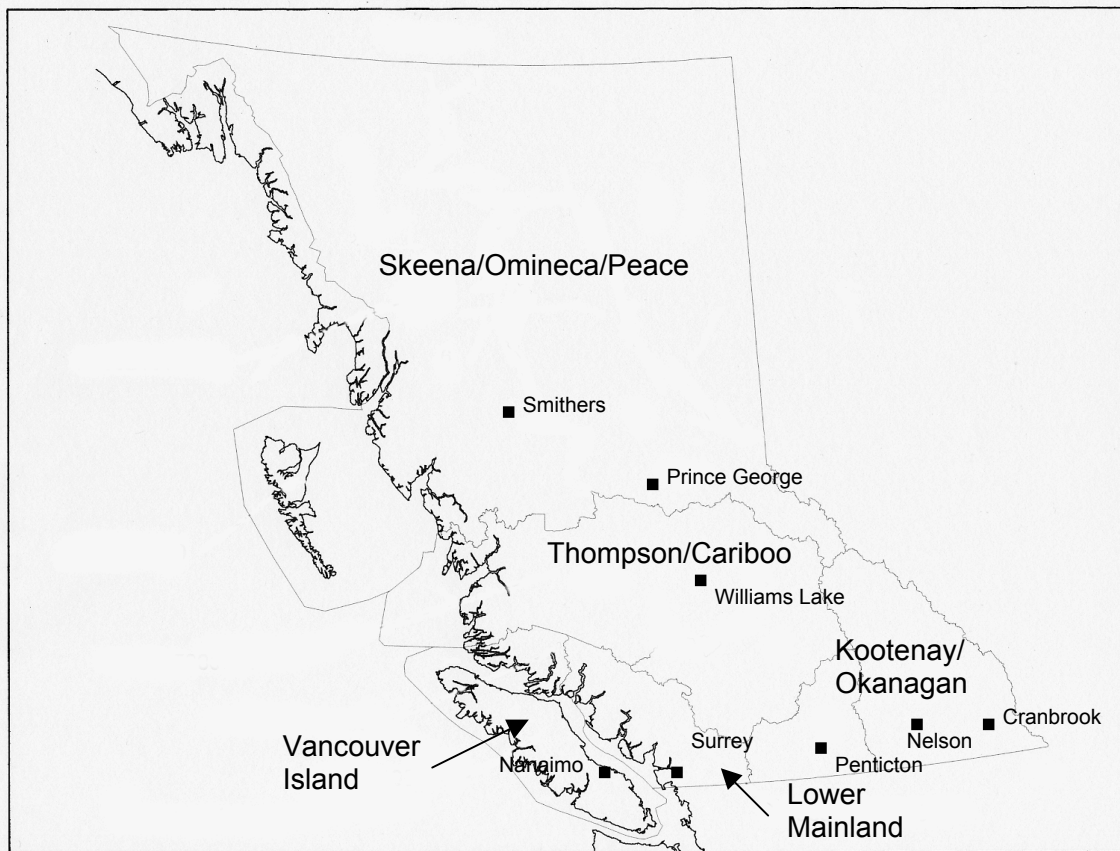


Figure 1. Ministry of Environment regions and offices.

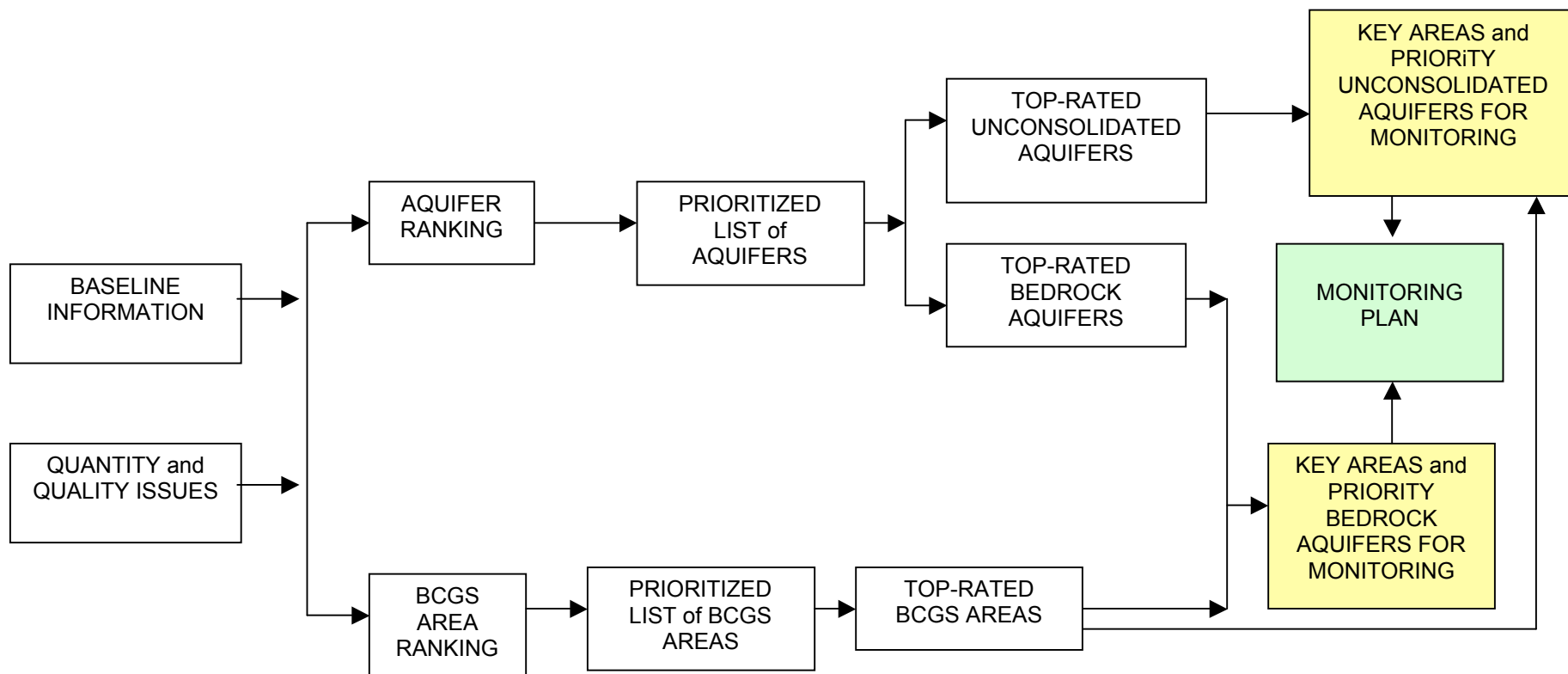


Figure 2. Schematic showing main steps and general process for prioritizing areas for observation wells in each region.

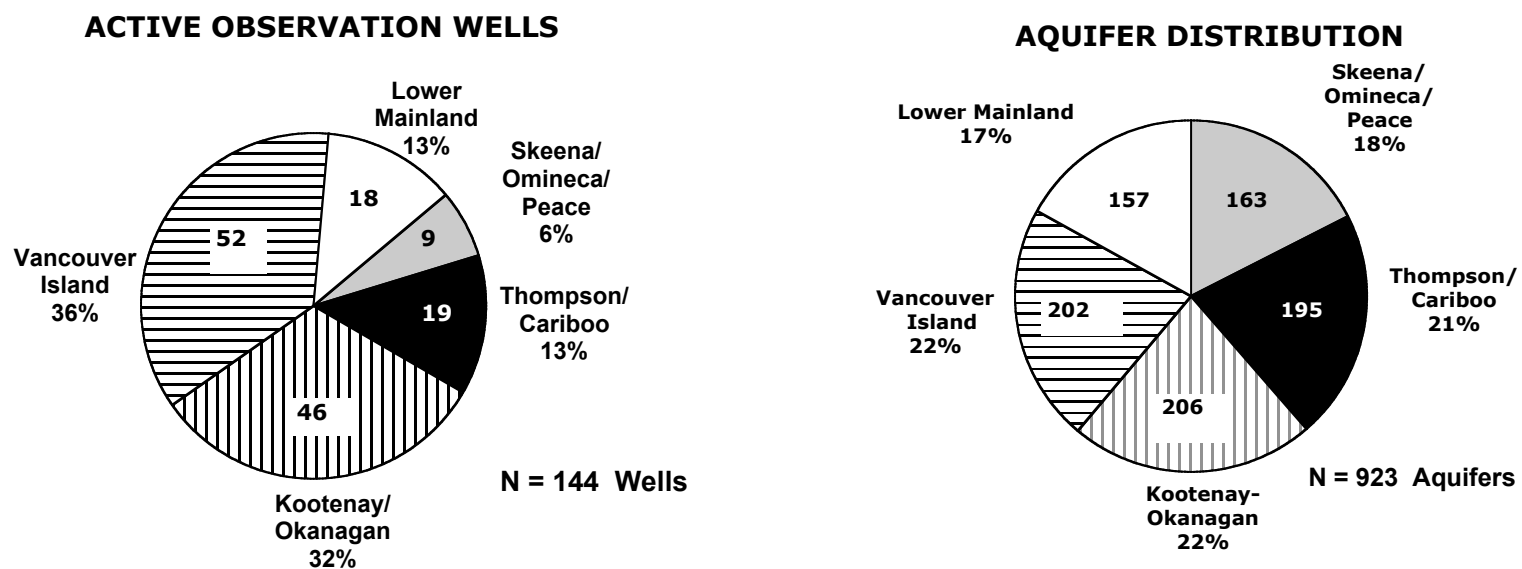


Figure 3. Comparison of the number of active observation wells and number of aquifers in each MOE region.

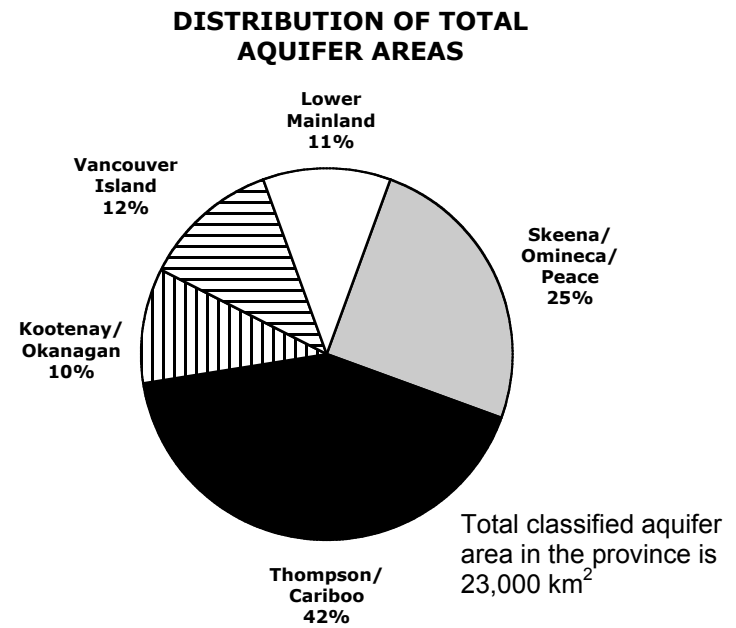
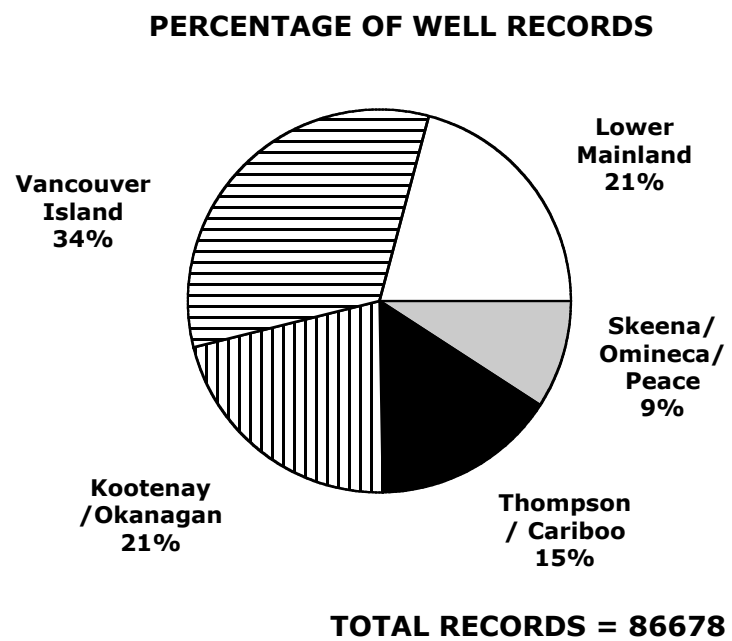


Figure 4. Distribution of well records and total aquifer areas in each MOE Region.

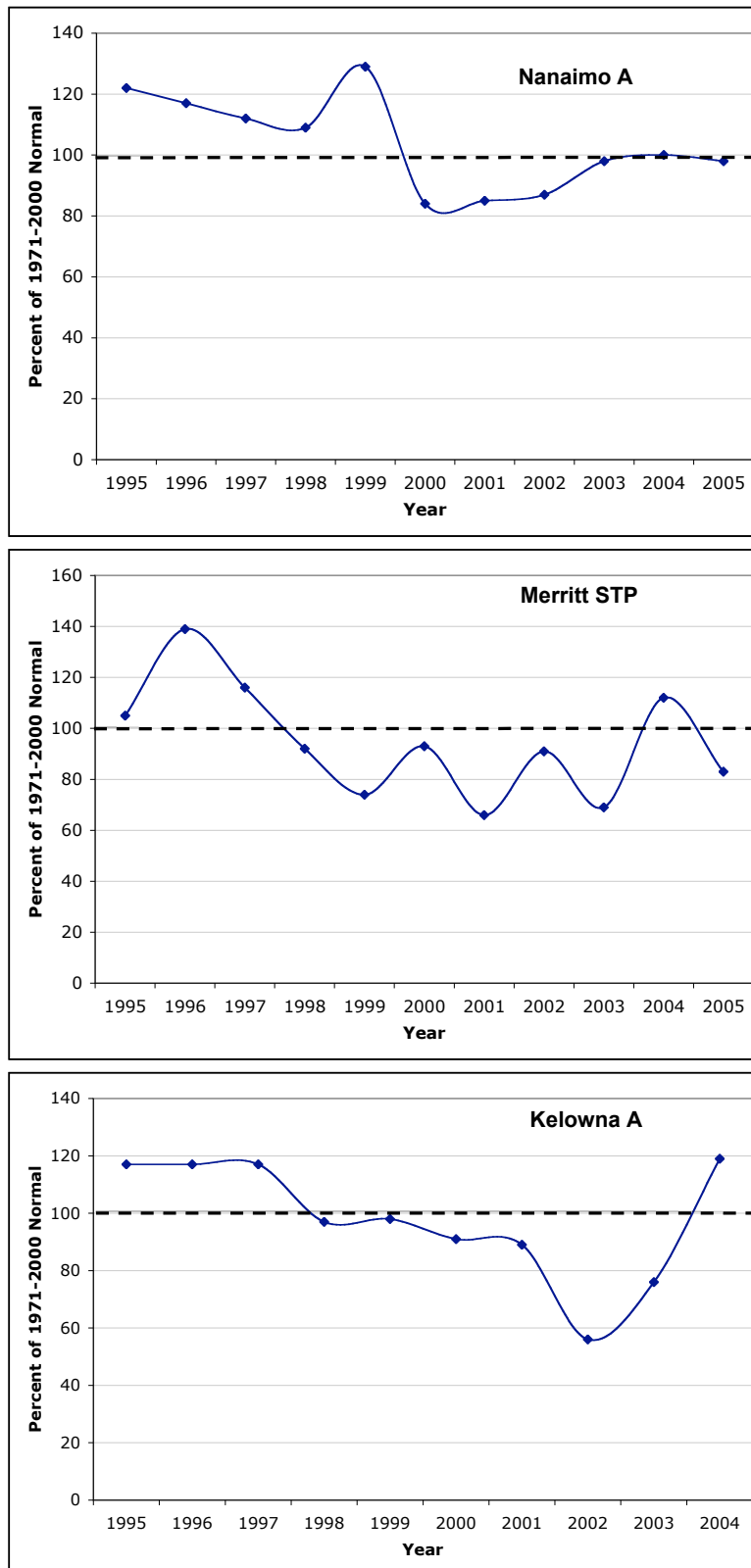


Figure 5 Percent annual precipitation relative to 1971-2000 Normal for representative climate stations during period 1995 to 2005.

Table 1. Priority criteria identified at Observation Well Network Workshop.

Priority	Breakout Group 1	Breakout Group 2	Breakout Group 3	Breakout Group 4
1	Quality issues. Needs to be broken down, e.g. population served.	Threats to ground water quantity and quality such as climate change. Need to assess risk.	Population, severity of aquifer use, sole use, growth and urbanization, highly developed aquifers.	Importance of aquifers, level of use and development.
2	Quantity issues, consider human health, quality and aquifer vulnerability, e.g. "A" aquifers.	Value of water use with drinking water use given priority. Need to rank use and have economic focus.	Public health, ambient networks.	Purpose of monitoring, coverage versus extent of aquifer.
3	Represent coverage across regions, geoclimatic zones and important aquifers.	Consider ecological values on an area basis.	Baseline, unimpacted areas, close to snow survey network and hydrometric.	Priority of purpose.
4	Economic factors, money talks, include partnerships and other supporters.	New areas for development, e.g. agriculture and industry.	Geographical representation, bioclimatic zones.	Cost and resources required.
5	Cost of establishing wells, access and equipment, and security of site.	Regional balance, consistent coverage and biogeoclimatic zones.	Cost factors, operating versus capital costs, long-term investment.	Coverage especially in the north where expansion is needed.
6	Research and characterization including sustainability and population growth.			Political requests
7				Professional discretion

Table 2. Summary of criteria used by other jurisdictions in Canada.

JURISDICTION	CRITERIA	COMMENTS	CURRENT ISSUES	REFERENCES
ALBERTA	Currently developing criteria process based on GIS including layers on geology, recharge areas, vulnerability maps, land use pressures such as water use, contamination sources and existing/projected development pressures, and possible water well complaint layer. Moving towards combined ambient and effects monitoring.	Current network of 200 wells downsized from 400 wells in mid. 1990s. Focused on water level monitoring with 40 to 50 wells sampled for quality on 5-year rotation.	Coal bed methane (CBM) Interest of watershed stewardship groups and regional planning groups in establish local networks. Government faced with deciding priority areas for monitoring.	Steve Wallace, Hydrogeologist, Alberta Environment, Groundwater Policy Section <Steve.Wallace@gov.ab.ca> >Oct.29, 2008.
SASKATCHEWAN	To be established	Current network of 72 active wells. Network taken over from Saskatchewan Research Council in 2005 by Saskatchewan Watershed Authority (SWA).	Geologic and geographic data gaps. Global warming. Also monitor outside network, e.g. 30 monitor wells for large private well development.	Nolan Shaheen, Director Groundwater Management, SWA <Nolan.Shaheen@swa.ca> Oct. 28, 2008.
MANITOBA	No formal set of criteria. Currently reviewing their network and establishing new objectives.		Need for observation wells as part of large scale developments. Province cannot install all observation wells, considering requiring these with extraction licensing.	Bob Betcher, Manager, Manitoba Water Stewardship, Groundwater Management Section Bob.Betcher@gov.mb.ca Nov. 7, 2008.

JURISDICTION	CRITERIA	COMMENTS	CURRENT ISSUES	REFERENCES
NOVA SCOTIA	To be established in future. Considering extent of ground water development, population density, coverage of geographic areas, aquifers and primary watersheds.	Current network of 31 wells. Network was reduced to 8 wells in 2000 from 40 wells in 1990.		John Drage, Hydrogeologist DRAGEJO@gov.ns.ca Nov. 3, 2008.
NEW BRUNSWICK	Geology, spatial coverage, manageable numbers, watershed location, funding and requirements, human impacts, compatibility with Hydrometric Network and similar (real-time) technology, attached agreement, proximity to original pre. 1992 network.	Current network of 10 wells. Network re-established in 2001 after being terminated in 1992 due to budget constraints. Operated in partnership with Water Survey of Canada (Env. Canada).		Darryl Pupek Darryl.Pupek@gnb.ca Oct.29, 2008.

Table 3. Template for ranking unconsolidated aquifers.

Aquifer Number:		Type:	Location:				
Item	Description	Measure	Point Scale	Points Assigned	Weighting Factor	Maximum Weighting	Score
A.	Aquifer Area	> 50 km ²	3		1	10%	0.0
		10 – 50 km ²	2		0.5		0.0
		< 10 km ²	1		0.25		0.0
B.	Aquifer Classification and Ranking	Degree of Development I	3		1	10%	0.0
		II	2		0.5		0.0
		III	1		0.25		0.0
C.	Aquifer Classification and Ranking	Vulnerability A	3		1	5%	0.0
		B	2		0.5		0.0
		C	1		0.25		0.0
D.	Aquifer Classification and Ranking	Ranking Value (based on 7 sub-factors)	5 to 21		1.0 – 0.24	5%	0.0
E.	Estimated Current Ground Water Use	High > 64 L/s	3		1	10%	0.0
		Medium 32 - 64 L/s	2		0.5		0.0
		Low < 32 L/s	1		0.25		0.0
F.	Number of Ground Water Supply Systems	> 5	3		1	15%	0.0
		2 – 5	2		0.66		0.0
		1	1		0.33		0.0
		none reported	0		0		0.0
G.	Number of Reported Irrigation and large production wells, e.g. > 32L/s	> 10	3		1	5%	0.0
		2 – 10	2		0.5		0.0
		< 2	1		0.25		0.0
		none reported	0		0		0.0
H.	Well Density	> 5 km ²	3		1	10%	0.0
		1 – 5 km ²	2		0.5		0.0
		< 1 km ²	1		0.25		0.0
I.	Water Quantity &Quality Issues/Concerns Reported	> 3 (regional)	3		1	10%	0.0
		2 to 3 (local)	2		0.5		0.0
		1 (isolated)	1		0.25		0.0
		none reported	0		0		0.0
J.	Estimated Population Served by Groundwater	> 1000	3		1	10%	0.0
		500 - 1000	2		0.5		0.0
		< 500	1		0.25		0.0
K.	Water management planning and future regulation	Being planned	3		1	10%	0.0
		Possible	2		0.5		0.0
		Unlikely	1		0.25		0.0
						Total	0.0

Table 4. Template for ranking bedrock aquifers.

Aquifer Number:		Type:	Location:				
Item	Description	Measure	Point Scale	Points Assigned	Weighting Factor	Maximum Weighting	Score
A.	Aquifer Area	> 50 km ²	3		1	10%	0.0
		10 – 50 km ²	2		0.5		0.0
		< 10 km ²	1		0.25		0.0
B.	Aquifer Classification and Ranking	Degree of Development I	3		1	10%	0.0
		II	2		0.5		0.0
		III	1		0.25		0.0
C.	Aquifer Classification and Ranking	Vulnerability A	3		1	5%	0.0
		B	2		0.5		0.0
		C	1		0.25		0.0
D.	Aquifer Classification and Ranking	Ranking Value (based on 7 sub-factors)	5 to 21		1.0 – 0.24	5%	0.0
E.	Estimated Current Ground Water Use	High > 64 L/s	3		1	10%	0.0
		Medium 32 - 64 L/s	2		0.5		0.0
		Low < 32 L/s	1		0.25		0.0
F.	Number of Ground Water Supply Systems	> 5	3		1	15%	0.0
		2 – 5	2		0.66		0.0
		1	1		0.33		0.0
		none reported	0		0		0.0
G.	Number of Reported Irrigation and large production wells, e.g. = or > 3L/s	> 10	3		1	5%	0.0
		2 – 10	2		0.5		0.0
		< 2	1		0.25		0.0
		none reported	0		0		0.0
H.	Well Density	> 5 km ²	3		1	10%	0.0
		1 – 5 km ²	2		0.5		0.0
		< 1 km ²	1		0.25		0.0
I.	Water Quantity &Quality Issues/Concerns Reported	> 3 (regional)	3		1	10%	0.0
		2 to 3 (local)	2		0.5		0.0
		1 (isolated)	1		0.25		0.0
		none reported	0		0		0.0
J.	Estimated Population Served by Groundwater	> 1000	3		1	10%	0.0
		500 - 1000	2		0.5		0.0
		< 500	1		0.25		0.0
K.	Water management planning and future regulation	Being planned	3		1	10%	0.0
		Possible	2		0.5		0.0
		Unlikely	1		0.25		0.0
						Total	0.0

Table 5 . Template for ranking BCGS areas.

BCGS Area:			Location:					
Item	Description	Measure	Point Scale		Points Assigned	Weighting Factor	Maximum Weighting	Score
A.	Number of Classified Aquifers	> 5	3		1	15%	0.0	
		3 – 5	2		0.75		0.0	
		1 to 2	1		0.33		0.0	
B.	Number of Reported Wells	> 300	3		1	15%	0.0	
		100-300	2		0.75		0.0	
		<100	1		0.33		0.0	
C.	Number of Ground Water Supply Systems	> 5	3		1	15%	0.0	
		3 – 5	2		0.75		0.0	
		1 to 2	1		0.33		0.0	
D.	Number of Ground Water Well and Spring Sources for Water Systems	> 5	3		1	5%	0.0	
		3 – 5	2		0.5		0.0	
		1 to 2	1		0.25		0.0	
E.	Water Quantity and Quality Issues/Concerns Reported	>3	3		1	20%	0.0	
		2 to 3	2		0.5		0.0	
		1	1		0.25		0.0	
F.	Number of Water Planning or Research Projects active and proposed	> 3	3		1	5%	0.0	
		2 to 3	2		0.5		0.0	
		1	1		0.25		0.0	
G.	Degree of Mountain Pine Beetle Infestation	moderate to severe	3		1	5%	0.0	
		light to moderate	2		0.5		0.0	
		nil to light	1		0.25		0.0	
H.	Number of Active Climate Stations	> 3	3		1	5%	0.0	
		2 to 3	2		0.5		0.0	
		1	1		0.25		0.0	
I.	Number of Community Watersheds	> 3	3		1	5%	0.0	
		2 to 3	2		0.5		0.0	
		1	1		0.25		0.0	
J.	Number of Active Hydrometric Sites and Snow Pillow Courses	> 3	3		1	5%	0.0	
		2 to 3	2		0.5		0.0	
		1	1		0.25		0.0	
K	Number of Parks and Protected Areas	> 3	3		1	5%	0.0	
		2 to 3	2		0.5		0.0	
		1	1		0.25		0.0	
Total							0.00	

Table 6. Descending ranking scores of classified unconsolidated aquifers in the Vancouver Island Region.

Item	Unconsolidated Aquifer Number	Aquifer Name	Aquifer Class	Location Description	Ranking Score for Monitoring
1	0216		IB	Parksville	69.4
2	0217		IB	Qualicum	68.3
3	0408		IIC	Comox Harbour to 10 km north of Merville	66.9
4	0186	Lower Cowichan River A	IA	Duncan	65.8
5	0161	Cassidy	IIA	Cassidy	65.8
6	0172		IA	Chemainus and Crofton	55.8
7	0187	Lower Cowichan River B	IIB	Duncan	55.4
8	0664		IA	Little Qualicum R. valley & delta	55.2
9	0865		IA	Heber R. and Gold R.	55.2
10	0197		IIC	Cowichan Bay / Cobble Hill	51.4
11	0662		IIC	Between Big & Little Qualicum Rivers	50.4
12	0206		IIA	Mill Bay	50.1
13	0762		IC	Quadra Island	44.4
14	0858		IB	Alert Bay – Cormorant Island	43.7
15	0219		IIC	Nanoose Creek	43.7
16	0221		IIA	Parksville	40.4
17	0410		IIA	Southern bank of Oyster River delta	40.1
18	0184		IIIA	West Duncan	39.6
19	0841		IIC	S Cortes Island	39.6
20	0156		IIB	Ganges Harbour / SSI	39.4
21	0753		IIC	Quadra Island	39.4
22	0685	Pacheedaht	IIIA	San Juan River floodplain, Port Renfrew	39.2
23	0188	Lower Cowichan River C	IIIC	Duncan	38.7
24	0159	Lost Shoe Creek	IIA	Ucluelet	38.3
25	0189		IIA	Honeymoon Bay	37.9
26	0902		IIIB	Pt. McNeil	37.7
27	0407		IIA	Point Holmes, east of the Town of Comox.	37.4
28	0611		IIB	Saanichton, Central Saanich	36.9
29	0750		IIC	Mayne Island, east of Village Bay	36.7
30	0616		IIC	Elk Lake to Cordova Bay	36.4
31	0215		IIC	Lanzville	36.2
32	0764		IIB	Port McNeil - east	36.0
33	0661		IIIA	Spider Lk nr Horne Lk	35.7
34	0684		IIIA	Goldstream River mouth, Finlayson Arm	35.7
35	0414		IIA	Mouth of Rosewall Creek	35.6
36	0665		IIIB	Between Big Qualicum R. & Thames Ck.	35.5
37	0613		IIC	Durrance Road / Saanich	35.5
38	0155		IIB	Walker Hook / SSI	35.2
39	0694		IIB	Stamp River; E side of Stamp Falls	35.2
40	0739		IIB	Denman Island - east	35.2
41	0412		IIA	Kahusham / North bank of Oyster River	35.1

Item	Unconsolidated Aquifer Number	Aquifer Name	Aquifer Class	Location Description	Ranking Score for Monitoring
42	0599		IIIA	Sooke R floodplain, west to Kemp Lk	35.1
43	0191		IIA	North Lake Cowichan	34.9
44	0199		IIC	Cowichan Station	34.7
45	0612		IIB	Central Saanich / Keating	34.6
46	0157		IIB	Fulford Harbour / SSI	34.4
47	0174		IIC	North Duncan	34.4
48	0615		IIIB	East side of Saanich Peninsula	34.4
49	0693		IIA	Stamp River; d/s from Great Central Lake	33.7
50	0761		IIA	Quadra Island	33.5
51	0205		IIC	Cobble Hill / Shawnigan Lake	33.4
52	0609		IIIB	Littlewood Road North of Vic Airport	32.9
53	0416		IIB	Thames River to Maplegaurd Point	32.9
54	0167		IIIB	Westwood Lake / Nanaimo	32.1
55	0610		IIB	North Saanich / Bazan Bay	32.1
56	0752		IIC	Quadra Island	32.1
57	0663		IIIA	Upper reaches of Whisky Creek	31.4
58	0185		IIC	Deerholm, South Duncan	31.2
59	0682		IIIB	Colwood, Langford, Metchosin	31.0
60	0786		IIIB	Sidney Island, North End	31.0
61	0751		IIB	Quadra Island	30.5
62	0852		IIB	Simms Creek S of Campbell River	30.5
63	0419		IIIB	Wilfred Creek south of Fanny Bay	30.4
64	0853		IIB	Willow Pt/Shelter Pt S of Campbell River	30.2
65	0906		IIB	Ft. Rupert	30.2
66	0179		IIIA	Sahtlam	29.9
67	0190		IIIA	Youbou	29.9
68	0163		IIB	Cedar North Holden Lake	29.6
69	0192		IIIC	North Lake Cowichan	29.6
70	0409		IIIA	Little River	29.4
71	0755		IIC	Quadra Island	29.4
72	0854		IIC	Oyster Bay S of Campbell River	29.4
73	0856		IIC	Oyster Bay S of Campbell River	29.4
74	0900		IIIC	Sointula / Malcolm Island	29.2
75	0180		IIC	Sahtlam	28.4
76	0183		IIC	West Duncan	28.4
77	0169		IIIC	Saltair South Ladysmith	28.2
78	0178		IIIC	Skutz Falls / Lake Cowichan, Paldi	28.2
79	0201		IIC	Cobble Hill	28.2
80	0683		IIIC	Metchosin, from Parry Bay inland 3 km	28.2
81	0617		IIC	West Saanich Rd at Wallace Dr	28.0
82	0847		IIB	Campbell River (south)	27.7
83	0901		IIIB	Sointula / Malcolm Island	27.7
84	0695		IIIC	N shore of Sproat Lake; close to Kleecoot	26.7
85	0700		IIIC	N shore of Sproat Lake at Kleecoot	26.7
86	0605		IIIC	South of Broom Hill NE of Sooke Bay	26.4
87	0160	Lower Cassidy	IIIC	Cassidy	26.2

Table 6

Item	Unconsolidated Aquifer Number	Aquifer Name	Aquifer Class	Location Description	Ranking Score for Monitoring
88	0209		IIIC	Errington	25.7
89	0604		IIIC	East of Sooke around Young Lake	25.2
90	0417		IIIA	North of Cumberland, to Puntledge R.	25.1
91	0692		IIIA	Bear Creek; N of Stamp River Falls	25.0
92	0415		IIIA	Tsable River Delta	24.9
93	0686		IIIC	Gordon Head, Saanich	24.2
94	0703		IIIB	W bank of Somass River	22.7
95	0704		IIIB	E bank of Somass River	22.5
96	0857		IIIC	Campbell River Airport	22.1
97	0421		IIIB	Nile Creek to Thames Creek	21.9
98	0859		IIIC	Mitchell Bay / Malcolm Island	21.7
99	0705		IIIC	Polly Point; 4km S of Port Alberni; E side	21.4
100	0707		IIIC	China Cr; E Alb. In; 8km S of Pt Alberni	21.2

Table 6

Table 7. Descending ranking scores of classified bedrock aquifers in the Vancouver Island Region.

Item	Bedrock Aquifer Number	Aquifer Name	Aquifer Class	Location Description	Ranking Score for Monitoring
1	0722		IIA	Saltspring Is; central part; Ganges area	71.1
2	0608		IIB	North Saanich to Elk Lake	69.4
3	0162		IIA	Cedar, Yellow Point, N. Oyster (Ladysmith)	68.8
4	0740		IIA	Denman Island	66.4
5	0709		IIA	Gabriola; excluding northern portion	66.1
6	0721		IIB	Saltspring Island; north part	63.3
7	0711		IIA	North Pender; northern area	63.1
8	0706		IA	Gabriola; Northern area	61.1
9	0435		IA	Whaling Station Bay / Hornby Island	61.1
10	0620		IB	Mayne Island	56.4
11	0680		IIB	Victoria S of Elk Lake, E of Finlayson Arm	56.2
12	0320		IIB	Galiano Island	55.8
13	0731		IIB	Thetis Island	53.5
14	0712		IIA	North Pender; Port Browning	53.1
15	0619		IIB	Mayne Island	53.1
16	0720		IIB	North Pender; southern portion	52.6
17	0723		IIIB	Saltspring Island	51.2
18	0729		IA	South Thetis Island	50.2
19	0447		IIA	Georgina Point - Hall Hill / Mayne Island	50.1
20	0737		IB	Saturna Island - west	49.7
21	0702		IB	McCoy Lake; W of Port Alberni	48.5
22	0710		IIB	South Pender	48.5
23	0203		IIA	Shawnigan Lake / Cobble Hill	47.9
24	0735		IA	Saturna Island - east	47.2
25	0438		IIA	Mt. Geoffrey / Hornby Island	46.1
26	0606		IIIA	Colwood / Langford / Metchosin / Sooke	45.4
27	0207		IIB	Mill Bay / Shawnigan Lake	45.4
28	0204		IIB	Cobble Hill / Mill Bay	45.1
29	0732		IA	Thetis Island	43.7
30	0218		IIB	Nanoose Hill	43.4
31	0845		IIA	Cortes Island	43.0
32	0736		IIB	Saturna Island - north	41.5
33	0781		IA	Kolb Island, East of Swartz Bay	40.7
34	0436		IIA	Shingle Spit-Phipps Point, Hornby Island	40.6
35	0758		IB	Quadra Island	40.5
36	0754		IIB	Quadra Island	40.2
37	0757		IIB	Quadra Island	40.2
38	0632		IIB	Navy Channel, S. Mayne Is.	39.5
39	0614		IIIB	Saanich between Cordova and Brentwood Bay	39.2
40	0756		IIA	Quadra Island	39.0
41	0697		IIB	East side of Alberni Valley	38.7

Item	Bedrock Aquifer Number	Aquifer Name	Aquifer Class	Location Description	Ranking Score for Monitoring
42	0730		IIB	Thetis Island	38.2
43	0843		IIB	Cortes Island	38.0
44	0905		IIB	Ft. Rupert	38.0
45	0202		IIB	Shawnigan Lake / Cobble Hill	37.9
46	0437		IIIA	Ford Cove - Norman Point / Hornby Island	37.6
47	0175		IIB	North Duncan	37.4
48	0759		IB	Quadra Island	36.7
49	0168		IIIB	Ladysmith	36.4
50	0213		IIC	Lantzville	36.4
51	0681		IIA	Willis Point, SE side of Saanich Inlet	35.7
52	0733		IB	Norway Island	35.5
53	0741		IB	Hudson Island	35.5
54	0742		IB	Scot Island	35.5
55	0760		IIB	Quadra Island	35.5
56	0165		IIB	South Wellington	34.9
57	0170		IB	Panorama Ridge / Chemainus	34.9
58	0220		IIB	Errington	34.6
59	0176		IIIA	East Duncan - Maple Bay	34.6
60	0607		IIIB	North end of Saanich Peninsula	34.4
61	0848		IIC	Black Creek S of Campbell River	34.2
62	0701		IIB	Eagle Point SW of Kleecoot	33.5
63	0181		IC	West Duncan	33.2
64	0842		IIA	Cortes Island	33.2
65	0171		IIIC	Mt. Sicker / Crofton - Chemianus	33.2
66	0904		IIA	Pt. Hardy	33.0
67	0413		IIA	West of Royston, north to Puntledge River	32.9
68	0782		IIA	Fernie Island, East of Swartz Bay	32.7
69	0785		IIA	Comet Island, East of Sidney	32.7
70	0698		IIC	North shore of Sproat Lake at Kleecoot	32.4
71	0208		IIIA	Spectacle Lake / Malahat	32.4
72	0420		IIB	1 km south of Oyster River mouth	32.1
73	0449		IIIC	West of Sooke at Orveous Bay	31.2
74	0708		IIB	E side Alberni In; 8 km S of Port Alberni	30.7
75	0734		IIB	Dayman Island	30.2
76	0738		IIB	Saturna Island - west	30.2
77	0763		IIB	Port McNeil	30.0
78	0778		IIB	Pym Island, N of Swartz Bay	30.0
79	0779		IIB	Knapp Island, N of Swartz Bay	30.0
80	0214		IIIB	Madrona Point/Parksville	29.9
81	0173		IIIA	Maple Mtn. / Crofton - Maple Bay	29.9
82	0177		IIIA	East Duncan - Maple Bay	29.6
83	0200		IIIB	Cobble Hill/Duncan	29.6
84	0196		IIIC	Deerholm / Duncan	29.4
85	0696		IIC	East of Stamp Falls	29.4

Table 7

Item	Bedrock Aquifer Number	Aquifer Name	Aquifer Class	Location Description	Ranking Score for Monitoring
86	0166		IIIB	Stevenson Point, Nanaimo	29.2
87	0907		IIIB	Coal Harbour S of Pt. Hardy	29.0
88	0780		IIC	Goudge Island, east of Swartz Bay	28.9
89	0182		IIIC	Paldi - Sahtlam	28.4
90	0618		IIIC	Port Renfrew, south side of San Juan River	28.2
91	0210		IIC	Nanoose Bay	28.0
92	0211		IIIC	Nanaimo	27.9
93	0783		IIA	Coal Island, N of Swartz Bay	27.7
94	0784		IIA	Forrest Island, East of Sidney	27.7
95	0164		IIIB	Extension (Nanaimo)	26.9
96	0844		IIB	Cortes Island	26.7
97	0198		IIIC	Cowichan Station / Duncan	25.5
98	0212		IIIC	Parksville	25.2
99	0787		IIIC	Sidney Island, South End	24.6
100	0699		IIIC	N sh of Sproat Lk; 8 km W of Port Alberni	23.9
101	0846		IIIB	Cortes Island	22.7
102	0691		IIIB	East of Ash River	22.5

Table 7

Table 8. Descending ranking scores of BCGS areas for the main Vancouver Island sub region.

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring
1	092B.063	Vancouver Island (East) Rivers	North Saanich to Elk Lake	83.33
2	092B.053	Vancouver Island (East) Rivers	Spectacle Lake / Malahat	70.83
3	092F.039	Vancouver Island (East) Rivers	Parksville	70.00
4	092F.038	Vancouver Island (East) Rivers	Little Qualicum River	69.17
5	092G.001	Vancouver Island (East) Rivers	Cassidy	67.50
6	092F.029	Vancouver Island (East) Rivers	Lower Englishman R.	66.67
7	092B.092	Vancouver Island (East) Rivers and Gulf Islands	Panorama Ridge / Chemainus	65.00
8	092G.011	Vancouver Island (East) Rivers and Gulf Islands	Nanaimo	63.33
9	092F.085	Vancouver Island (East) Rivers	Black Creek	62.50
10	092F.030	Vancouver Island (East) Rivers	Wellington	60.83
11	092G.002	Vancouver Island (East) Rivers and Gulf Islands	Yellowpoint-Thetis	60.00
12	092B.072	Vancouver Island (East) Rivers	Cowichan Bay to Cobble Hill	58.33
13	092B.062	VI (East and West) rivers	Shawnigan Lake / Cobble Hill	58.33
14	092B.032	Vancouver Island (West) Rivers	Colwood,Langford,Sooke,Metchosin	56.67
15	092F.066	Vancouver Island (East) Rivers and South Coast Islands	Comox	55.00
16	092K.004	Vancouver Island (East) Rivers and South Coast Islands	Campbell River	55.00
17	092B.082	Vancouver Island (East) Rivers	Maple Mtn. / Crofton	54.17
18	092C.090	Vancouver Island (East) Rivers	North Cowichan Lake	54.17
19	092B.071	Vancouver Island (East) Rivers	Paldi / Sahtlam	53.33
20	092F.026	Vancouver Island (West) Rivers	West side of Alberni Valley	53.33
21	092B.033	Vancouver Island (East) Rivers	Colwood,Langford,Sooke,Metchosin	52.50
22	092F.075	Vancouver Island (East) Rivers	Tsolum River	51.67
23	092F.047	Vancouver Island (East) Rivers and South Coast Islands	Deep Bay	51.25
24	092F.076	Vancouver Island (East) Rivers	Little River	50.00
25	092B.043	Vancouver Island (East) Rivers	Colwood,Langford,Sooke,Metchosin	47.08
26	092B.054	Vancouver Island (East) Rivers	East of Elk Lake	46.25
27	092B.044	Vancouver Island (East) Rivers	Victoria / south of Elk Lake	45.00
28	092F.036	VI (East and West) rivers	Stamp River	44.58
29	092F.056	Vancouver Island (East) Rivers and South Coast Islands	Tsable River	43.33
30	092B.031	Vancouver Island (West) Rivers	West of Sooke / Orveas Bay	42.50
31	092C.059	Vancouver Island (West) Rivers	San Juan River	40.83
32	092F.037	VI (East and West) rivers	Horne Lake	39.58
33	092B.064	Vancouver Island (East) Rivers and Gulf Islands	Sidney Island	39.58
34	092B.042	Vancouver Island (West) Rivers	Colwood,Langford,Sooke,Metchosin	39.17
35	092F.065	Vancouver Island (East) Rivers	Comox Lake	38.33
36	092L.055	Vancouver Island (East) Rivers	Port McNeil	36.67
37	092F.027	Vancouver Island (West) Rivers	East side of Alberni Valley	34.58
38	092L.063	VI (East and West) rivers	Fort Rupert	34.17
39	092C.058	Vancouver Island (West) Rivers	San Juan River	34.17
40	092G.021	Vancouver Island (East) Rivers and Gulf Islands	Departure Bay	32.08
41	092C.050	Vancouver Island (West) Rivers	Colwood,Langford,Sooke,Metchosin	30.83
42	092K.031	Vancouver Island (East) Rivers	Sayward	30.00
43	092F.094	Vancouver Island (East) Rivers	Quinsan River	27.08

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring
44	092F.020	Vancouver Island (East) Rivers	Nanaimo	24.17
45	092F.095	Vancouver Island (East) Rivers and South Coast Islands	Oyster Bay	24.17
46	092E.080	Vancouver Island (West) Rivers	Gold River	24.17
47	092L.073	Vancouver Island (East) Rivers	Port Hardy	23.33
48	092C.089	Vancouver Island (West) Rivers	Cowichan Lake south	23.33
49	092F.028	Vancouver Island (East) Rivers	Upper Englishman R.	22.50
50	092C.093	Vancouver Island (West) Rivers	Ucluelet	21.67
51	092B.081	Vancouver Island (East) Rivers	Paldi / Sahtlam	20.42
52	092F.084	Vancouver Island (East) Rivers	Upper Oyster River	20.42
53	092F.002	Vancouver Island (West) Rivers	Ucluelet	19.58
54	092F.046	VI (East and West) rivers	Southwest of Fanny Bay	19.17
55	092B.052	VI (East and West) rivers	Shawnigan Lake / Cobble Hill	18.33
56	092C.085	Vancouver Island (West) Rivers	Bamfield	17.08
57	092L.056	Vancouver Island (East) Rivers and South Coast Islands	Alert Bay	16.25
58	092F.045	VI (East and West) rivers	Elsie Lake	11.67
59	092L.052	Vancouver Island (West) Rivers	Quatsino	6.67

Table 9. Descending ranking scores of BCGS areas for South Coast and Gulf Islands sub region.

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring
1	092B.073	Vancouver Island (East) Rivers and Gulf Islands	Saltspring Island	75.00
2	092B.084	VI (East) Gulf Islands	North Pender Island	74.17
3	092B.083	VI (East) Gulf Islands	Saltspring Island	74.17
4	092B.093	VI (East) Gulf Islands	Saltspring Island / Galiano Island	70.00
5	092B.074	VI (East) Gulf Islands	North Pender Island	69.17
6	092F.057	VI (East) South Coast Islands	Denman-Hornby	66.67
7	092B.092	Vancouver Island (East) Rivers and Gulf Islands	Panorama Ridge / Chemainus	65.00
8	092G.011	Vancouver Island (East) Rivers and Gulf Islands	Nanaimo	63.33
9	092G.002	Vancouver Island (East) Rivers and Gulf Islands	Yellowpoint-Thetis	60.00
10	092B.075	VI (East) Gulf Islands	Saturna Island	55.83
11	092F.066	Vancouver Island (East) Rivers and South Coast Islands	Comox	55.00
12	092K.004	Vancouver Island (East) Rivers and South Coast Islands	Campbell River	55.00
13	092F.047	Vancouver Island (East) Rivers and South Coast Islands	Deep Bay	51.25
14	092K.005	VI (East) South Coast Islands	Quadra/Cortes	47.50
15	092F.056	Vancouver Island (East) Rivers and South Coast Islands	Tsable River	43.33
16	092G.012	Van. Isle. (East) Gulf Islands	Gabriola	43.33
17	092K.014	Vancouver Island (East) Rivers and South Coast Islands	Quadra	43.33
18	092B.064	Vancouver Island (East) Rivers and Gulf Islands	Sidney Island	39.58
19	092K.006	VI (East) South Coast Islands	Cortes-south	33.33
20	092B.085	VI (East) Gulf Islands	Saturna Island	32.50
21	092G.021	Vancouver Island (East) Rivers and Gulf Islands	Departure Bay	32.08
22	092K.015	VI (East) South Coast Islands	Cortes-northwest	31.67
23	092B.094	VI (East) Gulf Islands	Galiano Island	26.25
24	092F.095	Vancouver Island (East) Rivers and South Coast Islands	Oyster Bay	24.17
25	092G.003	VI (East) Gulf Islands	Galiano-north	20.00
26	092L.065	Vancouver Island (East) Rivers and South Coast Islands	Malcolm Island west	19.58
27	092L.056	Vancouver Island (East) Rivers and South Coast Islands	Alert Bay	16.25
28	092L.066	VI (East) South Coast Islands	Malcolm Island east	15.00
29	092K.016	VI (East) South Coast Islands	Cortes-northeast	14.17
30	092F.050	VI (East) South Coast Islands	Lasqueti Island	7.50
31	092F.049	VI (East) South Coast Islands	Lasqueti Island	6.67
32	092F.059	VI (East) South Coast Islands	Texada-Lasqueti	6.67

Table 10. Comparison of top-rated BCGS areas in the Vancouver Island main sub region versus top-rated unconsolidated aquifers in the region.

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
1	092B.063	Vancouver Island (East) Rivers	North Saanich to Elk Lake	83.33	0216	092F.029, 038, 039		Parksville	69.4
2	092B.053	Vancouver Island (East) Rivers	Spectacle Lake / Malahat	70.83	0217	092F.038, 039		Qualicum	68.3
3	092F.039	Vancouver Island (East) Rivers	Parksville	70.00	0408	092F.066, 075, 076, 085		Comox Harbour to 10 km north of Merville	66.9
4	092F.038	Vancouver Island (East) Rivers	Little Qualicum River	69.17	0186	092B.072	Lower Cowichan River A	Duncan	65.8
5	092G.001	Vancouver Island (East) Rivers	Cassidy	67.50	0161	092G.001, 011	Cassidy	Cassidy	65.8
6	092F.029	Vancouver Island (East) Rivers	Lower Englishman R.	66.67	0172	092B.082, 092		Chemainus and Crofton	55.8
7	092B.092	Vancouver Island (East) Rivers and Gulf Islands	Panorama Ridge / Chemainus	65.00	0187	092B.072	Lower Cowichan River B	Duncan	55.4
8	092G.011	Vancouver Island (East) Rivers and Gulf Islands	Nanaimo	63.33	0664	092F.038		Little Qualicum R. valley & delta	55.2
9	092F.085	Vancouver Island (East) Rivers	Black Creek	62.50	0865			Heber R. and Gold R.	55.2
10	092F.030	Vancouver Island (East) Rivers	Wellington	60.83	0197	092B.062, 072		Cowichan Bay / Cobble Hill	51.4
11	092G.002	Vancouver Island (East) Rivers and Gulf Islands	Yellowpoint-Thetis	60.00	0662	092F.038		Between Big & Little Qualicum Rivers	50.4
12	092B.072	Vancouver Island (East) Rivers	Cowichan Bay to Cobble Hill	58.33	0206	092B.063		Mill Bay	50.1

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
13	092B.062	VI (East and West) rivers	Shawnigan Lake / Cobble Hill	58.33	0762	092K.004		Quadra Island	44.4
14	092B.032	Vancouver Island (West) Rivers	Colwood, Langford, Sooke, Metcho sin	56.67	0858			Alert Bay – Cormorant Island	43.7
15	092F.066	Vancouver Island (East) Rivers and South Coast Islands	Comox	55.00	0219	092F.029, 030, 039		Nanoose Creek	43.7
16	092K.004	Vancouver Island (East) Rivers and South Coast Islands	Campbell River	55.00	0221	092F.039		Parksville	40.4
17	092B.082	Vancouver Island (East) Rivers	Maple Mtn. / Crofton	54.17	0410	092F.085		Southern bank of Oyster River delta	40.1
18	092C.090	Vancouver Island (East) Rivers	North Cowichan Lake	54.17	0184	092B.072		West Duncan	39.6
19	092B.071	Vancouver Island (East) Rivers	Paldi / Sahtlam	53.33	0841			S Cortes Island	39.6
20	092F.026	Vancouver Island (West) Rivers	West side of Alberni Valley	53.33	0156			Ganges Harbour / SSI	39.4
21	092B.033	Vancouver Island (East) Rivers	Colwood, Langford, Sooke, Metcho sin	52.50	0753	092K.004		Quadra Island	39.4
22	092F.075	Vancouver Island (East) Rivers	Tsolum River	51.67	0685		Pacheedaht	San Juan River floodplain, Port Renfrew	39.2
23	092F.047	Vancouver Island (East) Rivers and South Coast Islands	Deep Bay	51.25	0188	092B.072	Lower Cowichan River C	Duncan	38.7
24	092F.076	Vancouver Island (East) Rivers	Little River	50.00	0159		Lost Shoe Creek	Ucluelet	38.3

Table 10

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
25	092B.043	Vancouver Island (East) Rivers	Colwood, Langford, Sooke, Metcho sin	47.08	0189	092C.090		Honeymoon Bay	37.9

Sub Areas

	Saanich-Mill Bay		Priority Aquifers
	Cassidy-Nanaimo		
	Chemainus-Crofton		
	Parksville-Qualicum		
	Comox		
	Cowichan Valley		

Table 11. Comparison of top-rated BCGS areas in the Vancouver Island main sub region versus top-rated bedrock aquifers in the region.

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
1	092B.063	Vancouver Island (East) Rivers	North Saanich to Elk Lake	83.33	0722			Saltspring Is; central part; Ganges area	71.1
2	092B.053	Vancouver Island (East) Rivers	Spectacle Lake / Malahat	70.83	0608	092B.053, 054, 063		North Saanich to Elk Lake	69.4
3	092F.039	Vancouver Island (East) Rivers	Parksville	70.00	0162	092G.001, 002, 011		Cedar, Yellow Point, N. Oyster	68.8
4	092F.038	Vancouver Island (East) Rivers	Little Qualicum River	69.17	0740			Denman Island	66.4
5	092G.001	Vancouver Island (East) Rivers	Cassidy	67.50	0709			Gabriola; excluding northern portion	66.1
6	092F.029	Vancouver Island (East) Rivers	Lower Englishman R.	66.67	0721			Saltspring Island; north part	63.3
7	092B.092	Vancouver Island (East) Rivers and Gulf Islands	Panorama Ridge / Chemainus	65.00	0711			North Pender; northern area	63.1
8	092G.011	Vancouver Island (East) Rivers and Gulf Islands	Nanaimo	63.33	0706			Gabriola; Northern area	61.1
9	092F.085	Vancouver Island (East) Rivers	Black Creek	62.50	0435			Whaling Station Bay / Hornby Island	61.1
10	092F.030	Vancouver Island (East) Rivers	Wellington	60.83	0620			Mayne Island	56.4
11	092G.002	Vancouver Island (East) Rivers and Gulf Islands	Yellowpoint-Thetis	60.00	0680	092B.043, 044, 053, 054		Victoria S of Elk Lake, E of Finlayson Arm	56.2
12	092B.072	Vancouver Island (East) Rivers	Cowichan Bay to Cobble Hill	58.33	0320			Galiano Island	55.8

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
13	092B.062	VI (East and West) rivers	Shawnigan Lake / Cobble Hill	58.33	0731			Thetis Island	53.5
14	092B.032	Vancouver Island (West) Rivers	Colwood, Langford, Sooke, Metcho sin	56.67	0712			North Pender; Port Browning	53.1
15	092F.066	Vancouver Island (East) Rivers and South Coast Islands	Comox	55.00	0619			Mayne Island	53.1
16	092K.004	Vancouver Island (East) Rivers and South Coast Islands	Campbell River	55.00	0720			North Pender; southern portion	52.6
17	092B.082	Vancouver Island (East) Rivers	Maple Mtn. / Crofton	54.17	0723			Saltspring Island	51.2
18	092C.090	Vancouver Island (East) Rivers	North Cowichan Lake	54.17	0729			South Thetis Island	50.2
19	092B.071	Vancouver Island (East) Rivers	Paldi / Sahtlam	53.33	0447			Georgina Point - Hall Hill / Mayne Island	50.1
20	092F.026	Vancouver Island (West) Rivers	West side of Alberni Valley	53.33	0737			Saturna Island - west	49.7
21	092B.033	Vancouver Island (East) Rivers	Colwood, Langford, Sooke, Metcho sin	52.50	0702	092F.026		McCoy Lake; W of Port Alberni	48.5
22	092F.075	Vancouver Island (East) Rivers	Tsolum River	51.67	0710			South Pender	48.5
23	092F.047	Vancouver Island (East) Rivers and South Coast Islands	Deep Bay	51.25	0203	092B.062		Shawnigan Lake / Cobble Hill	47.9
24	092F.076	Vancouver Island (East) Rivers	Little River	50.00	0735			Saturna Island - east	47.2
25	092B.043	Vancouver Island (East) Rivers	Colwood, Langford, Sooke, Metcho sin	47.08	0438			Mt. Geoffrey / Hornby Island	46.1

Table 11

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
26	092B.054	Vancouver Island (East) Rivers	East of Elk Lake	46.25	0606	092B.032, 033, 043		Colwood / Langford / Metchosin / Sooke	45.4
27	092B.044	Vancouver Island (East) Rivers	Victoria / south of Elk Lake	45.00	0207	092B.062 092B.063		Mill Bay / Shawnigan Lake	45.4

Sub Areas

	Cassidy-Nanaimo		Priority Aquifers
	Metchosin-Sooke		
	Saanich		
	Alberni Valley		
	Shawnigan-Cobble Hill		

Table 12 . Comparison of top-rated BCGS areas in the South Coast and Gulf Islands sub regions versus top-rated unconsolidated aquifers in the region.

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
1	092B.073	Vancouver Island (East) Rivers and Gulf Islands	Saltspring Island	75.00	0216			Parksville	69.4
2	092B.084	VI (East) Gulf Islands	North Pender Island	74.17	0217			Qualicum	68.3
3	092B.083	VI (East) Gulf Islands	Saltspring Island	74.17	0408			Comox Harbour to 10 km north of Merville	66.9
4	092B.074	VI (East) Gulf Islands	North Pender Island	69.17	0186		Lower Cowichan River A	Duncan	65.8
5	092F.057	VI (East) Gulf Islands	Denman-Hornby	66.67	0161		Cassidy	Cassidy	65.8
6	092B.092	VI (East) South Coast Islands	Panorama Ridge / Chemainus	65.00	0172			Chemainus and Crofton	55.8
7	092G.011	Vancouver Island (East) Rivers and Gulf Islands	Nanaimo	63.33	0187		Lower Cowichan River B	Duncan	55.4
8	092B.093	Vancouver Island (East) Rivers and Gulf Islands	Saltspring Island / Galiano Island	62.50	0664			Little Qualicum R. valley & delta	55.2
9	092G.002	Vancouver Island (East) Rivers and Gulf Islands	Yellowpoint-Thetis	60.00	0865			Heber R. and Gold R.	55.2
10	092B.075	VI (East) Gulf Islands	Saturna Island	55.83	0197			Cowichan Bay / Cobble Hill	51.4
11	092F.066	Vancouver Island (East) Rivers and South Coast Islands	Comox	55.00	0662			Between Big & Little Qualicum Rivers	50.4
12	092K.004	Vancouver Island (East) Rivers and South Coast Islands	Campbell River	55.00	0206			Mill Bay	50.1

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
13	092F.047	Vancouver Island (East) Rivers and South Coast Islands	Deep Bay	51.25	0762	092K.004, 014		Quadra Island	44.4
14	092K.005	VI (East) South Coast Islands	Quadra/Cortes	47.50	0858	092L.056		Alert Bay – Cormorant Island	43.7
15	092F.056	Vancouver Island (East) Rivers and South Coast Islands	Tsable River	43.33	0219			Nanoose Creek	43.4
16	092G.012	Van. Isle. (East) Gulf Islands	Gabriola	43.33	0221			Parksville	40.4
17	092K.014	Vancouver Island (East) Rivers and South Coast Islands	Quadra	43.33	0410			Southern bank of Oyster River delta	40.1
18	092B.064	Vancouver Island (East) Rivers and Gulf Islands	Sidney Island	39.58	0184			West Duncan	39.6
19	092K.006	VI (East) South Coast Islands	Cortes-south	33.33	0841	092K.006		S Cortes Island	39.6
20	092B.085	VI (East) Gulf Islands	Saturna Island	32.50	0156	092B.083		Ganges Harbour / SSI	39.4
21	092G.021	Vancouver Island (East) Rivers and Gulf Islands	Departure Bay	32.08	0753	092K.005		Quadra Island	39.4
22	092K.015	VI (East) South Coast Islands	Cortes-northwest	31.67	0685		Pacheedaht	San Juan River floodplain, Port Renfrew	39.2
23	092F.095	VI (East) Gulf Islands	Oyster Bay	24.17	0188		Lower Cowichan River C	Duncan	38.7
24	092B.094	Vancouver Island (East) Rivers and South Coast Islands	Galiano Island	20.00	0159		Lost Shoe Creek	Ucluelet	38.3
25	092G.003	VI (East) Gulf Islands	Galiano-north	20.00	0189			Honeymoon Bay	37.9

Table 12

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
26	092L.065	Vancouver Island (East) Rivers and South Coast Islands	Malcolm Island west	19.58	407			Point Holmes, east of the Town of Comox.	37.4
27	092L.056	Vancouver Island (East) Rivers and South Coast Islands	Alert Bay	16.25	0902			Pt. McNeil	37.3

Sub Areas

	Saltspring-Galiano		Priority Aquifers
	Quadra-Cortes		
	Alert Bay		

Table 13. Comparison of top-rated BCGS areas in the South Coast and Gulf Islands sub regions versus top-rated bedrock aquifers in the region.

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
1	092B.073	Vancouver Island (East) Riversand Gulf Islands	Saltspring Island	75.00	0722	092B.073, 083 092B.074		Saltspring Is; central part; Ganges area	71.1
2	092B.084	VI (East) Gulf Islands	North Pender Island	74.17	0608			North Saanich to Elk Lake	69.4
3	092B.083	VI (East) Gulf Islands	Saltspring Island	74.17	0162			Cedar, Yellow Point, N. Oyster (Ladysmith)	68.8
4	092B.093	VI (East) Gulf Islands	Saltspring Island / Galiano Island	70.00	0740	092F.047, 057		Denman Island	66.4
5	092B.074	VI (East) Gulf Islands	North Pender Island	69.17	0709	092G.011, 012		Gabriola; excluding northern portion	66.1
6	092F.057	VI (East) South Coast Islands	Denman-Hornby	66.67	0721	092B.083, 093		Saltspring Island; north part	63.3
7	092B.092	Vancouver Island (East) Rivers and Gulf Islands	Panorama Ridge / Chemainus	65.00	0711	092B.074, 084		North Pender; northern area	63.1
8	092G.011	Vancouver Island (East) Rivers and Gulf Islands	Nanaimo	63.33	0706	092G.01, 0211		Gabriola; Northern area	61.1
9	092G.002	Vancouver Island (East) Rivers and Gulf Islands	Yellowpoint- Thetis	60.00	0435	092F.057		Whaling Station Bay / Hornby Island	61.1

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
10	092B.075	VI (East) Gulf Islands	Saturna Island	55.83	0620	092B.084		Mayne Island	56.4
11	092F.066	Vancouver Island (East) Rivers and South Coast Islands	Comox	55.00	0680			Victoria S of Elk Lake, E of Finlayson Arm	56.2
12	092K.004	Vancouver Island (East) Rivers and South Coast Islands	Campbell River	55.00	0320	092B.093, 094, 092G.003		Galiano Island	55.8
13	092F.047	Vancouver Island (East) Rivers and South Coast Islands	Deep Bay	51.25	0731	092G.002		Thetis Island	53.5
14	092K.005	VI (East) South Coast Islands	Quadra/Cortes	47.50	0712	092B.074		North Pender; Port Browning	53.1
15	092F.056	Vancouver Island (East) Rivers and South Coast Islands	Tsable River	43.33	0619	092B.084		Mayne Island	53.1
16	092G.012	Van. Isle. (East) Gulf Islands	Gabriola	43.33	0720	092B.074		North Pender; southern portion	52.6
17	092K.014	Vancouver Island (East) Rivers and South Coast Islands	Quadra	43.33	0723	092B.073		Saltspring Island	51.2
18	092B.064	Vancouver Island (East) Rivers and Gulf Islands	Sidney Island	39.58	0729	092B.092		South Thetis Island	50.2
19	092K.006	VI (East) South Coast Islands	Cortes-south	33.33	0447	092B.084		Georgina Point - Hall Hill / Mayne Island	50.1
20	092B.085	VI (East) Gulf Islands	Saturna Island	32.50	0737	092B.075, 085		Saturna Island - west	49.7
21	092G.021	Vancouver Island (East) Rivers and Gulf Islands	Departure Bay	32.08	0702			McCoy Lake; W of Port Alberni	48.5
22	092K.015	VI (East) South Coast Islands	Cortes-northwest	31.67	0710	092B.074 092B.075		South Pender	48.5

Table 13

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
23	092F.095	VI (East) Gulf Islands	Oyster Bay	24.17	0203			Shawnigan Lake / Cobble Hill	47.9
24	092B.094	Vancouver Island (East) Rivers and South Coast Islands	Galiano Island	20.00	0735	092B.075		Saturna Island - east	47.2
25	092G.003	VI (East) Gulf Islands	Galiano-north	20.00	0438	092F.047, 057		Mt. Geoffrey / Hornby Island	46.1
26	092L.065	Vancouver Island (East) Rivers and South Coast Islands	Malcolm Island west	19.58	0606			Colwood / Langford / Metchosin /	45.4
27	092L.056	Vancouver Island (East) Rivers and South Coast Islands	Alert Bay	16.25	0207			Mill Bay / Shawnigan Lake	45.4

Sub Areas

	Saltspring-Galiano	Priority Aquifers
	Gabriola-Thetis	
	Pender-Mayne	
	Saturna	
	Hornby-Denman	

Table 14. Recommended key areas and priority aquifers for monitoring in the Vancouver Island Region.

SUB REGION	KEY AREAS	PRIORITY UNCONSOLIDATED AQUIFERS	PRIORITY BEDROCK AQUIFERS
A. Vancouver Island East	Cassidy-Nanaimo	161	162
	Saanich-Mill Bay	206	608 and 680
	Chemainus-Crofton	172	
	Parksville-Qualicum	216, 217, 219, 221, 662 and 664	
	Comox	408	
	Cowichan	186,187,188, 189 and 197	
	Shawnigan-Cobble Hill		203 and 207
B. Vancouver Island West	Alberni Valley		702
	Metchosin-Sooke		606
	Ucluelet	159	
C. Gulf Islands	Saltspring-Galiano		320, 721, 722, 723
	Gabriola-Thetis		706, 709 and 731
	Pender-Mayne		447, 620, 710, 711,712,720,
	Saturna		735 and 737
D. South Coast Islands	Quadra-Cortes	762, 753 and 841	
	Alert Bay	858	
	Hornby-Denman		435, 740, 438 and 436

Table 15. Descending ranking scores of classified unconsolidated aquifers in the Lower Mainland Region.

Item	Unconsolidated Aquifer Number	Aquifer Name	Aquifer Class	Location Description	Ranking Score for Monitoring
1	35	Hopington	IA	Hopington	95.0
2	15	Abbotsford-Sumas	IA	Abbotsford	92.3
3	41		IA	Langley	64.1
4	8	Vedder River Fan	IA	Veddar Crossing	60.8
5	58	Nicomekl-Serpentine	IIC	Nicomekl-Serpentine	56.4
6	6		IIIA	Chilliwack / Rosedale	50.6
7	27	Aldergrove	IIC	Aldergrove	46.7
8	834		IA	Savary Island	46.1
9	909		IA	Indian Point - Savary Island	45.6
10	744		IB	Bowen Island - SW	45.4
11	50		IC	South of Hopinton	44.1
12	390		IA	W side of Green Lk opposite Parkhurst	41.9
13	13		IIA	Norrish Creek	40.4
14	554		IIB	Gibsons Landing	39.9
15	892		IIC	N side of Chilliwack River Valley	38.7
16	893		IIC	N side of Chilliwack River Valley	38.4
17	395		IB	Appr 2km w of Alpha Lk at Sproatt	37.9
18	12	Nicomen Slough	IIIA	Nicomen Slough	35.4
19	36		IIA	Fort Langley	35.4
20	17		IIIA	Mission Floodplain	34.9
21	888		IIB	Steelhead Valley	34.9
22	33		IIIC	West of Aldergrove	34.2
23	57		IIC	Whiterock	34.2
24	9		IIA	Chilliwack River	34.1
25	20	Columbia Valley	IIB	Columbia Valley	34.1
26	32		IIC	Beaver River	33.9
27	59		IIC	Clayton Upland (Upper)	33.9
28	61		IIIC	Newton Upland	33.9
29	52		IIC	Langley Upland/Inter-till	33.9
30	1		IIIA	Floods	33.6
31	836		IIC	Powell River	33.2
32	401		IIA	22 km north along the Cheakamus River	33.1
33	16		IIIA	Mount Lehman	32.6
34	47		IIB	Boundary Avenue near Border Sand & Gravel	32.6
35	547		IIIB	SE portion of Keats Island	32.6
36	44		IIIA	Lulu Island	32.4
37	403		IIC	Shannon Falls, south of Squamish	32.1
38	560		IIC	Chaster Creek	32.1
39	37		IIIA	Fort Langley (Uplands)	31.9

Item	Unconsolidated Aquifer Number	Aquifer Name	Aquifer Class	Location Description	Ranking Score for Monitoring
40	56		IIC	NE of Whiterock	31.7
41	55		IIIC	Grandview	31.2
42	60		IIC	Clayton Upland (Lower)	31.2
43	26		IIC	Kanaka/Whonnock Creek	30.9
44	838		IIC	Powell River	30.9
45	28		IIC	Northwest of Clearbrook	30.7
46	839		IIC	Powell River	30.7
47	326		IIIA	Pemberton	30.6
48	387		IIB	Alluvial Fan of Fitzsimmons Cr., Whistler	30.4
49	393		IB	At Whistler Cr between Nita Lk and Alpha L	30.4
50	24		IIIB	Glen Valley	29.9
51	39		IIIA	East Pitt River	29.9
52	42		IIIA	South Fraser River Delta	29.9
53	552		IIB	Langdale	29.9
54	53		IIIC	Hazelmere Valley	29.6
55	396		IIIA	Cheekye Fan	29.6
56	422		IIB	Porteau Cove, Howe Sound	29.6
57	25		IIIC	Miracle Valley	29.5
58	34		IIIC	South of Aldergrove	28.7
59	880		IIC	Silverdale Cr, W of Mission City	28.7
60	884		IIC	Northshore Hayward Lake to Stave Lake	28.7
61	51		IIIC	South of Murrayville	28.6
62	743		IIB	Bowen Island, Grafton Lake Valley	28.4
63	881		IIC	NE of Mission City	28.2
64	894		IIC	N side of Chilliwack River Valley	28.2
65	895		IIC	N side of Chilliwack River Valley	28.2
66	926		IIC	N side of Pitt River Valley	28.2
67	38		IIIA	Allouette	27.9
68	11		IIIA	Lake Erroch/Deroche Creek	27.6
69	21	Sumas Prairie	IIIB	Sumas Prairie	27.6
70	14	Hatzic Prairie	IIIA	Hatzic Prairie	27.4
71	49		IIIB	Vancouver-Quadra Sands	27.1
72	397		IIIB	Powerhouse Springs Mamguan R E of Squamish	27.1
73	889		IIA	N end of Hatzic Valley	27.1
74	23		IIIB	North of Abbotsford	26.9
75	553		IIIB	Soames Point	26.9
76	394		IIIB	Sproatt Cr Fan, w end of Alpha Lk, Whistler	26.7
77	31		IIIC	Glen Valley (Lower)	26.2
78	67		IIIA	Seymour River / Lynn Creek	26.1

Table 15

Item	Unconsolidated Aquifer Number	Aquifer Name	Aquifer Class	Location Description	Ranking Score for Monitoring
79	399		IIIA	Squamish River Squamish to Brackendale	26.1
80	29		IIIC	North of Mt. Lehman	25.7
81	62		IIIC	Twawassen	25.7
82	54		IIIC	Hazelmere	25.6
83	557		IIIC	Sargeant Bay	25.5
84	563		IIIC	Sechelt	25.5
85	388		IIB	SW end of Green Lake at Nineteen Mile Cr.	25.4
86	400		IIIB	Confluence - Squamish, Cheakamus, Cheekye	25.4
87	30		IIIC	North of Dennison	25.2
88	3		IIIA	Laidlaw	25.1
89	4		IIIA	Aggasiz/Sea Bird Island	25.1
90	22		IIIB	Matsqui Prairie	25.1
91	66		IIIA	Capilano River	24.9
92	70		IIIA	Coquitlam River	24.9
93	72		IIIA	McMillian Island	24.9
94	40		IIIA	Barston Island	24.6
95	45		IIIA	North Arm / Delta	24.6
96	46		IIIA	Coquitlam River Floodplain	24.6
97	65		IIIA	Sea Island	24.6
98	71		IIIA	West Pitt River	24.6
99	398		IIIA	Mamquam Valley	24.6
100	566		IIIA	Angus Creek	24.6
101	7		IIIA	Harrison Mills	24.4
102	64		IIIA	Mitchell Island	24.4
103	69		IIIA	Port Moody	24.2
104	924		IIC	Mossum Creek area near Anmore	23.2
105	5		IIIA	Chehalis	23.1
106	927		IIC	W side of Burk Mt, E Coquitlam R. Valley	22.7
107	2		IIIA	Chawathil	22.6
108	404		IIB	Furry Creek	22.6
109	405		IIIA	D'Arcy Creek Alluvial Fan	22.6
110	389		IIIC	Valley from Alta Lk to Green Lk, Whistler	22.2
111	321		IIIA	Birken	22.1
112	322		IIIB	D'Arcy	22.1
113	556		IIIB	Chapman Creek	22.1
114	10		IIC	Mouth of Slesee Creek	20.7
115	837		IIIC	Powell River East	20.2
116	63		IIIA	Westham Island	19.6
117	48		IIIB	Fraser River Junction	19.4
118	402		IIIA	Stawamus R valley, Squamish	19.4
119	43		IIIA	Annacis Island	17.1
120	73		IIIA	Matsqui Island	16.9

Table 15

Table 16 . Descending ranking scores of classified bedrock aquifers in the Lower Mainland Region.

Item	Bedrock Aquifer Number	Aquifer Name	Aquifer Class	Location Description	Ranking Score for Monitoring
1	68		IA	Belcarra	52.4
2	749		IB	Bowen Island - SW	50.4
3	840		IIIC	Powell River	43.9
4	558		IIA	Halfmoon Bay	43.1
5	559		IIA	Mixel Lake	42.9
6	19	Grant Hill Bedrock	IIA	Grant Hill	40.4
7	561		IIA	Kleindale	40.4
8	18		IIA	Mission	39.9
9	776		IIA	Egmont	39.9
10	882		IIIB	NE of Mission City	37.9
11	747		IIIB	Bowen Island - South and SE	34.9
12	551		IIIB	Northeast portion of Gambier Island	34.4
13	885		IIC	Northshore of Hayword Lake	33.0
14	555		IIB	Sechelt	32.9
15	562		IIB	Sechelt	32.9
16	154		IIC	NW of Whonnock Lake	32.7
17	748		IIIB	Bowen Island - west	32.6
18	564		IIA	Porpoise Bay	32.4
19	890		IIC	Mt Tom area, SE of Chilliwack	30.9
20	549		IIC	Southwestern portion of Gambier Island	30.7
21	745		IIA	Bowen Island - North	29.9
22	746		IIB	Central Bowen Island	29.9
23	887		IIB	E of Stave Falls, Steelhead Creek	29.4
24	897		IIC	N shore Allouette River	27.7
25	898		IIC	Westside N Allouette River	27.7
26	883		IIA	Iron Mt, E of Whonnock Lk	26.9
27	392		IIIC	Bdrk aq above and on the SW side of valley	26.2
28	899		IIIB	Ford Creek area, SE of Chilliwack	25.1
29	835		IIB	Mermaid Cove / E of Powell River	24.9
30	550		IB	Carmelo Point, Gambier Island	24.6
31	925		IIC	Partington Creek near Port Coquitlam	24.6
32	565		IIIA	Francis Peninsula	24.4
33	896		IIB	E of Steelhead	24.2
34	886		IIC	E of Hayward Lake, N of Hairsine Creek	23.0
35	548		IIIB	Keats Island	22.4
36	391		IIIC	Bdrk aq above and on the NW side of valley	20.9
37	891		IIIC	Upper Young Cr. SE of Chilliwack	18.2

Table 17. Descending ranking scores of BCGS areas in the Lower Mainland Region.

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring
1	092G.018	Fraser River	North of Langley / Abbotsford	62.08
2	092G.008	South Coast / Fraser / Washington Coast Rivers	Between Langley and Abbotsford	62.08
3	092G.028	Fraser River	East of Maple Ridge	60.42
4	092G.036	South Coast Rivers / Fraser River	Belcarra	60.42
5	092G.016	Fraser River	Surrey	59.58
6	092G.017	Fraser River	North of Langley / Abbotsford	57.92
7	092G.007	South Coast Rivers	Langley	57.50
8	092G.009	Washington Coast Rivers / Fraser River	Abbotsford	55.83
9	092G.015	Fraser River	West of Surrey	50.42
10	092J.016	Lillooet River	Whistler	49.58
11	092G.042	South Coast Rivers	Sechelt / Roberts Creek	49.58
12	092G.026	Fraser River / South Coast Rivers	New Westminster	48.75
13	092G.006	South Coast Rivers	White Rock	45.42
14	092G.043	South Coast Rivers/Islands	Gibsons	45.42
15	092F.088	South Coast Rivers	Powell River	44.58
16	092G.027	Fraser River	Maple Ridge	44.58
17	092G.041	South Coast Rivers	West of Sechelt	43.75
18	092G.010	Fraser River	East of Langley / Cultus Lake	42.92
19	092G.051	South Coast Rivers	Halfmoon Bay	42.92
20	092G.020	Fraser River	East of Mission	42.08
21	092H.033	Fraser River	Hope	41.25
22	092H.011	Fraser River	Chilliwack	40.42
23	092G.071	South Coast Rivers	Egmont	39.58
24	092G.019	Fraser River	Mission	37.92
25	092F.096	South Coast Islands	Savary Island West	36.25
26	092H.021	Fraser River	North of Chilliwack	35.42
27	092G.029	Fraser River	East of Maple Ridge	35.42
28	092H.022	Fraser River	Agassiz	33.75

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring
29	092G.075	South Coast Rivers	Brackendale	32.92
30	092G.061	South Coast Rivers	Sechelt Peninsula	29.58
31	092H.032	Fraser River	West of Hope	29.58
32	092F.097	South Coast Islands	Savary Island East	28.75
33	092H.001	Fraser River	South of Chilliwack	27.92
34	092F.078	South Coast Islands / Rivers	South of Powell River	27.92
35	092F.070	South Coast Islands / Rivers	Garden Bay	27.08
36	092F.079	South Coast Islands / Rivers	South of Powell River	26.25
37	0P2G.044	Fraser River	Lions Bay	25.42
38	092G.034	South Coast Rivers	East of Bowen Island	24.17
39	092G.035	South Coast Rivers	Vancouver	23.33
40	092J.006	Lillooet River	Whistler	22.92
41	092G.033	South Coast Rivers	Bowen Island	22.50
42	092H.012	Fraser River	Chilliwack / Rosedale	20.42
43	092G.024	Fraser River / South Coast Rivers	West of New Westminster	19.58
44	092G.025	Fraser River / South Coast Rivers	West of New Westminster	19.58
45	092J.058	Lillooet River	Darcy / north of Whistler	18.75
46	092J.037	Lillooet River	Pemberton	18.33
47	092G.037	Fraser River	East of Belcarra	17.50
48	092J.005	Lillooet River	Whistler	15.83
49	092K.006	South Coast Islands / Rivers	West of Lund	15.42
50	092G.005	Fraser River / South Coast Rivers	White Rock	15.00
51	092K.016	South Coast Islands	Refuge Cove	12.92
52	092G.054	South Coast Rivers / South Coast Islands	Howe Sound / South of Britannica Beach	12.92
53	092G.030	Fraser River	East of Maple Ridge	12.50
54	092J.048	Lillooet River	Darcy / north of Whistler	11.67
55	092H.043	Fraser River	North of Hope	10.00
56	092G.085	South Coast Rivers	Garibaldi	10.00
57	092G.052	South Coast Rivers	East of Halfmoon Bay	10.00
58	092F.060	South Coast Islands	Madeira Park	9.17
59	092F.080	South Coast Islands / Rivers	South of Powell River	8.33

Table 17

Table 18. Comparison of top-rated BCGS areas versus top-rated unconsolidated aquifers in the Lower Mainland Region.

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
1	092G.018	Fraser River	North of Langley / Abbotsford	62.08	35	092G.007, 008, 017, 018	Hopington	Hopington	95.0
2	092G.008	South Coast / Fraser / Washington Coast Rivers	Between Langley and Abbotsford	62.08	15	092G.008, 009	Abbotsford-Sumas	Abbotsford	92.3
3	092G.028	Fraser River	East of Maple Ridge	60.42	41	092G.007		Langley	64.1
4	092G.036	South Coast Rivers / Fraser River	Belcarra	60.42	8	092G.010, 020, 092H.011	Vedder River Fan	Vedder Crossing	60.8
5	092G.016	Fraser River	Surrey	59.58	58	092G.006, 007, 017, 018	Nicomekl-Serpentine	Nicomekl-Serpentine	56.4
6	092G.017	Fraser River	North of Langley / Abbotsford	57.92	6	092G.020, 021, 092H.011		Chilliwack / Rosedale	50.6
7	092G.007	South Coast Rivers	Langley	57.50	27	092G.008, 009, 018	Aldergrove	Aldergrove	46.7
8	092G.009	Washington Coast Rivers / Fraser River	Abbotsford	55.83	834	092F.096		Savary Island	46.1
9	092G.015	Fraser River	West of Surrey	50.42	909	092F.096		Indian Point - Savary Island	45.6
10	092J.016	Lillooet River	Whistler	49.58	744			Bowen Island - SW	45.4
11	092G.042	South Coast Rivers	Sechelt / Roberts Creek	49.58	50	092G.007, 008		South of Hopinton	44.1
12	092G.026	Fraser River / South Coast Rivers	New Westminster	48.75	390	092J.016		W side of Green Lk opposite Parkhurst	41.9
13	092G.006	South Coast Rivers	White Rock	45.42	13	092G.020		Norrish Creek	40.4
14	092G.043	South Coast Rivers/ Islands	Gibsons	45.42	554	092G.043		Gibsons Landing	39.9
15	092F.088	South Coast Rivers	Powell River	44.58	892			N side of Chilliwack River Valley	38.7

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
16	092G.027	Fraser River	Maple Ridge	44.58	893			N side of Chilliwack River Valley	38.4
17	092G.041	South Coast Rivers	West of Sechelt	43.75	395			Appr 2km w of Alpha Lk at Sproatt	37.9
18	092G.010	Fraser River	East of Langley / Cultus Lake	42.92	12	092G.020	Nicomen Slough	Nicomen Slough	35.4
19	092G.051	South Coast Rivers	Halfmoon Bay	42.92	36	092G.017,		Fort Langley	35.4
20	092G.020	Fraser River	East of Mission	42.08	17	092G.019		Mission Floodplain	34.9
21	092H.033	Fraser River	Hope	41.25	888	092G.029		Steelhead Valley	34.9
22	092H.011	Fraser River	Chilliwack	40.42	33	092G.008, 018		West of Aldergrove	34.2
23	092G.071	South Coast Rivers	Egmont	39.58	57	092G.006, 007		Whiterock	34.2
24	092G.019	Fraser River	Mission	37.92	9			Chilliwack River	34.1
25	092F.096	South Coast Islands	Savary Island West	36.25	20	092G.010	Columbia Valley	Columbia Valley	34.1
26	092H.021	Fraser River	North of Chilliwack	35.42	32	092G.018		Beaver River	33.9
27	092G.029	Fraser River	East of Maple Ridge	35.42	59	092G.017		Clayton Upland (Upper)	33.9
28	092H.022	Fraser River	Agassiz	33.75	61	092G.016, 017, 026		Newton Upland	33.9
29	092G.075	South Coast Rivers	Brackendale	32.92	52	092G.007, 008, 017		Langley Upland/Inter-till	33.9
30	092G.061	South Coast Rivers	Sechelt Peninsula	29.58	1	092H.033		Floods	33.6
31	092H.032	Fraser River	West of Hope	29.58	836	092F.088		Powell River	33.2

Sub Areas

	Fraser Valley South		Priority Aquifers
	Sechelt		
	Chilliwack-Vedder		
	Upper Fraser Valley		
	Islands		
	Whistler		
	Fraser Valley North		
	Powell River		

Table 18

Table 19. Comparison of top-rated BCGS areas versus top-rated bedrock aquifers in the Lower Mainland Region.

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
1	092G.018	Fraser River	North of Langley / Abbotsford	62.08	68	092G.036		Belcarra	52.4
2	092G.008	South Coast / Fraser / Washington Coast Rivers	Between Langley and Abbotsford	62.08	749			Bowen Island - SW	50.4
3	092G.028	Fraser River	East of Maple Ridge	60.42	840	092F.088		Powell River	43.9
4	092G.036	South Coast Rivers / Fraser River	Belcarra	60.42	558	092G.051		Halfmoon Bay	43.1
5	092G.016	Fraser River	Surrey	59.58	559			Mixel Lake	42.9
6	092G.017	Fraser River	North of Langley / Abbotsford	57.92	19	092G.028	Grant Hill Bedrock	Grant Hill	40.4
7	092G.007	South Coast Rivers	Langley	57.50	561			Kleindale	40.4
8	092G.009	Washington Coast Rivers / Fraser River	Abbotsford	55.83	18			Mission	39.9
9	092G.015	Fraser River	West of Surrey	50.42	776			Egmont	39.9
10	092J.016	Lillooet River	Whistler	49.58	882			NE of Mission City	37.9
11	092G.042	South Coast Rivers	Sechelt / Roberts Creek	49.58	747			Bowen Island - South and SE	34.9
12	092G.026	Fraser River / South Coast Rivers	New Westminster	48.75	551			Northeast portion of Gambier Island	34.4
13	092G.006	South Coast Rivers	White Rock	45.42	885			Northshore of Hayword Lake	33.0
14	092G.043	South Coast Rivers/ Islands	Gibsons	45.42	555	092G.042, 043		Sechelt	32.9
15	092F.088	South Coast Rivers	Powell River	44.58	562	092G.042		Sechelt	32.9

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
16	092G.027	Fraser River	Maple Ridge	44.58	154	092G.028		NW of Whonnock Lake	32.7
17	092G.041	South Coast Rivers	West of Sechelt	43.75	748			Bowen Island - west	32.6
18	092G.010	Fraser River	East of Langley / Cultus Lake	42.92	564			Porpoise Bay	32.4
19	092G.051	South Coast Rivers	Halfmoon Bay	42.92	890			Mt Tom area, SE of Chilliwack	30.9
20	092G.020	Fraser River	East of Mission	42.08	549			Southwestern portion of Gambier Island	30.7

Sub Areas

	Fraser Valley North	Priority Aquifers
	Schelt	
	Islands	
	Chilliwack River	
	Powell River	

Table 20. Recommended key areas and priority aquifers for monitoring in the Lower Mainland Region.

SUB REGION	KEY AREAS	PRIORITY UNCONSOLIDATED AQUIFERS	PRIORITY BEDROCK AQUIFERS
A. Lower Mainland	Fraser Valley South	15, 27, 33, 35, 36, 41, 50, 57 and 58	
	Fraser Valley North		18, 19, 68 and 882
	Chilliwack-Vedder	6, 8, 9, 12, 13 and 20	890
B. Whistler	Whistler	390 and 395	
C. Islands	Bowen Island		747 and 749
	Gambier Island		549
	Savary Island	834	
D. Sechelt-Powell River	Sechelt	554/560	558, 559, 561
	Powell River	836	840

Table 21. Descending ranking scores of classified unconsolidated aquifers in the Thompson/Cariboo Region.

Item	Unconsolidated Aquifer Number	Aquifer Name	Aquifer Class	Location Description	Ranking Score for Monitoring
1	97		IIA	Falkland to southwest of Salmon Arm	75.6
2	98		IIC	Lower Salmon River Valley	74.5
3	116		IC	West of Dragon Lake	69.3
4	74		IA	Merritt	68.8
5	370		IIA	Area north of Quesnel	67.9
6	359		IIC	Quesnel, west side of Fraser River	63.8
7	146	Williams Lake	IC	West and northwest side of Williams Lake	62.6
8	133		IC	Cache Creek to Scottie Creek	62.0
9	307		IIA	Malakwa	61.4
10	152		IC	South of Williams Lake on Dog Creek	59.6
11	115		IIA	Northeast of Quesnel	59.2
12	770		IA	Clearwater – North of Kamloops	58.9
13	384		IIC	150 Mile House, B.C.	57.1
14	423		IIB	North shore of La Hache Lake	53.0
15	120		IIC	Rich Bar to Kersley	52.6
16	822		IC	Logan Lake / SW of Kamloops	52.6
17	365		IIC	Northwest of Quesnel and East shoreline of Bouchie L	52.4
18	229		IIA	Scotch Creek	51.4
19	728		IB	Cherry Cr valley; SW of Kamloops	50.8
20	135		IC	Semlin Valley	50.0
21	354		IIA	O'Keefe Valley and Grandview Flats	49.8
22	134		IA	Cache Creek to north of Maiden Creek	49.6
23	147		IC	Hill southwest of Williams Lake townsite	49.6
24	286		IIB	Lower South Thompson River	48.9
25	283		IIIB	North Thompson River north of Kamloops	48.5
26	117		IA	Red Bluff	46.2
27	769		IIA	Clearwater – North of Kamloops	46.2
28	831		IIA	S of Bella Coola R./ E of Bella Coola	46.2
29	777		IIIB	Deadman Valley NW of Kamloops	46.0
30	77		IIC	Lower Nicola	45.7
31	289		IIB	Westwold, Salmon River Valley	45.4
32	324		IIIC	Lillooet	44.6
33	807		IIB	N Thompson River	43.7
34	371		IIIC	East of Quesnel Airport and South of Ten Mile Lake	43.6
35	867		IIA	Ashby Point, Shuswap Lake	43.5
36	832		IIA	S of Bella Coola R./ E of Bella Coola	43.5
37	236		IIIB	Chase	43.2
38	325		IIB	Lillooet	43.2
39	337		IIB	Timothy Lake	43.0
40	223		IIC	Celista	42.4
41	381		IIC	McLeese Lake. 30 km north of Willams	42.4
42	713		IIA	Quilchena Cr; S shore of Nicola Lake	42.2

Item	Unconsolidated Aquifer Number	Aquifer Name	Aquifer Class	Location Description	Ranking Score for Monitoring
43	292		IIB	Louis Creek and North Thompson confluence	42.0
44	143		IIC	Southwest side of Williams Lake	41.9
45	108		IIIA	4 kilometres southeast of Salmon Arm	41.8
46	379		IIIC	Horsefly, B.C.	41.7
47	225		IB	Sicamous (Mara Lake)	41.2
48	150		IIC	South of Williams Lake on Dog Creek	41.1
49	323		IIB	Seton Portage	40.5
50	228		IIA	Celista	39.9
51	293		IIIB	North Thompson River; north of Barriere	39.7
52	830		IIA	S of Bella Coola R./ E of Bella Coola	39.5
53	234		IIIA	Squilax	38.7
54	282		IIIA	Kamloops Airport	38.7
55	76		IIIA	Stumbles Creek	38.2
56	309		IIA	South of Sicamous	38.0
57	716		IIIA	confluence of Nicola and Thompson Rivers	37.7
58	825		IIA	Blue River- S of Valemont	37.2
59	714		IIA	Nicola Lake Indian Reserve	37.0
60	80		IIIC	Nicola	36.9
61	132		IIIC	Buffalo Creek	36.9
62	821		IC	Highland Valley – W of Logan Lk	36.6
63	294		IIB	Lower Barriere River Valley	36.0
64	870		IB	Knight Cr. at Paradise Point, Shuswap	36.0
65	139	Missioner Creek	IIC	Missioner Creek Valley	35.9
66	79		IIIA	Lower Clapperton Cree	35.7
67	109		IIIC	Highway 97B	35.7
68	131		IIIB	105 Mile House	35.7
69	424		IIIB	eastside of Bridge Lake	35.5
70	121		IIIA	Kersley	35.5
71	277		IIB	Davidson Creek	35.5
72	427		IIB	southern tip of Canim Lake	35.5
73	820		IC	Highland Valley – W of Logan Lk	35.4
74	872		IIB	Canoe Creek, at Shuswap Lake	35.2
75	232		IIIC	Tappen	34.9
76	251		IIIC	Pritchard	34.6
77	868		IIC	W of Paradise Point, Shuswap Lake	34.6
78	916		IIC	N of Sulphurous Lake/ E of 100 Mile House	34.6
79	75		IIC	Joeyaska	34.4
80	281		IIC	Paul Lake	34.4
81	768		IIC	Anahim – east of Tweedsmuir Park	34.4
82	144		IIC	Southeast side of Williams Lake	34.2
83	149		IIIC	Chimney Creek Valley	33.2
84	826		IIA	Guichon Creek –S of Kamloops	33.2
85	819		IC	Highland Valley – W. of Logan Lk	32.9
86	130		IIIC	East end of Horse Lake	32.1
87	285		IIB	Campbell Creek	32.0

Table 21

Item	Unconsolidated Aquifer Number	Aquifer Name	Aquifer Class	Location Description	Ranking Score for Monitoring
88	100		IIIC	Gleneden	31.9
89	428		IIC	San Jose River and Knife Creek	31.9
90	145		IIIC	Northeast side of Williams Lake	31.7
91	119		IIC	Higdon Creek	30.9
92	78		IIIA	West End of Nicola Lake	30.5
93	129		IIB	South central shore of Horse Lake	30.5
94	278		IIIA	Peterson Creek	30.5
95	296		IIB	Little Fort	30.5
96	361		IIB	East of Milburn Lake and northwest of Quesnel	30.5
97	367		IIB	Northwest of Quesnel	30.2
98	230		IIIA	Squillax / Tappen	29.7
99	128		IIC	West end of Horse Lake	29.6
100	231		IIC	Tappen	29.6
101	773		IIC	Clearwater – North of Kamloops	29.6
102	382		IIIA	Soda Creek, 26 km north of Williams Lake	29.5
103	151		IIC	Frost Creek	29.4
104	280		IIC	2 km west of Barnhartvale	29.4
105	287		IIC	Heffley and Edward Creek confluence	29.4
106	366		IIC	Northwest of Quesnel and east of Bouchie Lake	29.4
107	369		IIC	2 km. north of Quesnel Airport	29.4
108	406		IIC	Approximately 11 km Northeast of 150 Mile House	29.4
109	912		IIC	W of Bridge Lk /SEof 100 Mile House	29.4
110	913		IIC	S of Deka Lake and E of 100 Mile House.	29.4
111	914		IIC	SW of Deka Lake and E of 100 Mile	29.4
112	360		IIIC	West of Bouchie Lake, northwest of Quesnel	29.2
113	271		IIIA	North Thompson River floodplain	28.5
114	284		IIA	Pulpmill southwest of Kamloops	28.5
115	237		IIIC	Chase	28.4
116	719		IIIB	Ashcroft; W side of Thompson River	28.2
117	724		IIIA	Nicola R fldpln between Canford & Coyle	28.2
118	726		IIIC	Nicola R & Spius Cr con; w of Canford	28.2
119	718		IIIB	Ashcroft; Ashcroft Ranch	28.0
120	833		IIA	S of Bella Coola R. /E of Nusatsum R.	28.0
121	920		IIB	Kelly Lake/ SWof Clinton	28.0
122	252		IIIC	Monte Creek	27.1
123	362		IIIB	North of Quesnel and south of Strathnaver	27.1
124	235		IIIC	Whitcroft	26.9
125	766		IIIC	Anahim- E of Tweedsmuir Park	26.9
126	829		IIIC	Wells	26.9
127	921		IIIC	Clinton	26.9
128	426		IIIC	Eagle Creek	26.7
129	430		IIIC	West shore of Canim Lake	26.7

Table 21

Item	Unconsolidated Aquifer Number	Aquifer Name	Aquifer Class	Location Description	Ranking Score for Monitoring
130	222		IIIC	Sorrento / Notch Hill	25.9
131	125		IIIA	Pressy Lake	25.7
132	383		IIIB	Dugan Lake, 7 km north of 150 Mile House	25.5
133	717		IIC	S of Ashcroft; E side of Thompson River	24.9
134	824		IIC	Highland Valley near Award Creek	24.9
135	372		IIIC	Northwest of Ten Mile Lake, Quesnel	24.4
136	380		IIIC	14 km North of Willams Lake	24.4
137	715		IIIC	mouths of Moore and Stumplake Creeks	23.4
138	279		IIIC	Buse Lake	23.2
139	295		IIIB	Christian Creek Valley	23.2
140	363		IIIC	Northwest of Quesnel and north of Bouchie Lake	23.2
141	253		IIIB	Monte Lake	23.0
142	429		IIIB	near Ruth Lake	22.7
143	288		IIIC	Louis and Fraser Creek Valleys	22.1
144	122		IIIC	Sardine Flats	21.9
145	137		IIIC	Minton Creek	21.9
146	290		IIIC	Dixon and Sargent Creek Valleys	21.9
147	364		IIIC	Northwest of Quesnel and west of Moose Heights	21.7
148	823		IIIC	Logan Lake / SW of Kamloops	21.7
149	918		IIIC	N of Bridge Lake / E of 100 Mile House	21.7
150	136		IIIC	Mauvais Rocher IR#5	19.4
151	827		IIIC	South of Mamit Lake	19.4

Table 22. Descending ranking scores of classified bedrock aquifers in the Thompson/Cariboo Region.

Item	Unconsolidated Aquifer Number	Aquifer Name	Aquifer Class	Location Description	Ranking Score for Monitoring
1	124	Fraser Plateau Lava	IIIB	70 Mile House to 108 Mile Lake	71.0
2	126	108 Mile Limestone	IIIB	Simon Lake	66.4
3	148		IIIC	Between Chimney Creek and Williams Lake	63.4
4	138		IIB	Upper Missioner/Minton Creek Valleys	48.0
5	250		IIB	Pinantan Lake / Pritchard	41.0
6	118		IIB	South of Quesnel	40.5
7	767		IIB	Anahim – east of Tweedsmuir Park	40.5
8	727		IIB	Cherry Cr valley; SW of Kamloops	39.9
9	272		IIIB	North-east of Kamloops	39.2
10	224		IIIB	Eagle Bay	38.0
11	110		IIIB	Grandview Bench	36.1
12	233		IIIB	Blind Bay / White Lake	35.5
13	425		IIIB	south of Bridge Lake	34.5
14	141		IIIC	Between Williams Lake and Missioner Creek	34.4
15	915		IIC	Sulphurous Lake / E of 100 Mile House	34.2
16	276		IIIB	Sugarloaf Hill southwest of Kamloops	33.2
17	922		IIA	3 Mile Lake / SE of Clinton	33.0
18	273		IIIB	Rose Hill / Barnhartvale / Shumway Lake	32.0
19	249		IIIB	Duck Range / Pritchard / Monte Lake	30.7
20	869		IIB	W of Paradise Point, Shuswap Lake	30.5
21	99		IIB	Switsemalsh	30.2
22	866		IIB	Ashby Point, Shuswap Lake	30.2
23	226		IIIC	Scotch Creek to Anglemont	29.6
24	142		IIC	Southwest side of Williams Lake	29.2
25	140		IIC	North side of lower Missioner Creek Valley	29.2
26	275		IIC	Knutsford	29.2
27	911		IIC	N of Deka Lake and E of 100 Mile House	29.2
28	274		IIIB	Brigade Lake	28.0
29	291		IIIB	Dixon, Sargent and Jet Creek Valleys	28.0
30	771		IIB	Clearwater – North of Kamloops	27.7
31	386		IIIB	Miocene, Northeast of 150 Mile House	27.1
32	227		IIIC	Sorrento / Notch Hill	26.9
33	123		IIIC	Northwest of Dale Lake	26.7
34	101		IIIC	Mount Tappen	26.4
35	772		IIB	Clearwater – North of Kamloops	25.2
36	368		IIIC	2 km. north of Quesnel	24.4
37	919		IIC	NE of Bridge Lake/ E of 100 Mile House	24.4
38	127		IIIB	Buffalo Creek	23.0
39	725		IIIB	s of Nicola R & Spius Cr con; W of Canford	22.7
40	871		IIIB	Lower Canoe Cr, E side of valley	22.7
41	308		IIIB	West of Sicamous	22.5
42	96		IIIC	Spa Creek	21.7
43	153		IIIC	Lower Pablo Creek	21.7

Table 23. Descending ranking scores of BCGS areas in the Thompson/Cariboo Region.

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring
1	93B.098	Fraser/Quesnel	Quesnel	70.00
2	82L.064	South Thompson/Okanagan	Salmon Arm	68.33
3	82L.044	South Thompson/Okanagan	O'Keefe Valley	66.67
4	93G.008	Fraser/Quesnel	North Quesnel	65.00
5	82L.065	South Thompson	Grandview Bench	59.17
6	93B.020	Fraser	Williams Lake	59.17
7	92I.069	Thompson/South Thompson/North Thompson	Kamloops	56.67
8	92I.016	Thompson	Lower Nicola	55.83
9	93B.010	Fraser	South of Williams Lake	55.83
10	92P.070	North Thompson	Clearwater	54.17
11	93A.011	Fraser	150 Mile House	54.17
12	82L.075	South Thompson	Mara Lake	53.33
13	82L.093	South Thompson	Adams River	53.33
14	92P.064	Fraser/North Thompson	100 Mile House	51.67
15	82L.054	South Thompson/Okanagan	Yankee Flats-Salmon River	51.25
16	82L.074	South Thompson	North of Salmon Arm	48.33
17	92P.083	Fraser	Lac la Hache	47.50
18	93G.007	Fraser	Bouchie Lake	47.50
19	82L.061	South Thompson	Monte Creek and South Thompson	46.67
20	92I.017	Thompson	Lower Nicola	46.67
21	92I.084	Thompson	Cache Creek	46.67
22	92I.018	Thompson	Nicola Lake	45.83
23	92I.080	North Thompson/South Thompson	Paul Lake	43.33
24	82L.086	South Thompson	Eagle River	41.67
25	92P.047	Thompson/North Thompson	Bridge Lake	40.83
26	92I.068	Thompson/South Thompson	Sugarloaf Hill-Kamloops	40.00
27	82L.042	South Thompson/Okanagan	Westwold	39.58
28	93B.088	Fraser	North of Narcosli Creek	39.17
29	92P.020	North Thompson	Barriere	38.75
30	82L.082	South Thompson	Little Shuswap Lake	38.33
31	82L.084	South Thompson	White Lake	38.33
32	82L.094	South Thompson	Celista	38.33
33	92I.070	South Thompson	Barnhartvale	38.33
34	92P.065	North Thompson	North of Horse Lake	37.92
35	92P.074	Fraser/North Thompson	108 Mile House	37.92
36	82L.083	South Thompson	Squilax Mountain	37.50
37	92P.055	Thompson/North Thompson	Horse Lake	37.50
38	93C.044	North Coast Rivers	Anahim Lake	37.50
39	92I.061	Fraser	Lillooet	36.67
40	82L.072	South Thompson	Southeast of Niskonlith Lake	35.83
41	92P.056	Thompson/North Thompson	Sheridan Lake	35.83
42	92I.078	Thompson/North Thompson	Northwest of Kamloops	35.00

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring
43	93B.030	Fraser	North of Williams Lake	34.17
44	82L.043	South Thompson/Okanagan	South of Falkland	33.75
45	82L.081	South Thompson/North Thompson	Mount Morrisey	33.33
46	93D.037	North Coast Rivers	Bella Coola	33.33
47	92I.077	Thompson	Kamloops Lake	32.92
48	92P.075	Fraser/North Thompson	Forest Grove	32.92
49	92P.084	Fraser/North Thompson	Timothy Lake	32.92
50	92P.030	North Thompson	North of Barriere	32.50
51	92P.045	Thompson	Green Lake, east end	32.50
52	92P.054	Thompson/North Thompson	Lone Butte	32.50
53	92I.007	Thompson	Southeast of Merritt	32.08
54	82L.097	South Thompson	Malakwa	31.67
55	92P.044	Thompson	Northwest of Green Lake	31.67
56	92I.067	Thompson	Southwest of Cherry Creek	31.25
57	82L.095	South Thompson	Anglemont	30.83
58	92I.079	Thompson/South Thompson/North Thompson	North of Kamloops	30.83
59	92I.089	North Thompson	Heffley Creek	30.83
60	92P.009	North Thompson	McLure, North Thompson	30.83
61	92I.074	Thompson	Ashcroft	30.42
62	92P.066	North Thompson	Sulphurous Lake	30.00
63	92P.076	North Thompson	Canim Lake. south	30.00
64	93A.033	Quesnel	Horsefly	29.58
65	92I.071	Fraser	North of Lillooet	29.17
66	92J.079	Fraser	Seton Portage	29.17
67	93B.039	Fraser	Soda Creek	29.17
68	92I.046	Thompson	Highland Valley	28.75
69	92I.076	Thompson	Walhachin	27.92
70	92P.086	North Thompson	Canim Lake	27.92
71	93A.001	Fraser	South of 150 Mile House	27.92
72	92P.013	Thompson	Northeast of Clinton	27.50
73	92P.034	Thompson	South end of Green Lake	27.50
74	92P.057	North Thompson	Bridge Lake, north	26.67
75	92P.087	North Thompson	East end, Canim Lake	26.67
76	92I.086	Thompson	Northwest of Kamloops Lake	26.25
77	92P.003	Thompson	Clinton	26.25
78	93B.049	Fraser	McLeese Lake	26.25
79	82M.061	North Thompson	East of Clearwater	25.83
80	93C.020	Chilcotin	Puntzi Lake	25.83
81	82M.052	North Thompson/South Thompson	North Thompson River near Vavenby	25.42
82	92P.085	Fraser/North Thompson	Ruth Lake	25.42
83	92P.082	Fraser	West end Lac La Hache	25.00
84	82L.053	South Thompson	North of Falkland	24.58
85	82L.085	South Thompson	Paradise Point-Shuswap Lake	24.17

Table 23

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring
86	82M.051	North Thompson	North Thompson River Southeast of Clearwater	24.17
87	92P.040	North Thompson	Chu Chua, North Thompson	24.17
88	92P.073	Fraser	South of Lac La Hache	24.17
89	92I.100	North Thompson	East of Black Pines, North Thompson	22.92
90	92P.002	Fraser/Thompson	Kelly Lake	22.92
91	92P.014	Thompson	Loon Lake	22.92
92	93A.012	Fraser/Quesnel	East of 150 Mile House	22.50
93	93B.009	Fraser	Lower Chimney Creek	22.50
94	82L.071	South Thompson/North Thompson	West of Niskonlith Lake	22.08
95	82L.096	South Thompson	West of Malakwa	22.08
96	92I.006	Thompson	Southwest of Merritt	21.67
97	92I.090	North Thompson	Heffley Lake	21.67
98	93D.038	North Coast Rivers	Hagensborg	21.67
99	82L.051	South Thompson	Monte Lake	21.25
100	92I.099	North Thompson	Black Pines, North Thompson	21.25
101	92P.004	Thompson	East of Clinton	21.25
102	92P.023	Thompson	Chasm	21.25
103	93A.021	Fraser	North of Dugan Lake	21.25
104	93A.034	Quesnel	East of Horsefly	21.25
105	93B.058	Fraser	Castle Rock	20.83
106	92P.049	North Thompson	Little Fort, North Thompson	20.42
107	93G.009	Fraser/Quesnel	Ten Mile Lake	20.42
108	93G.018	Fraser/Quesnel	Cottonwood River	20.42
109	92P.091	Fraser	Chimney Lake	20.00
110	92I.096	Thompson	Upper Deadman River Valley	19.58
111	93B.059	Fraser/Quesnel	North of McLeese Lake	19.58
112	93D.048	North Coast Rivers	North of Hagensborg	19.58
113	92I.015	Thompson	West of Canford	19.17
114	92I.028	Thompson	North end of Nicola Lake	19.17
115	92I.082	Fraser/Thompson	Pavilion Lake	19.17
116	82L.062	South Thompson	Southeast of Pritchard	18.75
117	92I.064	Thompson	South of Ashcroft	18.75
118	92I.087	Thompson	Tranquille River	18.75
119	93B.089	Fraser/Quesnel	Sardine Flats	18.33
120	92I.048	North Thompson/South Thompson	Lac Le Jeune	17.92
121	93A.053	Quesnel	South of Likely	17.92
122	93B.096	Fraser	Punthesakut Lake	17.92
123	92H.096	Thompson	Upper Coldwater River	17.50
124	92I.059	South Thompson	Shumway Lake south of Kamloops	17.50
125	92I.055	Thompson	North Highland Valley	16.67
126	92P.037	Thompson	Eagan Lake	16.67

Table 23

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring
127	93A.031	Fraser/Quesnel	Big Lake	16.25
128	93B.078	Fraser	Narcosli Creek	16.25
129	93B.099	Quesnel	East of Quesnel	16.25
130	82M.021	North Thompson	East Barriere Lake	15.42
131	92O.100	Fraser	West of Chimney Lake	15.42
132	82L.041	South Thompson	West of Westwold	15.00
133	82L.073	South Thompson	Skimikin Creek west of Thompson	15.00
134	92P.024	Thompson	East of Chasm	15.00
135	92P.035	Thompson	Southeast of Green Lake	15.00
136	92P.046	Thompson/North Thompson	East of Green Lake	15.00
137	93A.022	Fraser/Quesnel	Miocene	15.00
138	93B.097	Fraser	West of Quesnel	15.00
139	92I.036	Thompson	Mamit Lake	14.17
140	92I.083	Thompson	West of Cache Creek	14.17
141	93A.041	Quesnel	North of Big Lake	14.17
142	92O.098	Fraser/Chilcotin	Riske Creek	13.75
143	93B.068	Fraser	Alexandria	13.75
144	92I.093	Thompson	Bonaparte River	12.50
145	92P.060	North Thompson	North of Little Fort, North Thompson	11.67
146	92H.097	Thompson/Okanagan	West of Aspen Grove	9.17
147	92I.060	South Thompson	Scuitto Lake southeast of Kamloops	9.17
148	92P.048	Thompson/North Thompson	East of Bridge Lake	9.17
149	92P.090	North Thompson	Clearwater River	9.17
150	93A.063	Quesnel	Likely	9.17
151	92I.039	Thompson	Stump Lake	7.50
152	93B.019	Fraser	West of Williams Lake	7.50
153	92I.049	North Thompson/South Thompson	Trapp Lake	6.67

Table 24 . Comparison of top-rated BCGS areas versus top-rated unconsolidated aquifers in the Thompson/Cariboo Region.

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
1	93B.098	Fraser/Quesnel	Quesnel	70.00	97	82L.044, 054, 064		Falkland to southwest of Salmon Arm	75.6
2	82L.064	South Thompson/Okanagan	Salmon Arm	68.33	98	82L.042, 044, 054, 064		Lower Salmon River Valley	74.5
3	82L.044	South Thompson/Okanagan	O'Keefe Valley	66.67	116	93B.098		West of Dragon Lake	69.3
4	93G.008	Fraser/Quesnel	North Quesnel	65.00	74	92I.016, 017		Merritt	68.8
5	82L.065	South Thompson	Grandview Bench	59.17	370	93B.098, 93G.008		Area north of Quesnel	67.9
6	93B.020	Fraser	Williams Lake	59.17	359	93B.098		Quesnel, west side of Fraser River	63.8
7	92I.069	Thompson/South Thompson/North Thompson	Kamloops	56.67	146	93B.020	Williams Lake	West and northwest side of Williams Lake	62.6
8	92I.016	Thompson	Lower Nicola	55.83	133	92I.084		Cache Creek to Scottie Creek	62.0
9	93B.010	Fraser	South of Williams Lake	55.83	307	82L.086		Malakwa	61.4
10	92P.070	North Thompson	Clearwater	54.17	152	93B.010, 020		South of Williams Lake on Dog Creek Road	59.6
11	93A.011	Fraser	150 Mile House	54.17	115	93B.098, 93G.008		Northeast of Quesnel	59.2
12	82L.075	South Thompson	Mara Lake	53.33	770	92P.070		Clearwater – North of Kamloops	58.9

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
13	82L.093	South Thompson	Adams River	53.33	384	93A.011		150 Mile House, B.C.	57.1
14	92P.064	Fraser/North Thompson	100 Mile House	51.67	423	92P.083		North shore of La Hache Lake	53.0
15	82L.054	South Thompson/Okanagan	Yankee Flats-Salmon River	51.25	120	93B.098		Rich Bar to Kersley	52.6
16	82L.074	South Thompson	North of Salmon Arm	48.33	822			Logan Lake / SW of Kamloops	52.6
17	92P.083	Fraser	Lac la Hache	47.50	365	93G.008		Northwest of Quesnel and East shoreline of Bouchie L	52.4
18	93G.007	Fraser	Bouchie Lake	47.50	229	82L.093		Scotch Creek	51.4
19	82L.061	South Thompson	Monte Creek and South Thompson	46.67	728	92I.068		Cherry Cr valley; SW of Kamloops	50.8
20	92I.017	Thompson	Lower Nicola	46.67	135	92I.084		Semlin Valley	50.0
21	92I.084	Thompson	Cache Creek	46.67	354	82L.044		O'Keefe Valley and Grandview Flats	49.8
22	92I.018	Thompson	Nicola Lake	45.83	134	92I.084		Cache Creek to north of Maiden Creek	49.6
23	92I.080	North Thompson/South Thompson	Paul Lake	43.33	147	93B.020		Hill southwest of Williams Lake townsite	49.6
24	82L.086	South Thompson	Eagle River	41.67	286	92I.069, 070		Lower South Thompson River	48.9
25	92P.047	Thompson/North Thompson	Bridge Lake	40.83	283	92I.069		North Thompson River north of Kamloops	48.5

Table 24

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
26	92I.068	Thompson/South Thompson	Sugarloaf Hill-Kamloops	40.00	117	93B.098		Red Bluff	46.2
27	82L.042	South Thompson/Okanagan	Westwold	39.58	769	92P.070		Clearwater – North of Kamloops	46.2
28	93B.088	Fraser	North of Narcosli Creek	39.17	831			S of Bella Coola R./ E of Bella Coola	46.2
29	92P.020	North Thompson	Barriere	38.75	777			Deadman Valley NW of Kamloops	46.0
30	82L.082	South Thompson	Little Shuswap Lake	38.33	77	92I.016		Lower Nicola	45.7
31	82L.084	South Thompson	White Lake	38.33	289	82L.042		Westwold, Salmon River Valley	45.4
32	82L.094	South Thompson	Celista	38.33	324	92I.061		Lillooet	44.6
33	92I.070	South Thompson	Barnhartvale	38.33	807			N Thompson River	43.7
34	92P.065	North Thompson	North of Horse Lake	37.92	371	93G.008		East of Quesnel Airport and	43.6
35	92P.074	Fraser/North Thompson	108 Mile House	37.92	867	82L.074		Ashby Point, Shuswap Lake	43.5
36	82L.083	South Thompson	Squilax Mountain	37.50	832			S of Bella Coola R./ E of Bella	43.5
37	92P.055	Thompson/North Thompson	Horse Lake	37.50	236	82L.082		Chase	43.2
38	93C.044	North Coast Rivers	Anahim Lake	37.50	325	92I.061		Lillooet	43.2
39	92I.061	Fraser	Lillooet	36.67	337			Timothy Lake	43.0

Table 24

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
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Sub Areas

	Quesnel		Priority Aquifers
	Salmon Arm		
	Kamloops		
	100 Mile House		
	North Thompson		
	Lower Nicola		
	Williams Lake		
	Cache Creek		
	Lillooet		

Table 25 . Comparison of top-rated BCGS areas versus top-rated bedrock aquifers in the Thompson/Cariboo Region.

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
1	93B.098	Fraser/Quesnel	Quesnel	70.00	124	93A.011, 92P.047, 055, 064,	Fraser Plateau Lava	70 Mile House to 108 Mile Lake	71.0
2	82L.064	South Thompson/Okanagan	Salmon Arm	68.33	126	92P.047, 064, 065, 074, 083	108 Mile Limestone	Simon Lake	66.4
3	82L.044	South Thompson/Okanagan	O'Keefe Valley	66.67	148	93B.010, 020		Between Chimney Creek and Williams Lake	63.4
4	93G.008	Fraser/Quesnel	North Quesnel	65.00	138			Upper Missioner/Minton Creek Valleys	48.0
5	82L.065	South Thompson	Grandview Bench	59.17	250	92I.070, 82L.061		Pinantan Lake / Pritchard	41.0
6	93B.020	Fraser	Williams Lake	59.17	118	93B.088, 098		South of Quesnel	40.5
7	92I.069	Thompson/South Thompson/North Thompson	Kamloops	56.67	767	93C.044		Anahim – east of Tweedsmuir Park	40.5
8	92I.016	Thompson	Lower Nicola	55.83	727	92I.068		Cherry Cr valley; SW of Kamloops	39.9
9	93B.010	Fraser	South of Williams Lake	55.83	272	92I.069, 92P.020		North-east of Kamloops	39.2
10	92P.070	North Thompson	Clearwater	54.17	224	82L.094		Eagle Bay	38.0
11	93A.011	Fraser	150 Mile House	54.17	110	82L.064, 065		Grandview Bench	36.1
12	82L.075	South Thompson	Mara Lake	53.33	233	82L.084, 094		Blind Bay / White Lake	35.5
13	82L.093	South Thompson	Adams River	53.33					

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
14	92P.064	Fraser/North Thompson	100 Mile House	51.67					
15	82L.054	South Thompson/Okanagan	Yankee Flats-Salmon River	51.25					
16	82L.074	South Thompson	North of Salmon Arm	48.33					
17	92P.083	Fraser	Lac la Hache	47.50					
18	93G.007	Fraser	Bouchie Lake	47.50					
19	82L.061	South Thompson	Monte Creek and South Thompson	46.67					
20	92I.017	Thompson	Lower Nicola	46.67					
21	92I.084	Thompson	Cache Creek	46.67					
22	92I.018	Thompson	Nicola Lake	45.83					
23	92I.080	North Thompson/South Thompson	Paul Lake	43.33					
24	82L.086	South Thompson	Eagle River	41.67					
25	92P.047	Thompson/North Thompson	Bridge Lake	40.83					
26	92I.068	Thompson/South Thompson	Sugarloaf Hill-Kamloops	40.00					
27	82L.042	South Thompson/Okanagan	Westwold	39.58					
28	93B.088	Fraser	North of Narcosli Creek	39.17					
29	92P.020	North Thompson	Barriere	38.75					
30	82L.082	South Thompson	Little Shuswap Lake	38.33					
31	82L.084	South Thompson	White Lake	38.33					
32	82L.094	South Thompson	Celista	38.33					
33	92I.070	South Thompson	Barnhartvale	38.33					

Sub Areas

	100 Mile House
	Williams Lake
	Kamloops
	Quesnel
	Salmon Arm
	Anahim Lake

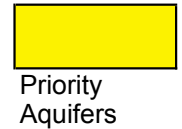


Table 25

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
34	92P.065	North Thompson	North of Horse Lake	37.92					
35	92P.074	Fraser/North Thompson	108 Mile House	37.92					
36	82L.083	South Thompson	Squilax Mountain	37.50					
37	92P.055	Thompson/North Thompson	Horse Lake	37.50					
38	93C.044	North Coast Rivers	Anahim Lake	37.50					
39	92I.061	Fraser	Lillooet	36.67					

Table 26. Recommended key areas and priority aquifers for monitoring in the Thompson/Cariboo Region.

SUB REGION	KEY AREA	PRIORITY UNCONSOLIDATED AQUIFERS	PRIORITY BEDROCK AQUIFERS
A. Thompson /Cariboo East	Quesnel	115, 116, 117, 359 and 370	118
	Salmon Arm	97, 98, 229, 236, 289, 354 and 867	110, 224 and 233
	Kamloops	283, 286 and 728	250, 272 and 727
	100 Mile House	423	124 and 126
	North Thompson	769 and 770	
	Lower Nicola	74 and 77	
	Williams Lake	146, 147, 152 and 384	148
	Cache Creek	133, 134 and 135	
A. Thompson /Cariboo West	Lillooet	324 and 325	
	Anahim Lake		767

Table 27. Descending ranking scores of classified unconsolidated aquifers in the Kootenay-Okanagan Region

Item	Unconsolidated Aquifer Number	Aquifer Name	Aquifer Class	Location Description	Ranking Score for Monitoring
1	158		IA	Grand Forks	89.0
2	464		IC	Valley bottom S, E, NE of Kelowna	87.5
3	463		IC	S, E, NE of Kelowna; S & E side of valley	82.5
4	259		IIA	US Border to Princeton	80.8
5	193	Osoyoos West	IIA	Osoyoos West	76.3
6	254		IIA	Osoyoos Lake to southwest of Tug Lake	76.3
7	255		IA	North of Tug Lake to Vaseux Lake	73.6
8	111		IIC	Lower Shuswap River Valley	69.3
9	194	Osoyoos East	IIA	Osoyoos East	68.6
10	524		IIA	Cranbrook, Surficial	66.4
11	344		IB	Ellison Lake to Wood Lake	65.6
12	456		IIB	Golden, confluence of 2 rivers	62.9
13	521		IA	Jaffray	58.7
14	540		IA	Wasa Lake	58.7
15	316		IIIA	Lumby	57.1
16	102		IIC	Hulcar	56.8
17	353		IA	SE of Armstrong	55.8
18	103		IIA	Parkinson Lake	55.4
19	264		IIB	Okanagan Falls and east of Okanagan Falls	55.1
20	477		IIA	Kettle R., eastward from Rock Ck.	53.9
21	317		IIIC	Lumby	53.8
22	802		IIA	Revelstoke – South	53.7
23	257		IIA	Meyers Flat	53.3
24	345		IIA	Oyama	53.3
25	346		IA	Kalamalka Lake to Vernon	53.1
26	525		IIC	Cranbrook - West	52.6
27	478		IIA	Midway	51.4
28	347		IC	Vernon to Okanagan Lake	51.2
29	603		IIA	Invermere 3km N and S	51.2
30	354		IIA	O'Keefe Valley and Grandview Flats	49.8
31	487		IIIA	Goat River Floodplain near Creston	49.7
32	352		IIC	Coldstream Valley. E of Lavington to W of	49.3
33	860		IA	Mouth of Peachland Creek, SW of Peachland	48.7
34	482		IIIA	Kettle river Valley near Beaverdell	48.5
35	508		IIB	Selkirk Colledge, Southeast of Castlegar	48.5
36	505		IIB	Castlegar Townsite North	48.0
37	349		IIC	Northeast of Vernon along BX Creek	47.7
38	816		IIA	Canal Flats	47.7
39	497		IIB	Erie 1, Salmo	47.0
40	485		IIB	Southwest of the Village of Montrose	46.7
41	484		IIC	Waneta Junction/southeast of Trail	45.9
42	507		IIA	Airport Creek	44.9
43	516		IIA	Willow Point	44.9
44	492		IIA	Yahk	44.7
45	299	Fauder	IIIC	Fauder (Meadow Valley)	44.0

Item	Unconsolidated Aquifer Number	Aquifer Name	Aquifer Class	Location Description	Ranking Score for Monitoring
46	528		IIIA	Wardner	43.9
47	538		IIIA	St. Mary River IR	43.9
48	514		IIB	Crescent Valley	43.5
49	453		IIB	Windermere; E. side of Windermere LK.	43.2
50	509		IIB	Castlegar - South	43.2
51	849	Fortune Creek	IIB	NE of Armstrong	43.0
52	319		IIB	North of Lumby	42.6
53	108		IIIA	4 kilometres southeast of Salmon Arm	41.8
54	358		IIA	Fintry Fan, Short Creek	41.8
55	301	Shannon Lake	IIB	Shannon Lake	41.5
56	225		IB	Sicamous(Mara Lake)	41.2
57	527		IIB	Bull River	41.0
58	811		IIB	North of Grand Forks	41.0
59	467		IIA	East Kelowna and Rutland area	40.6
60	450		IIB	Nicholson; Stacey Ck. Fan and South	40.2
61	455		IIB	Hospital Creek near Golden	40.2
62	261		IIB	Marron Valley northwest of Okanagan Falls	40.1
63	265		IIB	Between OK Falls and Vaseux Lk	40.1
64	526		IIB	Cranbrook - East	39.7
65	862		IIIC	Mouth of Trepanier Creek NE of Peachland	39.6
66	510		IIB	Castlegar - Airport	39.5
67	801		IIC	Revelstoke – West	39.4
68	357		IIA	Whiteman Creek Fan	39.3
69	461		IIIB	Upper Mission Creek	38.8
70	462		IIIA	1 km south of Mission Ck	38.8
71	459		IIA	Fairmont Hot Springs	38.7
72	520		IIIA	Baynes Lake - East 2	38.5
73	504		IIA	Raspberry Village	38.2
74	502		IIB	Robson - North	38.0
75	195	Osoyoos East Confined	IIB	Osoyoos East	37.4
76	315		IIA	Bessette Creek Southwest of Lumby	37.4
77	491		IIIA	Southern area of the Moyie R.	37.2
78	270		IIB	Ellis Creek	37.0
79	496		IIA	Salmo River	37.0
80	303	Southeast of Westbank	IIIB	Southeast of Westbank adj. to Okanagan Lk.	36.1
81	874		IIB	Edgewood	36.0
82	109		IIIC	Highway 97B	35.7
83	314		IIIC	Lumby	35.7
84	348		IIC	Just north of Vernon to north of Swan Lake	35.7
85	517		IIB	Roberts Bay - Cedar Point	35.7
86	113		IIIC	Ashton Creek	35.5
87	114		IIIA	South of Mara Lake	35.5
88	256		IIIC	Testalinden Creek to Reed Creek	35.5
89	568		IIB	Shuswap Ck. area; NE of Invermere	35.2

Table 27

Item	Unconsolidated Aquifer Number	Aquifer Name	Aquifer Class	Location Description	Ranking Score for Monitoring
90	803		IIIA	Revelstoke – Townsite	35.2
91	601		IIB	5 km S. of Radium Hot Springs	35.0
92	439		IC	Jim Smith Lake	34.6
93	452		IIC	E. of Invermere; E. side of Columbia R.	34.4
94	878		IIC	Wilmer	34.4
95	262		IIIA	White Lake Basin 35 km south of Penticton	33.8
96	318		IIIC	Northeast of Lumby	33.8
97	481		IIIB	Kettle River Valley at West ridge	33.5
98	490		IIA	Rykerts Lake	33.5
99	873		IIA	Edgewood	33.5
100	454		IIA	S. of Golden; across R. from Nicholson	33.2
101	600		IIA	Horse Creek Fan S. of Nicholson	33.2
102	864		IIC	Trepanier Cr. and Jack Cr, N of Peachland	32.4
103	468		IA	2 km N of Kelowna; Clifton Rd. area	32.0
104	817		IIC	NE of Edgewater, Columbia River Valley	31.9
105	876		IIIC	Dry Gulch Creek, E side of Columbia Valley	31.9
106	267		IIB	Shingle Creek	31.8
107	297		IIIB	Summerland, Trout Creek	31.8
108	479		IIIB	Kettle River Valley near Christina Lake	31.7
109	501		IIIA	Lower China Creek	31.0
110	503		IIB	Robson - South	31.0
111	258		IIC	Richter Pass	30.7
112	522		IIIA	Rosen Lake - South	30.7
113	531		IIB	Tie Lake	30.7
114	546		IIIA	Moyie River - South near Glenlily	30.7
115	460		IIB	Madias Ck.; N. of Fairmont Hotsprings	30.2
116	806		IIB	Shuswap River - east of Enderby	30.2
117	530		IIC	Rosen Lake - North	29.6
118	532		IIC	Elk River	29.6
119	533		IIC	Fernie - South	29.6
120	445		IIC	NW of Cranbrook; near Hospital Creek	29.4
121	446		IIC	Booth Creek, NW of Cranbrook	29.4
122	457		IIC	NE of Invermere; E. side of River	29.4
123	476		IIC	Low lying area northeast of Rock Creek	29.4
124	567		IIC	Madias Ck. Fan; N. of Fairmont Hotsprings	29.4
125	875		IIC	S of Radium, E side of Columbia Valley	29.4
126	302	South of Westbank, B.C.	IIB	South of Westbank adjacent to Okanagan Lk.	29.0
127	466		IIIA	6 km SE of Kelowna	29.0
128	474		IIIA	Kettle Valley - Rock Creek	28.5
129	541		IIIC	Ta Ta Creek	28.4
130	506		IIIB	Brilliant - North	28.2
131	544		IIA	Skookumchuk E.	28.2
132	602		IIA	from Radium towards Columbia River	28.2
133	498		IIIB	Erie 2, Salmo	28.0

Table 27

Item	Unconsolidated Aquifer Number	Aquifer Name	Aquifer Class	Location Description	Ranking Score for Monitoring
134	815		IIIA	North of Grand Forks	27.4
135	458		IIIC	Fairmont Hotsprings; W. side of R.	27.1
136	519		IIIC	Baynes Lake - East 1	27.1
137	539		IIIC	Mather Creek	26.9
138	489		IIIC	Canyon, SE of Creston	26.7
139	877		IIIC	Stoddart Creek, E side of Columbia Valley	26.7
140	480		IIIA	South end of Christina Lk.	26.0
141	543		IIIB	Skookumchuk S.	26.0
142	356		IIIB	Mouth of Deep Creek	25.8
143	469		IIIC	Glenmore Valley, N. of Kelowna	25.5
144	306	East of Westbank	IIC	East of Westbank, parallel to Mt. Boucher	25.2
145	515		IIIA	Krestova - Surficial	25.2
146	311		IIC	South of Cherryville	24.6
147	483		IIB	Trail Townsite	23.2
148	545		IIIB	NE of Skookumchuck	23.2
149	266		IIIC	Stafford Creek southwest of Penticton	22.7
150	809		IIIC	East of Osoyoos, Nine Mile Creek	22.5
151	310		IIIB	Creighton Valley, Southeast of Lumby	21.1
152	542		IIIB	North of Wasa Lake	20.0
153	465		IIIC	S. Kelowna; possibly E. to Rutland	17.0

Table 28. Descending ranking of classified bedrock aquifers in the Kootenay/Okanagan Region.

Item	Bedrock Aquifer Number	Aquifer Name	Aquifer Class	Location Description	Ranking Score for Monitoring
1	260		IIB	Marron Valley northwest of Okanagan Falls	46.8
2	523		IB	Cranbrook S., B. R.	46.0
3	537		IIB	Kimberley, B.R.	45.7
4	351		IIC	NE of Vernon and to the north of BX Creek	45.5
5	488		IIC	Lister, South of Creston	44.4
6	298	Naramata	IIB	Naramata	41.5
7	110		IIIB	Grandview Bench	36.1
8	535		IIIB	Cranbrook N., B. R.	35.7
9	350		IIC	NE of Vernon and to the south of BX Creek	35.5
10	473		IIC	Mission, Daves & Cardinal Ck area	35.2
11	808		IIB	East of Osoyoos, Anarchist Mountain	34.3
12	263		IIA	North of Okanagan Falls/ shore of Skaha Lk	33.8
13	269		IIB	Ellis Creek	33.8
14	304	Westbank	IIB	West side of Okanagan Lk, west of Kelowna	33.8
15	300	Faulder	IIC	Faulder (Eneas Creek)	33.5
16	495		IIB	Fruitvale Creek	33.0
17	534		IIIC	Fernie S. B. R.	31.7
18	107		IIB	Gardom Lake to Enderby	31.3
19	494		IIB	Ross Spur, South	30.7
20	536		IIB	Wycliffe	30.7
21	486		IIB	Columbia Gardens northwards to Kelly Ck.	29.2
22	104		IIB	1 kilometre northwest of Hullcar	28.8
23	863		IIB	N Trepanier Creek Valley N of Peachland	28.5
24	861		IIB	Lower Peachland Creek watershed	28.2
25	499		IIB	Alice Siding, north of Creston	28.0
26	511		IIIB	Fortynine Creek	28.0
27	529		IIIB	Wardner B.R.	28.0
28	518		IIIC	Mt. Nelson	27.9
29	106		IIIC	Southwest of Leduc Creek	27.5
30	493		IIB	Ross Spur, North	27.0
31	475		IIIC	Bedrock slope north of Rock Creek	26.7
32	268		IIB	Penticton East and east shore of Skaha Lk.	26.5
33	305	Westbank	IIB	West side of Okanagan Lk, west of Kelowna	26.3
34	472		IIIB	Southeast of Ellison Lake	26.1
35	512		IIIB	Falls Creek near West Arm, Kootenay Lake	25.5
36	805		IIB	West of Mabel Lake – East of Enderby	25.5
37	812		IIB	North of Grand Forks	25.5
38	879		IIIB	Lillian Lake, NW of Wilmer Creek	25.5
39	500		IIIB	Blueberry, between China Ck. and Kinnaird	25.2

Item	Bedrock Aquifer Number	Aquifer Name	Aquifer Class	Location Description	Ranking Score for Monitoring
40	238		IIIC	Spotted Lake, Osoyoos	25.0
41	248		IIIC	Spotted Lake, Osoyoos	25.0
42	814		IIB	North of Grand Forks	25.0
43	355		IIIC	West of Deep Creek, NW of Armstrong	24.8
44	313		IIIB	Cherryville	24.0
45	813		IIIB	North of Grand Forks	24.0
46	513		IIIB	Krestova B. R.	22.5
47	804		IIC	Shuswap River-east of Enderby	22.5
48	810		IIC	East of Osoyoos	22.3
49	470		IIIB	Kelowna north to Ellison Lake	21.5
50	471		IIIB	West of Ellison Lake	21.1
51	105		IIIB	Hillcrest	20.6
52	112		IIIC	2 kilometres northeast of Enderby	20.0
53	312		IIIC	Cherryville	19.4

Table 29. Descending ranking scores of BCGS areas in the Okanagan/Kettle sub region.

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring
1	82E.003	Okanagan	Osoyoos Lake	85.00
2	82E.083	Okanagan	Kelowna	79.17
3	82E.008	Kettle R	Grand Forks	63.33
4	82E.094	Okanagan	Northeast of Kelowna	63.33
5	82L.045	Okanagan/South Thompson	East of Armstrong	63.33
6	82L.024	Okanagan	Vernon	61.67
7	82L.034	Okanagan	North of Vernon	59.17
8	82L.035	Okanagan/South Thompson	Silverstar	58.33
9	82L.055	Okanagan/South Thompson	Enderby	58.33
10	82L.065	South Thompson	Grandview Bench	56.67
11	82L.044	Okanagan/South Thompson	West of Armstrong	55.00
12	82E.084	Okanagan	Mission Creek	55.00
13	82E.032	Okanagan	Twin Lakes	54.17
14	82E.023	Okanagan	Okanagan River north of Tugulnuit Lake	53.33
15	82L.026	Okanagan/South Thompson	Lumby	53.33
16	82L.075	South Thompson/Columbia	Mara Lake	53.33
17	82E.013	Okanagan	Oliver	52.50
18	82E.082	Okanagan	Westbank	50.83
19	82E.072	Okanagan	Peachland	50.00
20	82E.052	Okanagan	Summerland	46.67
21	82E.009	Kettle R	East of Grand Forks	46.25
22	82L.004	Okanagan	Wood Lake	45.83
23	92H.048	Okanagan	Princeton	45.00
24	82L.054	Okanagan/South Thompson	West of Enderby	44.58
25	82E.033	Okanagan	Okanagan Falls	44.17
26	82E.021	Okanagan-Similkameen	Keremeos	43.33
27	82E.062	Okanagan	North of Summerland	43.33
28	82L.003	Okanagan	Okanagan Centre	43.33
29	82L.014	Okanagan	Oyamma	43.33
30	82E.093	Okanagan	Northwest of Kelowna	42.50
31	82E.006	Kettle R	West of Grand Forks	41.67
32	82L.025	Okanagan/South Thompson	Coldstream Creek	40.00
33	82L.064	Okanagan/South Thompson	Salmon Arm	36.67
34	82E.043	Okanagan	Penticton	35.42
35	82E.073	Okanagan	Okanagan Mountain	35.00
36	82E.005	Kettle R	Rock Creek	34.17
37	82E.012	Okanagan-Similkameen	East of Keremeos	34.17
38	82E.063	Okanagan	North of Naramata	32.08
39	82E.085	Okanagan/Kettle	Upper Mission Creek	30.42
40	92H.040	Okanagan	Hedley	30.00
41	82L.023	Okanagan	Whiteman Creek	29.17
42	82L.013	Okanagan	Fintry	27.92
43	82L.027	South Thompson	East of Lumby	26.67

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring
44	82L.099	South Thompson	West of Revelstoke	26.67
45	82E.007	Kettle R	Midway	25.83
46	92H.057	Okanagan	Tulameen	25.83
47	82E.042	Okanagan	West of Penticton	24.58
48	82E.053	Okanagan	Naramata	24.17
49	82L.056	South Thompson	East of Enderby	23.33
50	82E.004	Okanagan/Kettle	East of Osoyoos	22.50
51	82E.022	Okanagan	East of Keremeos	22.50
52	82E.016	Kettle R	Westbridge	21.25
53	82E.045	Kettle R	Beaverdell	21.25
54	82E.018	Kettle R	Pass Creek	18.33
55	92H.030	Okanagan	Similkameen Valley S. of Hedly	17.92
56	92H.049	Okanagan	East of Princeton	17.92
57	82E.002	Okanagan	Richter Mountain	17.50
58	82E.031	Okanagan	West of Hedley	17.50
59	82L.028	South Thompson	Cherryville	17.50
60	82L.047	South Thompson	South end of Mabel Lake	17.08
61	92H.079	Okanagan	Northeast of Princeton	16.25
62	82L.036	South Thompson	North of Lumby	15.83
63	82E.019	Kettle R	Christina Lake	14.58
64	82E.061	Okanagan	Upper Trout Creek	14.58
65	92H.038	Okanagan	South of Princeton	14.58
66	82L.067	South Thompson	Mabel Lake	14.17
67	82E.011	Okanagan-Similkameen	South of Keremeos	13.33
68	92H.069	Okanagan	Northeast of Princeton	9.17
69	82L.046	South Thompson	Trinity Creek east of Armstorg	7.50
70	92H.058	Okanagan	North of Princeton	7.50
71	92H.077	Okanagan	North of Tulameen	7.50
72	92H.097	Okanagan/Thompson	North of Tulameen	7.50

Table 30. Descending ranking scores of BCGS areas in the Kootenay/Columbia sub region.

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring
1	82G.052	Upper Kootenay R	Cranbrook-Northeast	57.50
2	82G.034	Upper Kootenay R	Jaffray	56.25
3	82G.041	Lower Kootenay River/Upper Kootenay	Cranbrook-West	55.83
4	82F.032	Columbia/Lower Kootenay	Castlegar	55.00
5	82K.060	Columbia	Invermere	54.17
6	82G.042	Lower Kootenay River/Upper Kootenay	Cranbrook-East	51.67
7	82N.026	Columbia/Kicking Horse	Golden	51.67
8	82J.041	Columbia	Windemere	47.50
9	82F.022	Columbia	South of Castlegar	46.67
10	82F.054	Lower Kootenay River	West Arm Kootenay Lake	44.17
11	82G.043	Upper Kootenay R	Wardner	44.17
12	82F.008	Lower Kootenay River	Creston	43.33
13	82G.062	Upper Kootenay R	St. Mary River	43.33
14	82G.061	Upper Kootenay R	Kimberley	42.50
15	82N.036	Columbia/Kicking Horse	North of Golden	42.50
16	82G.072	Upper Kootenay R	Wasa Lake	36.67
17	82F.043	Lower Kootenay River	Slocan Valley	36.25
18	82F.012	Columbia	Trail	35.83
19	82G.024	Upper Kootenay R	Baynes Lake	35.83
20	82G.045	Upper Kootenay R	Fernie-south	35.00
21	82F.010	Lower Kootenay River	Moyie River	34.17
22	82K.070	Columbia	Radium	34.17
23	82G.082	Upper Kootenay R	North of Wasa Lake	31.25
24	82K.080	Columbia/Upper Kootenay	Edgewater	31.25
25	82F.002	Columbia/Pend-d'Oreille	Rossland-Montrose	30.00
26	82F.014	Columbia/Pend-d'Oreille	Salmo River	30.00
27	82G.076	Upper Kootenay R	Sparwood	30.00
28	82J.031	Columbia	Fairmont	30.00
29	82J.011	Columbia/Upper Kootenay	Canal Flats	28.33
30	82K.026	Lower Kootenay River	South End of Duncan Lake	28.33
31	82F.066	Lower Kootenay River	Balfour	27.50
32	82G.092	Upper Kootenay R	Skookumchuk	26.67
33	82J.006	Upper Kootenay R	Elkford	26.67
34	82F.013	Columbia/Pend-d'Oreille	Fruitvale	26.25
35	82F.018	Lower Kootenay River	Alice Siding, north of Creston	25.83

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring
36	82J.051	Columbia/Upper Kootenay	North of Windemere	25.83
37	82G.051	Lower Kootenay River/Upper Kootenay	Northwest of Cranbrook	25.00
38	82L.100	Columbia/Illecillewaet	Revelstoke	24.58
39	82F.063	Lower Kootenay River	Upper Slocan River	24.17
40	82F.065	Lower Kootenay River	West of Balfour	23.75
41	82K.050	Columbia	South of Invermere	23.75
42	82F.033	Columbia/Lower Kootenay/Pend-d'Oreille	Lower Kootenay River	22.50
43	82G.021	Lower Kootenay River	Moyie Lake	21.67
44	82F.031	Columbia	Lower Arrow Lake	20.83
45	82G.053	Upper Kootenay R	Norbury Lakes	20.83
46	82F.001	Columbia	East of Rossland	20.42
47	82F.096	Lower Kootenay River	Kaslo	20.42
48	82E.080	Columbia	Edgewood	19.58
49	82G.071	Upper Kootenay R	North of Kimberley	19.17
50	82G.005	Upper Kootenay R	Grasmere	18.75
51	82F.086	Lower Kootenay River	South of Kaslo	17.92
52	82K.021	Columbia	Nakusp-north	17.92
53	82K.089	Columbia	Brisco-Columbia Valley	17.92
54	82F.044	Lower Kootenay/Pend-d'Oreille	East of Slocan Valley	17.50
55	82F.007	Lower Kootenay River	West of Creston	17.08
56	82F.024	Columbia/Pend-d'Oreille	Upper Salmo River	17.08
57	82F.091	Columbia	Arrow Lake Townsite	17.08
58	82K.003	Columbia/Lower Kootenay	Northern part of Slocan Lake	17.08
59	82G.031	Lower Kootenay River	Upper Moyie Lake	16.67
60	82N.025	Columbia	Columbia Valley west of Golden	16.67
61	82F.019	Lower Kootenay River	Northeast of Creston	16.25
62	82N.007	Columbia	South of Golden	14.58
63	82E.090	Columbia	Needles	14.17
64	82F.003	Columbia/Pend-d'Oreille	Waneta Junction	14.17
65	82F.052	Lower Kootenay River/Columbia	Northwest of Slocan Valley	14.17
66	82G.044	Upper Kootenay R	Tie Lake	14.17
67	82G.035	Upper Kootenay R	East of Jaffray	13.75
68	82G.055	Upper Kootenay R	East of Fernie Mountain	13.33
69	82K.022	Columbia/Lower Kootenay	Nakusp	13.33

Table 30

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring
70	82F.053	Lower Kootenay River	North of Slocan Valley	12.50
71	82F.073	Lower Kootenay River	Upper Slocan River	11.67
72	82G.025	Upper Kootenay R	Northeast of Baynes Lake	11.67
73	82J.021	Columbia	North end of Columbia Lake	11.67
74	82K.012	Columbia/Lower Kootenay	South of Nakusp	11.67
75	82F.017	Lower Kootenay River	Northwest of Creston	10.83
76	82G.086	Upper Kootenay R	North of Sparwood	10.83
77	82F.042	Columbia/Lower Kootenay	West of Krestova	10.00
78	82G.014	Upper Kootenay R	Koocanusa Lake	10.00
79	82N.045	Columbia	North of Moberly, Columbia River	10.00
80	82G.056	Upper Kootenay R	Hosmer	9.17
81	82N.016	Columbia	Columbia River, S. of Golden	9.17
82	82N.008	Columbia/Kicking Horse/Upper Kootenay	Columbia River, S. of Golden	8.33
83	82N.017	Columbia/Kicking Horse	Columbia River, S. of Golden	8.33

Table 31. Comparison of top-rated BCGS areas versus top-rated unconsolidated aquifers in the Okanagan/Kettle sub region.

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
1	82E.003	Okanagan	Osoyoos Lake	85.0	158	82E.008		Grand Forks	89.0
2	82E.083	Okanagan	Kelowna	79.2	464	82E.083, 084, 093, 094		Valley bottom S, E, NE of Kelowna	87.5
3	82E.008	Kettle R	Grand Forks	63.3	463	82E.083, 084		S, E, NE of Kelowna; S & E side of valley	82.5
4	82E.094	Okanagan	Northeast of Kelowna	63.3	259	82E.021, 92H.048		US Border to Princeton	80.8
5	82L.045	Okanagan/South Thompson	East of Armstrong	63.3	193	82E.003	Osoyoos West	Osoyoos West	76.3
6	82L.024	Okanagan	Vernon	61.7	254	82E.003, 013		Osoyoos Lake to southwest of Tug Lake	76.3
7	82L.034	Okanagan	North of Vernon	59.2	255	82E.013		North of Tug Lake to Vaseux Lake	73.6
8	82L.035	Okanagan/South Thompson	Silverstar	58.3	111	82L.034, 044, 045, 055, 065, 075		Lower Shuswap River Valley	69.3
9	82L.055	Okanagan/South Thompson	Enderby	58.3	194	82E.003	Osoyoos East	Osoyoos East	68.6
10	82L.065	South Thompson	Grandview Bench	56.7	344	82L.004		Ellison Lake to Wood Lake	65.6
11	82L.044	Okanagan/South Thompson	West of Armstrong	55.0	316	82L.026		Lumby	57.1
12	82E.084	Okanagan	Mission Creek	55.0	102	82L.044, 055		Hulcar	56.8
13	82E.032	Okanagan	Twin Lakes	54.2	353	82L.034, 045		SE of Armstrong	55.8

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
14	82E.023	Okanagan	Okanagan River north of Tugulnuit Lake	53.3	103	82L.044, 054, 055		Parkinson Lake	55.4
15	82L.026	Okanagan/South Thompson	Lumby	53.3	264	82E.033		Okanagan Falls and east of Okanagan Falls	55.1
16	82L.075	South Thompson	Mara Lake	53.3	477			Kettle R., eastward from Rock Ck.	53.9
17	82E.013	Okanagan	Oliver	52.5	317	82L.026		Lumby	53.8
18	82E.082	Okanagan	Westbank	50.8	257	82E.023		Meyers Flat	53.3
19	82E.072	Okanagan	Peachland	50.0	345	82L.014		Oyama	53.3
20	82E.052	Okanagan	Summerland	46.7	346	82L.024		Kalamalka Lake to Vernon	53.1
21	82E.009	Kettle R	East of grand Forks	46.3	478			Midway	51.4
22	82L.004	Okanagan	Wood Lake	45.8	347	82L.024		Vernon to Okanagan Lake	51.2
23	92H.048	Okanagan-Similkameen	Princeton	45.0	354	82L.034, 044		O'Keefe Valley and Grandview Flats	49.8
24	82L.054	Okanagan/South Thompson	West of Enderby	44.6	352	82L.024, 044		Coldstream Valley. E of Lavington to W of	49.3
25	82E.033	Okanagan	Okanagan Falls	44.2	860	82E.072		Mouth of Peachland Creek, SW of Peachland	48.7
26	82E.021	Okanagan-Similkameen	Keremeos	43.3	482			Kettle river Valley near Beaverdell	48.5

Table 31

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
27	82E.062	Okanagan	North of Summerland	43.3	349	82L.024, 034, 035		Northeast of Vernon along BX Creek	47.7
28	82L.003	Okanagan	Okanagan Centre	43.3	299	82E.062	Fauder	Fauder (Meadow Valley)	44.0
29	82L.014	Okanagan	Oyamma	43.3	849	82L.045, 055	Fortune Creek	NE of Armstrong	43.0
30	82E.093	Okanagan	Northwest of Kelowna	42.50	319	82L.026		North of Lumby	42.6

Sub Areas

	Kelowna
	Osoyoos
	Similkameen
	North Okanagan
	Summerland
	Kettle Valley
	Skaha Lake

 Priority Aquifers

Table 32. Comparison of top-rated BCGS areas versus top-rated bedrock aquifers in the Okanagan/Kettle sub region.

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
1	82E.003	Okanagan	Osoyoos Lake	85.0	260	82E.032		Marron Valley northwest of Okanagan Falls	46.8
2	82E.083	Okanagan	Kelowna	79.2	351	82L.034, 035		NE of Vernon and to the north of BX Creek	45.5
3	82E.008	Kettle R	Grand Forks	63.3	298	82E.062	Naramata	Naramata	41.5
4	82E.094	Okanagan	Northeast of Kelowna	63.3	110	82L.065		Grandview Bench	36.1
5	82L.045	Okanagan/South Thompson	East of Armstrong	63.3	350	82L.035		NE of Vernon and to the south of BX Creek	35.5
6	82L.024	Okanagan	Vernon	61.7	473	82E.084, 094		Mission, Daves & Cardinal Ck area	35.2
7	82L.034	Okanagan	North of Vernon	59.2	808	82E.003		East of Osoyoos, Anarchist Mountain	34.3
8	82L.035	Okanagan/South Thompson	Silverstar	58.3	263	82E.033		North of Okanagan Falls/ shore of Skaha Lk	33.8
9	82L.055	Okanagan/South Thompson	Enderby	58.3	269			Ellis Creek	33.8
10	82L.065	South Thompson	Grandview Bench	56.7	304		Westbank	West side of Okanagan Lk, west of Kelowna	33.8
11	82L.044	Okanagan/South Thompson	West of Armstrong	55.0	300	82E.052, 062	Faulder	Faulder (Eneas Creek)	33.5
12	82E.084	Okanagan	Mission Creek	55.0	107	82L.054, 055, 065		Gardom Lake to Enderby	31.3

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
13	82E.032	Okanagan	Twin Lakes	54.2	104	82L.054		1 kilometre northwest of Hullcar	28.8
14	82E.023	Okanagan	Okanagan River north of Tugulnuit Lake	53.3	863	82E.072, 082		N Trepanier Creek Valley N of Peachland	28.5
15	82L.026	Okanagan/South Thompson	Lumby	53.3	861	82E.072		Lower Peachland Creek watershed	28.2
16	82L.075	South Thompson	Mara Lake	53.3					
17	82E.013	Okanagan	Oliver	52.5					
18	82E.082	Okanagan	Westbank	50.8					
19	82E.072	Okanagan	Peachland	50.0					
20	82E.052	Okanagan	Summerland	46.7					
21	82E.009	Kettle R	East of grand Forks	46.3					
22	82L.004	Okanagan	Wood Lake	45.8					
23	92H.048	Okanagan-Similkameen	Princeton	45.0					
24	82L.054	Okanagan/South Thompson	West of Enderby	44.6					
25	82E.033	Okanagan	Okanagan Falls	44.2					
26	82E.021	Okanagan-Similkameen	Keremeos	43.3					
27	82E.062	Okanagan	North of Summerland	43.3					
28	82L.003	Okanagan	Okanagan Centre	43.3					
29	82L.014	Okanagan	Oyamma	43.3					
30	82E.093	Okanagan	Northwest of Kelowna	42.5					

Sub Areas

- Kelowna
- Osoyoos
- Similkameen
- North Okanagan
- Summerland
- Kettle Valley
- Skaha Lake
-
- Priority Aquifers

*

Table 32

Table 33. Comparison of top-rated BCGS areas versus top-rated unconsolidated aquifers in the Kootenay/Columbia sub region.

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
1	82G.052	Upper Kootenay R	Cranbrook-Northeast	57.5	524	82G.041, 042,052		Cranbrook, Surficial	66.4
2	82G.034	Upper Kootenay R	Jaffray	56.3	456	82N.026, 036		Golden, confluence of 2 rivers	62.9
3	82G.041	Lower Kootenay River/Upper Kootenay	Cranbrook-West	55.8	521	82G.034		Jaffray	58.7
4	82F.032	Columbia/Lower Kootenay	Castlegar	55.0	540	82G.072		Wasa Lake	58.7
5	82K.060	Columbia	Invermere	54.2	802			Revelstoke – South	53.7
6	82G.042	Lower Kootenay River/Upper Kootenay	Cranbrook-East	51.7	525	82G.041,0 42, 052		Cranbrook - West	52.6
7	82N.026	Columbia/Kicking Horse	Golden	51.7	603	82K.060		Invermere 3km N and S	51.2
8	82J.041	Columbia	Windermere	47.5	487	82F.008		Goat River Floodplain near Creston	49.7
9	82F.022	Columbia	South of Castlegar	46.7	508	82F.032		Selkirk Colledge, Southeast of Castlegar	48.5
10	82F.054	Lower Kootenay River	West Arm Kootenay Lake	44.2	505	82F.032		Castlegar Townsite North	48.0
11	82G.043	Upper Kootenay R	Wardner	44.2	816			Canal Flats	47.7
12	82F.008	Lower Kootenay River	Creston	43.3	497			Erie 1, Salmo	47.0
13	82G.062	Upper Kootenay R	St. Mary River	43.3	485			Southwest of the Village of Montrose	46.7

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
14	82G.061	Upper Kootenay R	Kimberley	42.50	484			Waneta Junction/southeast of Trail	45.9
15	82N.036	Columbia/Kicking Horse	North of Golden	42.50	507	82F.022, 032		Airport Creek	44.9
16	82G.072	Upper Kootenay R	Wasa Lake	36.67	516	82F.054		Willow Point	44.9
17	82F.043	Lower Kootenay River	Slocan Valley	36.25	492			Yahk	44.7
18	82F.012	Columbia	Trail	35.83	528	82G.043		Wardner	43.9
19	82G.024	Upper Kootenay R	Baynes Lake	35.83	538	82G.062		St. Mary River IR	43.9
20	82G.045	Upper Kootenay R	Fernie-south	35.00	514	82F.043		Crescent Valley	43.5

Sub-Areas

	Golden
	Cranbrook-Kimberley
	Wardner-Jaffray
	Lower Columbia
	Kootenay Lake
	Invermere-Windermere
	Creston

 Priority Aquifers

Table 34. Comparison of top-rated BCGS areas versus top-rated bedrock aquifers in the Kootenay/Columbia sub region.

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
1	82G.052	Upper Kootenay R	Cranbrook-Northeast	57.5	523	82G.041, 042, 052		Cranbrook S., B. R.	46.0
2	82G.034	Upper Kootenay R	Jaffray	56.3	537	82G.061		Kimberley, B.R.	45.7
3	82G.041	Lower Kootenay River/Upper Kootenay	Cranbrook-West	55.8	488	82F.008		Lister, South of Creston	44.4
4	82F.032	Columbia/Lower Kootenay	Castlegar	55.0	535	82G.052		Cranbrook N., B. R.	35.7
5	82K.060	Columbia	Invermere	54.2	494			Ross Spur, South	30.7
6	82G.042	Lower Kootenay River/Upper Kootenay	Cranbrook-East	51.7	536	82G.061		Wycliffe	30.7
7	82N.026	Columbia/Kicking Horse	Golden	51.7	486			Columbia Gardens northwards to Kelly Ck.	29.2
8	82J.041	Columbia	Windermere	47.5	499			Alice Siding, north of Creston	28.0
9	82F.022	Columbia	South of Castlegar	46.7	511	82F.043		Fortynine Creek	28.0
10	82F.054	Lower Kootenay River	West Arm Kootenay Lake	44.2	529	82G.043		Wardner B.R.	28.0
11	82G.043	Upper Kootenay R	Wardner	44.2					
12	82F.008	Lower Kootenay River	Creston	43.3					
13	82G.062	Upper Kootenay R	St. Mary River	43.3					
14	82G.061	Upper Kootenay R	Kimberley	42.50					
15	82N.036	Columbia/Kicking Horse	North of Golden	42.50					
16	82G.072	Upper Kootenay R	Wasa Lake	36.67					

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
17	82F.043	Lower Kootenay River	Slocan Valley	36.25					
18	82F.012	Columbia	Trail	35.83					
19	82G.024	Upper Kootenay R	Baynes Lake	35.83					
20	82G.045	Upper Kootenay R	Fernie-south	35.00					

Sub-Areas

	Slocan		Priority Aquifers
	Cranbrook-Kimberley		
	Wardner-Jaffray		
	Lower Columbia		
	Kootenay Lake		
	Invermere-Windermere		
	Creston		

Table 35. Recommended key areas and priority aquifers for monitoring in the Kootenay/Okanagan Region.

SUB REGION	KEY AREA	PRIORITY UNCONSOLIDATED AQUIFERS	PRIORITY BEDROCK AQUIFERS
A. Okanagan /Kettle	North Okanagan	102,103,111, 316, 317, 319,346,347,349,352,353, 354 and 849	104, 107, 110, 350 and 351
	Kelowna	464, 463, 344 and 345	304, 473, 861 and 863
	Summerland	299 and 860	298 and 300
	Skaha Lake	261 and 264	260 and 263
	Osoyoos	193, 194, 254, 255 and 257	808
	Similkameen	259	
	Kettle Valley	158, 477,478 and 482	
B. Kootenay /Columbia	Cranbrook- Kimberley	524, 525, 538 and 540	523, 537, 535 and 536
	Golden	456	
	Wardner - Jaffray	521 and 528	529
	Castlegar	505,507 and 508	
	Kootenay Lake	516	
	Invermere - Windermere	603	
	Creston	487	488
	Slocan	514	511

Table 36. Descending ranking scores of classified unconsolidated aquifers in the Skeena/Omineca/Peace Region.

Item	Unconsolidated Aquifer Number	Aquifer Name	Aquifer Class	Location Description	Ranking Score for Monitoring
1	575		IB	Terrace South	68.3
2	92		IA	Lower Nechaco River Valley	58.6
3	635		IIA	SW of Tumbler Ridge townsite	58.6
4	659		IA	S. of Bulkley R. nr. Houston	49.8
5	574		IIA	Gossan Creek; E. of Terrace	42.1
6	588		IIA	Terrace - West; Kitsumkalum I.R	40.1
7	431		IA	MacKenzie	36.6
8	645		IC	Gerow Isl. and South shore of Burns Lk.	36.4
9	373		IIC	Ft.St. James at mouth of Stuart Lk.	36.1
10	571		IIA	E. of Terrace - Thornhill; E. of River	35.1
11	570		IIA	Terrace - SE; Jack Pine Flats	34.9
12	94		IIIA	Hart Highlands	34.6
13	244		IIIA	Vanderhoof	32.6
14	687		IIB	Taylor Flats; SE of Ft. St. John	32.4
15	828		IIIB	Dease Lake	32.4
16	333		IIIA	Hixon	32.4
17	442		IIA	3.5 km west of Taylor	31.6
18	242		IIIC	Vanderhoof	31.4
19	332		IIIC	Prince George	31.2
20	584		IIC	Smithers - North; E. side of Bulkley River	31.2
21	572		IIC	E. of Terrace - Thornhill; E. side of R.	30.9
22	649		IB	N. shore of Burns Lk.	30.6
23	583		IIA	East side of Telkwa River	29.9
24	795		IIB	Two Mile NW of New Hazelton	29.9
25	797		IIA	Kispiox Village	29.9
26	582		IIB	Confluence of Telkwa & Bulkley R	29.6
27	625		IIB	Bissett Ck. SW of Chetwynd	29.6
28	789		IIIA	SW of Terrace along Skeena River	29.6
29	596		IIIC	Progress	29.6
30	628		IIB	Chetwyn; N. of Pine R.	29.4
31	629		IIB	Chetwynd area	29.4
32	340		IIIA	East of Vanderhoof / north of PG	29.2
33	385		IC	4.5 km. sw of McKenzie	29.2
34	592		IIIC	Willow Valley near Sunset Prairie	28.9
35	796		IIC	New Hazelton	28.9
36	432		IIA	MacKenzie	28.9
37	90		IIIC	Beaverley	28.7

Item	Unconsolidated Aquifer Number	Aquifer Name	Aquifer Class	Location Description	Ranking Score for Monitoring
38	643		IIC	Endako; N. of Endako R.	28.7
39	246		IIIC	Vanderhoof	28.4
40	624		IIC	Wildmore Ck.; Chetwind -	28.2
41	626		IIC	N. of Pine River; Chetwynd area	28.2
42	647		IIC	East shore of Decker Lake	28.2
43	774		IIC	Upland area SW of Houston	28.2
44	82		IIC	12 kilometres northeast of Prince George	28.0
45	95		IIIC	Shady Valley	28.0
46	569		IIC	Confluence of Telkwa and Bulkley Rivers	28.0
47	586		IIC	Smithers; Between Beavery & John Brown Cks	28.0
48	376		IIC	Ft. St. James south of Stuart Lk.	27.7
49	433		IIB	McLeod Lake	27.6
50	655		IIB	NE of Houston; W. of Topley	27.6
51	378		IIC	Ft. St. James - east of Stuart River	27.5
52	335		IIIC	Hixon	27.4
53	327		IIA	Prince George	27.1
54	800	South Valemont	IIB	Valemont	27.1
55	362		IIIB	North of Quesnel and south of Strathnaver	27.1
56	86	Pineview	IIIC	Pineview to Buckhorn	26.4
57	594		IIIC	Groundbirch Buried Channel	26.2
58	573		IIC	Terrace North	25.9
59	577		IIC	E. of Smithers; E. side of Bulkley River	25.9
60	818		IIIC	South of Lakelse Lake	25.9
61	343		IIC	East of Vanderhoof / north of PG	25.7
62	85		IIIC	West of South end of Tabor Lk.	25.5
63	667		IIIC	W. end of Fraser Lk.; W. bank of Perry Ck.	25.2
64	671		IIIC	SW side of Dry William Lk; S of Fraser Lk	25.2
65	240		IIIA	Vanderhoof	25.1
66	637		IIIB	Between Prespatou & Umbach Cks.	25.1
67	640		IIIA	E. of Tumbler Ridge; N. of Flatbed Ck.	25.1
68	794		IIIA	South of Lakelse Lake	25.1
69	342		IIIA	East of Vanderhoof / north of PG	24.9
70	585		IIC	Smithers - South; W. side of Bulkley River	24.9

Table 36

Item	Unconsolidated Aquifer Number	Aquifer Name	Aquifer Class	Location Description	Ranking Score for Monitoring
71	334		IIIA	Hixon	24.6
72	598		IIIA	Pouce Creek	24.6
73	653		IIB	Rose Lk.; NW of Burns Lk.	24.6
74	690		IIIB	Clayhurst area	24.6
75	790		IIIA	South of Terrace	24.6
76	793		IIIA	East shore of Lakelse Lake	24.6
77	576		IIC	S. of Telkwa; SE side of Telkwa River	23.9
78	590		IIIC	South Groundbirch	23.9
79	657		IIIB	Confluence of Nechako & Cheslatta Rivers	23.7
80	581		IIIC	S of Telkwa & Bulkley R. confluence	23.4
81	648		IIC	N. of Decker Lake	23.4
82	799		IIIC	Valemont	23.4
83	666		IIC	N. shore Stuart Lk.; NW of Ft. St. James	23.2
84	677		IIC	North of Houston / NW of Bulkley River	23.2
85	377		IIIC	Ft. St. James west of Stuart Lk.	23.0
86	87		IIIB	Miller to Tabor	22.2
87	341		IIIB	East of Vanderhoof / north of PG	21.9
88	444		IIIB	2 km west of Ft. St. John	21.9
89	443		IIIB	Taylor townsite N. of Peace R.	21.4
90	597		IIIC	Arras Buried Channels	21.2
91	660		IIC	S. of Bulkley R. nr. Houston	21.2
92	791		IIIC	South of Terrace, near Terrace Airport	20.9
93	83		IIIC	10 kilometres northeast of Prince George	20.7
94	245		IIIC	Vanderhoof	20.7
95	328		IIIC	Prince George	20.7
96	330		IIIC	Prince George	20.7
97	331		IIIC	Prince George	20.7
98	338		IIIC	McLeod Lake	20.7
99	440		IIIC	Hudson Hope	20.7
100	630		IIIC	Jackfish Lake	20.7
101	636		IIIC	Goodlow; E. of Ft. St. John	20.7
102	638		IIIC	Between Snyder & Buic Cks.	20.7
103	656		IIIC	Topley Landing west of Babine Lk.	20.7
104	679		IIIC	N. of Cheslatta R.; S. of Francois Lk.	20.7
105	329		IIIC	Prince George	20.5
106	336		IIIC	Hixon	20.5

Table 36

Item	Unconsolidated Aquifer Number	Aquifer Name	Aquifer Class	Location Description	Ranking Score for Monitoring
107	587		IIIC	Smithers - East; E. side of Bulkley River	20.5
108	641		IIIC	Between Francois and Tchesinkut Lakes	20.5
109	792		IIIC	West shore of Lakelse Lk.	20.5
110	668		IIIC	Stellako; W. end of Fraser Lk.	20.2
111	670		IIIC	SW side of Fraser Lake	20.2
112	676		IIIC	South of Mathews Lk. west of Houston	20.2
113	434		IIIB	Appr 6km NE of Tudyah Lakes	19.6
114	247		IIIC	Vanderhoof	18.2
115	669		IIIC	W. end of Fraser Lk.; S. bank of	17.7
116	798		IIIC	North of Kispiox Village	16.7

Table 37. Descending ranking scores of classified bedrock aquifers in the Skeena/Omineca/
Peace Region.

Item	Bedrock Aquifer Number	Aquifer Name	Aquifer Class	Location Description	Ranking Score for Monitoring
1	451		IIIC	Between Ft. St. John and Blueberry Creek	39.2
2	591		IIIB	Groundbirch, Willow Valley, Sunset Prairie	30.6
3	623		IIIC	N. and W. of Swan Lake	29.7
4	658		IIC	S. of Bulkley R. nr. Houston	29.5
5	243		IIIC	Vanderhoof	28.4
6	81		IIIC	14 kilometres northeast of Prince George	28.2
7	84		IIC	North and west of Tabor Lake	28.2
8	89		IIC	Vanway South	28.2
9	91		IIC	Northwest of Beaverley	28.2
10	579		IIC	E. of Smithers; E. side of Bulkley River	28.2
11	644		IIIB	NE of Burns and Decker Lakes	28.2
12	673		IIIC	S. side of Fraser Lake	28.2
13	339		IIIC	East of Vanderhoof / north of PG	28.0
14	651		IIC	North shore of Burns Lake	28.0
15	775		IIC	NE of Houston	27.7
16	448		IIIB	Clayhurst	27.6
17	627		IIIB	Chetwynd area; W. of Dokie Siding	27.4
18	593		IIIB	Bear Mountain, Dawson Creek area	27.1
19	634		IIIC	Taylor; S. of Peace River	27.1
20	639		IIIC	NW of Rose Prairie; N. of Blueberry R.	26.7
21	88		IIIB	College Heights	26.4
22	595		IIIC	North of Sunset Creek, Sunset Prairie	26.2
23	622		IIIC	South of Pouce Coupe	26.2
24	678		IIIC	S. & SW of Francois Lk.; W. of Fraser Lk.	25.9
25	688		IIC	E. of Chetwynd; N. of Pine R.	25.9
26	374		IIC	Ft.St.James bounded by Stuart Lk.and Pitka	25.2
27	241		IIIC	Vanderhoof	23.2
28	578		IIC	E. of Smithers; E. side of Bulkley River	23.2
29	654		IIIC	NE of Houston; W. of Topley	23.2
30	650		IIC	Simon Bay / North shore of Fraser Lake	23.0
31	674		IIIC	NW side of Fraser Lake	23.0
32	689		IIC	SE of Chetwynd; S. of Pine R.	23.0
33	375		IIC	Ft St James bound by Necoslie R and Stuart	22.7

Item	Bedrock Aquifer Number	Aquifer Name	Aquifer Class	Location Description	Ranking Score for Monitoring
34	441		IIIB	Lynx Ck.; 7 km NE of Hudson Hope	22.4
35	621		IIIB	Kelly Lake	22.4
36	642		IIIB	Between Francois and Tchesinkut Lakes	22.4
37	93		IIIB	Cranbrook Hill	21.9
38	646		IIIB	Between Burns and Tchesinkut Lakes	21.9
39	788		IIIB	SW of Terrace / northshore of Skeena River	21.7
40	631		IIIC	S. of the Peace R.	21.2
41	239		IIIC	Fraser Lake	20.9
42	633		IIIC	South of the Peace River	20.9
43	580		IIIC	Smithers - North; W. side of Bulkley River	20.5
44	652		IIIC	NW of Burns Lk.; S. of Old Woman Lk	20.5
45	672		IIIC	SW side of Fraser Lake	20.5
46	675		IIIC	Dunalter Lake; NW. of Houston	20.5
47	589		IIIB	East of Pine and Murray River confluence	19.4

Table 38. Descending ranking scores of BCGS areas in the Skeena/Omineca/Peace Region.

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring
1	093G.097	Nechako / Fraser Rivers	Prince George	50.00
2	093G.086	Nechako / Fraser Rivers	South of Prince George	39.58
3	093K.010	Stuart River	Vanderhoof	37.92
4	093G.096	Nechako River	Prince George	36.25
5	093G.091	Nechako River	South of Vanderhoof	35.42
6	103I.057	Kitsumkalum / Skeena Rivers	Terrace	33.75
7	093G.098	Fraser River	Tabor Lake	33.75
8	093K.006	Stuart River	Fraser Lake	32.92
9	093G.087	Fraser River	South of Prince George	32.08
10	093L.075	Bulkley River	Smithers	31.67
11	093J.001	Nechako River	Vanderhoof	31.25
12	093K.008	Stuart River	Fraser Lake	31.25
13	093K.009	Stuart River	Vanderhoof	31.25
14	093K.007	Stuart River	Fraser Lake	29.58
15	093L.037	Bulkley River	Houston	29.58
16	093J.006	Nechako / Fraser Rivers	Nukko Lake	29.17
17	093G.082	Nechako River	South of Vanderhoof	28.33
18	093G.048	Fraser River	Hixon	27.50
19	093G.066	Nechako / Fraser Rivers	Baldy Hughes	27.08
20	093J.007	Nechako / Fraser Rivers	North of Prince George	26.67
21	103I.048	North Coast / Lakelse Rivers	Terrace	26.25
22	093K.022	Stuart River	Burns Lake	25.83
23	093O.035	Peace River	McKenzie	25.83
24	093K.013	Stuart River	South of Burns Lake	25.42
25	103I.058	Kitsumkalum / Skeena Rivers	Terrace	25.00
26	093G.081	Nechako River	South of Vanderhoof	25.00
27	094A.035	Peace / Beatton Rivers	North of Fort St. John	25.00
28	093G.085	Nechako River	South of Reid Lake	24.58
29	093K.002	Stuart River	Southbank	24.17
30	093L.065	Bulkley River	Telkwa	24.17
31	093F.100	Nechako River	South of Vanderhoof	23.33
32	093G.067	Fraser River	Stoner	23.33
33	093G.083	Nechako River	South of Isle Pierre	23.33
34	093P.086	Kiskatinaw River	Sunset Prairie	23.33
35	093G.076	Nechako River	South of Prince George	22.92
36	093F.099	Nechako River	Tachick Lake	22.50
37	093G.095	Nechako River	Reid Lake	22.50
38	094A.020	Peace River	Clayburst	22.50
39	103I.038	North Coast / Lakelse Rivers	Lakelse	22.08
40	094A.036	Beatton River	North Pine	22.08
41	093G.092	Nechako River	Southeast of Vanderhoof	21.67
42	093G.093	Nechako River	Southeast of Vanderhoof	21.67
43	093J.002	Stuart River	Vanderhoof	21.67
44	093M.022	Skeena River	Hazleton	21.67
45	093P.075	Pine River	Groundbirch	21.67
46	093F.090	Nechako River	South of Vanderhoof	20.83

47	093K.049	Stuart River	Fort St. James	20.83
48	093L.047	Bulkley River	North of Houston	20.83
49	093L.094	Bulkley River	North of Smithers	20.00
50	093P.077	Kiskatinaw River	Progress	20.00
51	093P.087	Kiskatinaw River	Sunset Prairie	20.00
52	094A.017	Peace / Pine Rivers	Taylor	20.00
53	094A.026	Peace / Beatton Rivers	Fort St. John	20.00
54	094A.045	Peace / Beatton Rivers	Montney	19.58
55	103I.047	North Coast / Lakelse Rivers	Terrace	19.17
56	093K.012	Stuart River	South of Burns Lake	19.17
57	093K.021	Stuart River	Burns Lake	19.17
58	093L.050	Bulkley / Nechaco Rivers	North of Houston	19.17
59	093L.066	Bulkley River	Telkwa	19.17
60	093L.084	Bulkley / Zymoetz Rivers	North of Smithers	19.17
61	093P.062	Pine River	Chetwynd	19.17
62	093P.076	Pine River	Groundbirch	19.17
63	093P.073	Pine / Peace Rivers	East of Chetwynd	18.75
64	093J.005	Nechako / Fraser Rivers	Eskers Park	18.33
65	093K.005	Stuart River	Endaka	18.33
66	093L.085	Bulkley River	North of Smithers	18.33
67	093P.080	Peace River	Dawson Creek	18.33
68	093P.083	Peace / Pine Rivers	Moberly Lake	18.33
69	094A.056	Beatton River	Rose Prairie	18.33
70	094A.085	Beatton River	Prespatori	18.33
71	094J.077	Beatton River	Fort Nelson	18.33
72	103F.030	Graham Island Rivers	Queen Charlotte Islands - Skidgate	17.50
73	093F.092	Nechako River	Southbank	17.50
74	093G.075	Nechako River	South of Prince George	17.50
75	093G.084	Nechako River	South of Isle Pierre	17.50
76	083D.084	Fraser River	Valemont	17.50
77	093F.091	Nechako River	Takysie Lake	16.67
78	093J.008	Fraser River	North of Prince George	16.67
79	093K.067	Stuart River	Tachie	16.67
80	093P.082	Peace River	Moberly Lake	16.25
81	103I.007	North Coast Rivers	Kitimat	15.83
82	093M.042	Kispiox River	North of Hazelton	15.83
83	094A.025	Peace River	Charlie Lake	15.83
84	094A.027	Peace / Beatton Rivers	Fort St. John	15.83
85	093G.057	Fraser River	South of Stoner	15.00
86	093G.077	Nechako / Fraser Rivers	North of Red Rock	15.00
87	093G.078	Fraser River	South of Prince George	15.00
88	093K.031	Stuart River	North of Burns Lake	15.00
89	093P.054	Pine River	Lone Prairie	15.00
90	093P.063	Pine River	Chetwynd	15.00
91	093P.074	Pine River	East of Chetwynd	15.00
92	094A.001	Peace River	Hudson Hope	15.00
93	094A.010	Peace / Kiskatinaw Rivers	North of Dawson Creek	15.00
94	093A.030	Peace River	Bear Canyon	15.00
95	094A.046	Beatton River	South of Rose Prairie	15.00

Table 38

96	093J.015	Fraser River	North of Prince George	14.17
97	093J.017	Fraser River	North of Prince George	14.17
98	093J.095	Peace River	McLeod Lake	14.17
99	093L.058	Bulkley River	North of Houston	14.17
100	093L.059	Bulkley River	North of Houston	14.17
101	093P.060	Peace River	Tupper	14.17
102	093P.079	Peace River	Dawson Creek	13.33
103	094A.007	Peace / Pine Rivers	South of Fort St. John	13.33
104	094A.028	Peace / Beatton Rivers	Fort St. John	13.33
105	094A.037	Beatton River	North Pine	13.33
106	094J.086	Beatton River	Fort Nelson	13.33
107	094J.087	Beatton River	Fort Nelson	13.33
108	104I.041	Peace / Stikine Rivers	Dease Lake	13.33
109	104J.050	Dease / Stikine Rivers	Dease Lake	13.33
110	093K.039	Stuart River	South of Fort St. James	11.67
111	093P.015	Pine River	Tumbler Ridge	11.67
112	093P.016	Pine River	Tumbler Ridge	11.67
113	083D.093	Fraser River	Tete Jaune Cache	11.67
114	103F.070	Graham Island Rivers	Queen Charlotte Islands - Pt. Clements	10.83
115	103I.068	Kitsumkalum / Skeena Rivers	Uski - North of Terrace	10.83
116	093G.088	Fraser River	South of Tabor Lake	10.83
117	094A.038	Beatton River	East of North Pine	10.83
118	093P.089	Kiskatinaw / Peace Rivers	North of Pouce Coupe	10.00
119	093P.098	Peace River	North of Dawson Creek	10.00
120	103G.021	Moresby Island Rivers	Queen Charlotte Islands - Sandspit	9.17
121	103G.051	Graham Island Rivers	Queen Charlotte Islands - Tlell	9.17
122	093P.088	Kiskatinaw / Peace Rivers	North of Pouce Coupe	8.33
123	093P.100	Peace River	North of Dawson Creek	8.33
124	094A.071	Halfway / Beatton Rivers	Wonown	8.33
125	103P.009	Stuart River	South of Kitwanga	6.67
126	103P.020	Stuart River	Kitwanga	6.67
127	104P.021	Dease River	Cassiar	6.67

Table 39 . Comparison of top-rated BCGS areas versus top-rated unconsolidated aquifers in the Skeena/Omineca/Peace Region.

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
1	093G.097	Nechako / Fraser Rivers	Prince George	50.00	575	103I.057, 058		Terrace South	68.3
2	093G.086	Nechako / Fraser Rivers	South of Prince George	39.58	92	093G.096, 097 and 087		Lower Nechako River Valley	58.6
3	093K.010	Stuart River	Vanderhoof	37.92	635			SW of Tumbler Ridge townsite	58.6
4	093G.096	Nechako River	Prince George	36.25	659	093L.037		S. of Bulkley R. nr. Houston	49.8
5	093G.091	Nechako River	South of Vanderhoof	35.42	574	103I.058		Gossan Creek; E. of Terrace	42.1
6	103I.057	Kitsumkalum / Skeena Rivers	Terrace	33.75	431	093O.035		MacKenzie	36.6
7	093G.098	Fraser River	Tabor Lake	33.75	645	093K.022		Gerow Isl. and South shore of	36.4
8	093K.006	Stuart River	Fraser Lake	32.92	373			Ft.St. James at mouth of Stuart Lk.	36.1
9	093G.087	Fraser River	South of Prince George	32.08	571	103I.058		E. of Terrace - Thornhill; E. of River	35.1
10	093L.075	Bulkley River	Smithers	31.67	94	093G.096, 097, 093J.006, and 007		Hart Highlands	34.6
11	093J.001	Nechako River	Vanderhoof	31.25	244	093K.010, 093J.001, 093G.091		Vanderhoof	32.6

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
12	093K.008	Stuart River	Fraser Lake	31.25	570	103I.048		Terrace - SE; Jack Pine Flats	32.4
13	093K.009	Stuart River	Vanderhoof	31.25	687			Taylor Flats; SE of Ft. St. John	32.4
14	093K.007	Stuart River	Fraser Lake	29.58	828			Dease Lake	32.4
15	093L.037	Bulkley River	Houston	29.58	333	093G.048		Hixon	32.4
16	093J.006	Nechako / Fraser Rivers	Nukko Lake	29.17	442			3.5 km west of Taylor	31.6
17	093G.082	Nechako River	South of Vanderhoof	28.33	242	093K.010, 009, 008, 007, 093J.001 and 093G.091		Vanderhoof	31.4
18	093G.048	Fraser River	Hixon	27.50	332	093J.006, 007		Prince George	31.2
19	093G.066	Nechako / Fraser Rivers	Baldy Hughes	27.08	584	093L.075		Smithers - North; E. side of Bulkley River	31.2
20	093J.007	Nechako / Fraser Rivers	North of Prince George	26.67	572	103I.058		E. of Terrace - Thornhill; E. side of R.	30.9
21	103I.048	North Coast / Lakelse Rivers	Terrace	26.25	649	093K.013		N. shore of Burns Lk.	30.6
22	093K.022	Stuart River	Burns Lake	25.83	588			Terrace - West; Kitsumkalum I.R	30.1
23	093O.035	Peace River	McKenzie	25.83	583	093L.065		East side of Telkwa River	29.9
24	093K.013	Stuart River	South of Burns Lake	25.42	795			Two Mile NW of New Hazelton	29.9
25	103I.058	Kitsumkalum / Skeena Rivers	Terrace	25.00	797			Kispiox Village	29.9

Table 39

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
26	093G.081	Nechako River	South of Vanderhoof	25.00	582	093L.065		Confluence of Telkwa & Bulkley R	29.6
27	094A.035	Peace / Beatton Rivers	North of Fort St. John	25.00	625			Bissett Ck. SW of Chetwynd	29.6
28	093G.085	Nechako River	South of Reid Lake	24.58	789			SW of Terrace along Skeena River	29.6
29	093K.002	Stuart River	Southbank	24.17	596			Progress	29.6
30	093L.065	Bulkley River	Telkwa	24.17	628			Chetwyn; N. of Pine R.	29.4

Sub Areas


	Terrace	 Priority Aquifers
	Prince George-Hixon	
	Vanderhoof-Fraser Lake	
	Smithers-Telkwa	
	Houston	
	Burns Lake	
	Peace River	

Table 40. Comparison of top-rated BCGS areas versus top-rated bedrock aquifers in the Skeena/Omineca/Peace Region.

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
1	093G.097	Nechako / Fraser Rivers	Prince George	50.00	451	094A.035		Between Ft. St. John and Blueberry Creek	39.2
2	093G.086	Nechako / Fraser Rivers	South of Prince George	39.58	591			Groundbirch, Willow Valley, Sunset Prairie	30.6
3	093K.010	Stuart River	Vanderhoof	37.92	623			N. and W. of Swan Lake	29.7
4	093G.096	Nechako River	Prince George	36.25	658	093L.037		S. of Bulkley R. nr. Houston	29.5
5	093G.091	Nechako River	South of Vanderhoof	35.42	243	093G.091, 081, 082, 093K008,009,010		Vanderhoof	28.4
6	103I.057	Kitsumkalum / Skeena Rivers	Terrace	33.75	81	093G.098		14 kilometres northeast of Prince George	28.2
7	093G.098	Fraser River	Tabor Lake	33.75	84	093G.098		North and west of Tabor Lake	28.2
8	093K.006	Stuart River	Fraser Lake	32.92	89	093G.086		Vanway South	28.2
9	093G.087	Fraser River	South of Prince George	32.08	91	093G.086		Northwest of Beaverley	28.2
10	093L.075	Bulkley River	Smithers	31.67	579	093L.075		E. of Smithers; E. side of Bulkley	28.2
11	093J.001	Nechako River	Vanderhoof	31.25	644	093K.022		NE of Burns and Decker Lakes	28.2
12	093K.008	Stuart River	Fraser Lake	31.25	673	093K.006, 007		S. side of Fraser Lake	28.2
13	093K.009	Stuart River	Vanderhoof	31.25	339	093J.006, 007		East of Vanderhoof /	28.0

Item Number	BCGS Area	Major Watershed	Location Description	Area Ranking Score for Monitoring	Aquifer Number	BCGS Areas	Aquifer Name	Location Description	Aquifer Ranking Score for Monitoring
14	093K.007	Stuart River	Fraser Lake	29.58	651	093K.022		North shore of Burns Lake	28.0
15	093L.037	Bulkley River	Houston	29.58					
16	093J.006	Nechako / Fraser Rivers	Nukko Lake	29.17					
17	093G.082	Nechako River	South of Vanderhoof	28.33					
18	093G.048	Fraser River	Hixon	27.50					
19	093G.066	Nechako / Fraser Rivers	Baldy Hughes	27.08					
20	093J.007	Nechako / Fraser Rivers	North of Prince George	26.67					
21	103I.048	North Coast / Lakelse Rivers	Terrace	26.25					
22	093K.022	Stuart River	Burns Lake	25.83					
23	093O.035	Peace River	McKenzie	25.83					
24	093K.013	Stuart River	South of Burns Lake	25.42					
25	103I.058	Kitsumkalum / Skeena Rivers	Terrace	25.00					
26	093G.081	Nechako River	South of Vanderhoof	25.00					
27	094A.035	Peace / Beatton Rivers	North of Fort St. John	25.00					
28	093G.085	Nechako River	South of Reid Lake	24.58					
29	093K.002	Stuart River	Southbank	24.17					
30	093L.065	Bulkley River	Telkwa	24.17					

 Priority Aquifers

Sub Areas







 Prince George
 Vanderhoof
 Smithers-Telkwa
 Houston
 Burns Lake
 Peace River

Table 41. Recommended key areas and priority aquifers for monitoring in the Skeena/
Omineca/Peace Region.

SUB REGION	AREA	KEY UNCONSOLIDATED AQUIFERS	KEY BEDROCK AQUIFERS
A. Skeena	Prince George- Hixon	92, 94, 332 and 333	81, 84, 89 , 91 and 339
	Terrace	570, 571, 572, 574 and 575	
	Smithers-Telkwa	582, 584 and 585	579
	Vanderhoof-Fraser Lake	242 and 244	243 and 673
	Burns Lake	645 and 649	644 and 651
	Houston	659	658
B. Omineca/ Peace	Peace River	431, 442, 635 and 687	451 and 591

Table 42. Recommended key areas, priority aquifers and wells for monitoring in the Vancouver Island Region.

SUB REGION	KEY AREA	PRIORITY UNCONSOLIDATED AQUIFERS	MINIMUM NUMBER OF OBSERVATION WELLS	EXISTING OBSERVATION WELLS IN UNCONSOLIDATED DEPOSITS	PRIORITY BEDROCK AQUIFERS	MINIMUM NUMBER OF OBSERVATION WELLS	EXISTING OBSERVATION WELLS IN BEDROCK	COMMENTS	KEY OBJECTIVES
A. Vancouver Island East	Cassidy-Nanaimo	161	4	OW312	162	2	OW337	Add 3 new wells in aquifer 161 (Cassidy)	1a, b and 2a
								Add 1 new well in aquifer 162 (Yellowpoint).	1a, b and 2a
	Saanich-Mill Bay	206	1		608 and 680	6	OW65, 212, 240, 265, 338, 343 and 372	Add 1 one new well to aquifer 206 (Mill Bay), reduce number of wells in aquifer 608 (Saanich) and add 1 new well in aquifer 680 (Highlands).	1a, b and 2a
	Chemainus-Crofton	172	2	OW355				Add 1 new well in aquifer 172.	1a, b and 2a
	Parksville-Qualicum	216, 217, 219, 221, 662 and 664	9	OW295, 303, 304, 314 and 321				Add 1 new well in aquifer 219 and 1 in aquifer 662.	1a, b and 2a
								Add 1 new well in aquifer 221 and 1 in aquifer 664.	1b and 2a
	Comox	408	2	OW351				Add 1 new well in aquifer 408.	1b and 2a
	Cowichan	186,187,188, 189 and 197	8	OW204, 211, 233, 318, 320 and 345				Add 1 new well in aquifer 189 (Cowichan Lake) and 1 new well in aquifer 188 (Lower Cowichan).	1a, b and 2a
B. Vancouver Island West	Shawnigan-Cobble Hill				203 and 207	2		Add 1 new well in aquifer 203 and 1 in 207.	1b and 2a
	Alberni Valley				702	1		Add 1 new well in aquifer 702.	1b and 2a
	Metchosin-Sooke				606	4		Add 4 new wells in aquifer 606.	1b and 2a
	Ucluelet	159	1	OW329					1b and 2a

SUB REGION	KEY AREA	PRIORITY UNCONSOLIDATED AQUIFERS	MINIMUM NUMBER OF OBSERVATION WELLS	EXISTING OBSERVATION WELLS IN UNCONSOLIDATED DEPOSITS	PRIORITY BEDROCK AQUIFERS	MINIMUM NUMBER OF OBSERVATION WELLS	EXISTING OBSERVATION WELLS IN BEDROCK	COMMENTS	KEY OBJECTIVES
C. Gulf Islands	Saltspring-Galiano				320, 721, 722 and 723	6	OW258, 281, 327 and 373	Add 1 new well in northern part of aquifer 320 (Galiano) and 1 new well in aquifer 723 (South Saltspring).	1b and 2a
	Gabriola-Thetis				706, 709 and 731	4	OW196 and OW197	Add 1 new well in aquifer 706 (Gabriola), 1 in aquifer 731 (Thetis).	1b and 2a
	Pender-Mayne				447, 619, 620, 710, 711, 712 and 720	6	OW125, 128, 283 and 284.	Add 1 new well in aquifer 710 (South Pender) and 1 in aquifer 712 (North Pender).	1b and 2a
	Saturna				735 and 737	2	OW290 and OW319		1b and 2a
D. South Coast Islands	Quadra-Cortes	762, 753 and 841	2	OW383 outside aquifer 353				Add 1 new well to aquifer 841 (Cortes).	1b and 2a
	Alert Bay	858	1	OW201					1b and 2a
	Hornby-Denman				435, 740, and 438	2	OW268 and OW288	Add 1 new well to aquifer 435 (Hornby) and 1 in aquifer 438 (Hornby).	1b and 2a
		Totals:	30	18		35	22	30 (new)	

Note: Existing observation wells listed are those in high priority aquifers only.
Key areas and existing observation wells are shown in Appendix O.

Table 43. Recommended key areas, priority aquifers and wells for monitoring in the Lower Mainland Region.

SUB REGION	KEY AREA	PRIORITY UNCONSOLIDATED AQUIFERS	MINIMUM NUMBER OF OBSERVATION WELLS	EXISTING OBSERVATION WELLS IN UNCONSOLIDATED DEPOSITS	PRIORITY BEDROCK AQUIFERS	MINIMUM NUMBER OF OBSERVATION WELLS	EXISTING OBSERVATION WELLS IN BEDROCK	COMMENTS	KEY OBJECTIVES
A. Lower Mainland	Fraser Valley South	15, 27, 33, 35, 36, 41, 50, 57 and 58	18	OW2, 8, 15, 272, 275, 299, 301, 353, 354, 359, 360, and 361				Add 1 new well to each aquifer 33, 36, 50, 57, 58 and 2 wells to aquifer 27.	1(a) and (b) and 2(a)
	Fraser Valley North				18, 19, 68 and 882	4	OW349	Add 1 new well to each aquifer 18, 19 and 882.	1(b) and 2(a)
	Chilliwack-Vedder	6, 8, 9, 12, 13 and 20	8		890	1		Add 1 new well to each aquifer 9, 12, 13 and 890 and 2 new wells to each aquifer 6 and 8.	1(a) and (b) and 2(a)
B. Whistler	Whistler	390 and 395	2	OW352				Add 1 new well in aquifer 395.	1(a) and (b) and 2(a)
C. Islands	Bowen Island				747 and 749	2		Add 1 new well in aquifer 747 and 1 in aquifer 749.	1(a) and (b) and 2(a)
	Gambier Island				549	1		Add 1 new well in aquifer 549.	1(b) and 2(a)
	Savary Island	834	1					Add 1 new well in aquifer 834.	1(b) and 2(a)
D. Sechelt-Powell River	Sechelt	554/560	1		558, 559, 561	3		Add 1 new well to each aquifer 554/560, 558, 559 and 561	1(b) and 2(a)
	Powell River	836	1	OW292	840	1		Add 1 new well in aquifer 840.	1(b) and 2(a)
Totals:			31	14		12	1	28 (new)	

Note: Existing observation wells listed are those in high priority aquifers only.
Key areas and existing observation wells are shown in Appendix O.

Table 44. Recommended key areas, priority aquifers and wells for monitoring in the Thompson/Cariboo Region.

SUB REGION	KEY AREA	PRIORITY UNCONSOLIDATED AQUIFERS	MINIMUM NUMBER OF OBSERVATION WELLS	EXISTING OBSERVATION WELLS IN UNCONSOLIDATED DEPOSITS	PRIORITY BEDROCK AQUIFERS	MINIMUM NUMBER OF OBSERVATION WELLS	EXISTING OBSERVATION WELLS IN BEDROCK	COMMENTS	KEY OBJECTIVES
A. Thompson /Cariboo East	Quesnel	115, 116, 117, 359 and 370	5	OW260 and 364	118	1		Add 1 new well to each aquifer 115, 117, 118 and 359	1(a) and (b) and 2(a)
	Salmon Arm	97, 98, 229, 236, 289, 354 and 867	8	OW45, 185 and 365	110, 224 and 233	3		Add 1 new well to each aquifer 97, 98, 110*, 289, 224, 233, 236 and 354*	1(a) and (b) and 2(a)
	Kamloops	283, 286 and 728	3		250, 272 and 727	3		Add 1 new well to each aquifer 250, 272, 283, 286, 727 and 728	1(a) and (b) and 2(a)
	100 Mile House	423	1		124 and 126	6	OW78, 81 and 374	Add 1 new well in aquifer 423 and 3 new wells in aquifers 124/126	1(a) and (b) and 2(a)
	North Thompson	769 and 770	2					Add 1 new well in each aquifer 769 and 770	1(a) and (b) and 2(a)
	Lower Nicola	74 and 77	3	OW296				Add 1 new well in each aquifer 74 and 77	1(a) and (b) and 2(a)
	Williams Lake	146, 147, 152 and 384	2	OW88	148	2	OW261	Add 1 new well in aquifer 384 and 1 in aquifer 148	1(a) and (b) and 2(a)
	Cache Creek	133, 134 and 135	3	OW344 and 346				Add 1 new well in aquifer 135	1(a) and (b) and 2(a)
A. Thompson /Cariboo West	Lillooet	324 and 325	2					Add 1 new well to each aquifer 324 and 325	1(a) and (b) and 2(a)
	Anahim Lake				767	1		Add 1 new well in aquifer 767	1(a) and (b) and 2(a)
		Totals:	29	9		16	4	32 new	

Note: Existing observation wells listed are those in high priority aquifers only.
* Need to coordinate with Kootenay/Okanagan Region.
Key areas and existing observation wells are shown in Appendix O.

Table 45. Recommended key areas, priority aquifers and wells for monitoring in the Kootenay/Okanagan Region.

SUB REGION	KEY AREA	PRIORITY UNCONSOLIDATED AQUIFERS	MINIMUM NUMBER OF OBSERVATION WELLS	EXISTING OBSERVATION WELLS IN UNCONSOLIDATED DEPOSITS	PRIORITY BEDROCK AQUIFERS	MINIMUM NUMBER OF OBSERVATION WELLS	EXISTING OBSERVATION WELLS IN BEDROCK	COMMENTS	KEY OBJECTIVES
Okanagan /Kettle	North Okanagan	102,103,111,316, 317,319, 346,347, 349,352,353,354 and 849	12	OW117,119,122, 180,294,322 and 384,	104, 107, 110, 350 and 351	3	OW311	Add 1 new well to each aquifer 107, 110*. 317, 347, 352, 354* and 849	1(a) and (b) and 2(a)
	Kelowna	464, 463, 344 and 345	8	OW172,173,174, 236,262 and 305	304, 473, 861 and 863	4		Add 1 new wells to each aquifer 304, 463 464,473, 861 and 863.	1(a) and (b) and 2(a)
	Summerland	299 and 860	2	OW366,367 and 379	298 and 300	2		Add 1 new well to each aquifer 298, 300 and 860.	1(a) and (b) and 2(a)
	Skaha Lake	264	1		260 and 263	2		Add 1 new well in each aquifer 260, 263 and 264	1(a) and (b) and 2(a)
	Osoyoos	193, 194, 254, 255 and 257	8	OW96,101,105, 107, 282 and 332	808	2		Add 1 new well in each aquifer 254, 255 and 2 in aquifer 808.	1(a) and (b) and 2(a)
	Similkameen	259	6	OW75,76,77 and 203				Add 2 new well in aquifer at Hedley and Princeton.	1(a) and (b) and 2(a)
	Kettle Valley	158, 477,478 and 482	6	OW217 and 306				Add 1 new well in each aquifer 477 and 478 and 2 new wells in aquifer 158.	1(a) and (b) and 2(a)
Kootenay /Columbia	Cranbrook-Kimberley	524, 525, 538 and 540	3	OW363	523, 537, 535 and 536	4	OW291	Add 1 new well in aquifer 538, 524/525, 535,536 and 537.	1(a) and (b) and 2(a)
	Golden	456	2	OW308				Add 1 new well to aquifer 456	1(a) and (b) and 2(a)
	Wardner - Jaffray	521 and 528	2	OW362	529			Add 1 new well to aquifer 528 at Wardner	1(a) and (b) and 2(a)

SUB REGION	KEY AREA	PRIORITY UNCONSOLIDATED AQUIFERS	MINIMUM NUMBER OF OBSERVATION WELLS	EXISTING OBSERVATION WELLS IN UNCONSOLIDATED DEPOSITS	PRIORITY BEDROCK AQUIFERS	MINIMUM NUMBER OF OBSERVATION WELLS	EXISTING OBSERVATION WELLS IN BEDROCK	COMMENTS	KEY OBJECTIVES
Kootenay /Columbia (cont.)	Castlegar	505,507 and 508	3	OW74				Add 1 new well to each aquifer 505 and 508	1(a) and (b) and 2(a)
	Kootenay Lake	516	1					Add 1 new well to aquifer 516 at Willow Point	1(a) and (b) and 2(a)
	Invermere - Windermere	603	1					Add 1 new well in aquifer 603	1(a) and (b) and 2(a)
	Creston	487	1		488	1		Add 1 new well in each aquifer 487 and 488	1(a) and (b) and 2(a)
	Slocan	514	1		511	1		Add 1 new well in each aquifer 511 and 514	1(a) and (b) and 2(a)
		Totals:	56	32		18	2	44 new	

Note: Existing observation wells listed are those in high priority aquifers only.

* Coordinate with Thompson/Cariboo Region.

Key areas and existing observation wells are shown in Appendix O.

Table 46. Recommended key areas, priority aquifers and wells for monitoring in the Skeena/Omineca/Peace Region.

SUB REGION	KEY AREA	PRIORITY UNCONSOLIDATED AQUIFERS	MINIMUM NUMBER OF OBSERVATION WELLS	EXISTING OBSERVATION WELLS IN UNCONSOLIDATED DEPOSITS	PRIORITY BEDROCK AQUIFERS	MINIMUM NUMBER OF OBSERVATION WELLS	EXISTING OBSERVATION WELLS IN BEDROCK	COMMENTS	KEY OBJECTIVES
A. Skeena	Prince George-Hixon	92, 94, 332 and 333	6	OW293 and 378	81, 84, 89 , 91 and 339	2		Add 1 new well to each aquifer 89, 92, 94, 332, 333 and 339	1(a) and (b) and 2(a)
	Terrace	570, 571, 572, 574 and 575	4					Add 1 new well to each aquifer 570, 571, 572 and 575.	1(a) and (b) and 2(a)
	Smithers-Telkwa	582, 584 and 585	4	OW89, 377	579	1		Add 1 new well to each aquifer 582, 584 and 579	1(a) and (b) and 2(a)
	Vanderhoof-Fraser Lake	242 and 244	4	OW199	243 and 673	1		Add 2 new wells in aquifer 242, 1 in aquifer 244 and 1 in aquifer 243.	1(a) and (b) and 2(a)
	Burns Lake	645 and 649	2		644 and 651	1		Add 1 new well in each aquifer 644, 645, 649	1(a) and (b) and 2(a)
	Houston	659	1		658	1		Add 1 new well in aquifer 659 and 1 in aquifer 658.	1(a) and (b) and 2(a)
B. Omineca /Peace	Peace River	431, 442, 635 and 687	3	OW286	451 and 591	3	OW124	Add 1 new well in each aquifer 431, 442, 451. 591.	1(b) and 2(a)
		Totals:	24	6		9	1	26 new	

Note: Existing observation wells listed are those in high priority aquifers only.
Key areas and existing observation wells are shown in Appendix O.

Table 47. Summary listing of active observation wells that are not situated in priority aquifers in key areas.

Item No.	MOE Obs. Well No.	Aquifer Number	Aquifer Classification and Ranking	Aquifer Type	Location	Site Agreement*	Date Established	Well Depth (feet)	Well Diameter (inches)	Collar Elevation (feet)	Recorder Type	Owner of Well	Owner of Property	Period of Record (years)	Duration (Years)	Water Level Response	Recharge or Discharge Regime	Shallow or Deep Flow Regime	Quality of Hydrograph Record	Recommendations	Relevant Network Objectives Achieved	Rationale and Comments
Vancouver Island Region																						
1	58	610	IIB (9)	Surficial	Saanich	None found	1966	48	6.0	85	Thalimedes	MoE	road right of way, Municipality	1966 - 2009	42	Seasonal and rise since 1980 - very few gaps	Discharge	Shallow	Excellent	Retain	1 a,b,c and 2 a,b,c	Long period of excellent record. Rise in water level since 1980 caused from less gw use.
2	60	609	IIIB (7)	Surficial	Saanich	None found	1966	54	6.0	89	Thalimedes	MoE	road right of way, Municipality	1966 - 2009	42	Seasonal	Recharge	Shallow	Excellent	Retain	1 a,b,c and 2 a,b,c	Long period of record. Key well reporting on ground water conditions for forecasting water supply outlook at River Forecast Centre (RFC) website.
3	61	612	IIB (9)	Surficial	Saanich	None found	1966	90	8.0	100	Thalimedes	Municipality of Central Saanich	road right of way, Municipality	1966 - 2009	42	Seasonal and rise since late 1970s - very few gaps	Discharge	Shallow	Excellent	Retain	1 a, b,c and 2 a,b,c	Long period of record
4	71	616	IIC (11)	Surficial	Saanich	Yes	1976	55	8.0	113	Thalimedes	Mun. of Saanich	Macarthur Park estates ltd, and Sayward Hill Developments Ltd.	1976 - 2009	32	Seasonal and pumping	Discharge	Shallow	Excellent	Retain	1 b, c and 2 a,b,c	Long period of record. Concern of slightly declining water level. May have been subject to dewatering for construction project.
5	228	160	IIIC (10)	Surficial	Cassidy	Yes with Nanaimo Airport Authority	1978	218	8.0	210	Thalimedes / Telemetry	Harmac Mill	Nanaimo Airport Authority	1954 - 2009	55	Seasonal and Haslam Ck.	Discharge	Deep	Excellent	Retain	1 b,c and 2 a,b,c	Historic long period of record, appears to respond to flows on Haslam Creek. Key well reporting on ground water conditions for forecasting water supply outlook at River Forecast Centre (RFC) website.
6	232	213	IIC (11)	Surficial	Lantzville	Yes	1979	62	8.0		Thalimedes	Lantzville I.D.	Lantzville I.D.	1979 - 2009	29	Seasonal / Regional Decline	Discharge	Shallow	Excellent / few gaps	Retain	1 b,c and 2 a,b,c	Long period of record, declining trend.
7	287	220	IIB (10)	Bedrock	Coombs	Highways Permit	1984	303	6.0		Thalimedes	MoE	MoTH	1984 - 2009	24	Seasonal and pumping	Discharge	Deep	Excellent / fair correlation to CPD	Retain	1 b,c and 2 a,b,c	Long period of record, slight overall decline
8	310	416	IIB (12)	Surficial	Bowser	Yes with Deep Bay WWD	1990	83	8.0		Thalimedes	Deep Bay WW	right of way	1990 - 2009	19	Seasonal	Discharge	Shallow	Excellent	Retain	1 b,c and 2 a,b,c	Long period of record
9	316	709	IIA (15)	Surficial	Gabriola Isl	None found	1992	43	6.0		Thalimedes	unknown	right of way	1992 - 2009	16	Seasonal and pumping	Discharge	Shallow	Fair / lots of gaps	Retain	1 b,c and 2 a,b,c	Long period of record, affected by pumping.
10	340	215	IIC (10)	Surficial	Lantzville	letters Lantzville I.D.	1999	168	6.0		Thalimedes	Lantzville I.D.	right of way, Lantzville I.D.	1999 - 2009	9	Seasonal and pumping	Discharge	Deep	Good with some gaps	Retain	1 b,c and 2 a,b,c	Long period of record, affected by pumping.
11	368	not mapped	not mapped	Bedrock	Oyster River	Highways Permit	2006	482	6.0		Troll	MoE/MEM	MoTH	2006 - 2009	2	Seasonal and pumping	Discharge	Deep	Excellent	Retain	1 b,c and 2 a,b,c	
12	369	not mapped	not mapped	Surficial	Oyster River	Highways Permit	2006	24	6.0		Thalimedes	MoE/MEM	MoTH	2006 - 2009	2	Seasonal and pumping	Recharge	Shallow	Excellent	Retain	1 b,c and 2 a,b,c	
13	371	415	IIIA (10)	Surficial	Fanny Bay	Highways Permit	2005	36	6.0		Thalimedes	MoE/MEM	MoTH	2006 - 2009	2	Seasonal and effects of T'sable R.	Discharge	Shallow	Excellent	Retain	1 b,c and 2 a,b,c	
Lower Mainland Region																						
14	255	not mapped	not mapped	Bedrock	Yarrow	none found, verbal record on file	1979	120	8.0	22	Thalimedes datalogger	Yarrow WW	private	1979 - present	29	Seasonal and pumping	Discharge	Shallow	Excellent	Retain	1a,b,c and 2a	Long period of record.
15	259	26	IIC (9)	Surficial	Whonnock	yes	1980	120	6.0	476	Thalimedes datatrappner	MoE	right of way, Maple Ridge	1980 - present	28	Seasonal and pumping, declining trend	Recharge	Shallow	Excellent	Retain	1a,b,c and 2a	Long period of record. Concern of slightly declining water level.
16	357	29	IIIC (8)	Surficial	Abbotsford	none found	2004	64	6.0	250	Thalamedes datalogger	MoE	Private property	2004 - present	4	Seasonal and pumping	Recharge	Shallow	Excellent	Retain	1a,b,c and 2a	Replaces observation well 3

Table 47

Item No.	MOE Obs. Well No.	Aquifer Number	Aquifer Classification and Ranking	Aquifer Type	Location	Site Agreement*	Date Established	Well Depth (feet)	Well Diameter (inches)	Collar Elevation (feet)	Recorder Type	Owner of Well	Owner of Property	Period of Record (years)	Duration (Years)	Water Level Response	Recharge or Discharge Regime	Shallow or Deep Flow Regime	Quality of Hydrograph Record	Recommendations	Relevant Network Objectives Achieved	Rationale and Comments
Thompson/Cariboo Region																						
17	35	not mapped	not mapped	Surficial	Stump Lake	right of way and Fed-Prov. agreement not found	1967	79	6.0	2574 (ground)	Diver Pressure Transducer	MoE	Crown	1968-2009	40	Seasonal	Discharge	shallow	Excellent / few gaps	Retain	1a,b and 2a	Long period of record, declining trend since late 1990s. Key well reporting on ground water conditions for forecasting water supply outlook at River Forecast Centre (RFC) website.
18	80	921	IIC (8)	Surficial	Clinton	Yes, map reserve with Fed-Prov. agreement ?	1967	50	6.0	3050	Diver Pressure Transducer	MoE	Crown land reserve	1967 - 2009	41	Pumping Interference	Recharge	shallow	Excellent	Retain	1a, b and 2a	Long period of record, long-term declining trend. Key well reporting on ground water conditions for forecasting water supply outlook at River Forecast Centre (RFC) website.
19	289	139	IIC (9)	Surficial	Williams Lake	Yes	1984	95	6.0	2667 (ground)	Diver Pressure Transducer	MoE	MOTH	1984 - 2009	24	Pumping Interference	Discharge	shallow	Excellent , with some gaps	Retain	1a,b and 2a	Long period of record
20	375	825	II A (11)	Surficial	Blue R	Agreement with NRD	2006	72.8	8.0	2287 (ground)	Diver Pressure Transducer	Thompson-Nicola Regional District		2006 - 2009	2	Seasonal	Recharge	shallow	Excellent	Retain	1a,b and 2a, b	Long term record needed.
21	376	not mapped	not mapped	Bedrock	Junction Sheep Rg Park		2006	205	6.0	2100 (ground)	Diver Pressure Transducer	MoE	Crown	2006 - 2009	2	Seasonal	Recharge	deep	Excellent	Retain	1c	Long term record needed for effects of climate change
22a	381 (D)	109 (deep)	IIC (10)	Surficial	Canoe Cr	Lease	2007	315	6.0		Diver Pressure Transducer	MoE	Private	2008 - 2009	1	Seasonal and pumping, declining	Recharge	shallow	Excellent	Retain	1a,b and 2a, b	Long term record needed, declining trend
22b	381 (S)	108 (shallow)	IIIA (11)	Surficial	Canoe Cr	Lease	2007	315	6.0		Diver Pressure Transducer	MoE	Private	2008 - 2009	1	Seasonal	Discharge	deep	Excellent	Retain	1a,b and 2a, b	Long term record needed
Kootenay/Okanagan Region																						
23	47	not mapped	not mapped	Bedrock	Silver Star Mt., Vernon	Agreement expired in 1989? No record of renewal.	1965	58	1	5960	Manual	MOE	Crown	1965 - Present	43	Evident seasonal recharge effects to snowmelt	Recharge	Shallow	Excellent	Retain	1a and c	High elevation recharge area, long period of record, climate response monitoring.
24	53	not mapped	not mapped	Bedrock	Carrs Landing		1966	50	1	3169	Manual	MOE	Private	1966 - Present	42	Responds to snowmelt and precipitation	Recharge	Shallow	Good to Excellent	Mirrors Well 54, suspend monitoring but maintain as backup well to 54.	1a and c	High elevation recharge area, long period of record, climate response monitoring, downward trend since 2001
25	54	not mapped	not mapped	Bedrock	Carrs Landing	R/W agreement was dissolved in 1977	1969	45	6	3186	Stevens F 68 Recorder	MOE	Private	1969 - Present	39	Responds to snowmelt and precipitation	Recharge	Shallow	Excellent	Retain	1a and c	High elevation recharge area, long period of record, climate response monitoring, downward trend since 2001
26	115	not mapped	not mapped	Bedrock	Mission Ridge		1970	72	6	6000	Pressure Transducer/Telemetry	MOE	Crown	1970 - Present	38	Evident seasonal recharge effects to snowmelt	Recharge	Shallow	Excellent	Retain	1a and c	High elevation recharge area, long period of record, climate response monitoring. Key well reporting on ground water conditions for forecasting water supply outlook at River Forecast Centre (RFC) website.
27	118	111	II C (11)	Surficial	Armstrong		1971	1026	4 (liner)	1261	Thalimedes Datalogger	MOE	Private	1972 - Present	36	May reflect longer-term (e.g. 5-10 year) climatic cycles	Discharge	Deep	Excellent	Retain	1a. b and 2a	Long period of record, climate response monitoring

Item No.	MOE Obs. Well No.	Aquifer Number	Aquifer Classification and Ranking	Aquifer Type	Location	Site Agreement*	Date Established	Well Depth (feet)	Well Diameter (inches)	Collar Elevation (feet)	Recorder Type	Owner of Well	Owner of Property	Period of Record (years)	Duration (Years)	Water Level Response	Recharge or Discharge Regime	Shallow or Deep Flow Regime	Quality of Hydrograph Record	Recommendations	Relevant Network Objectives Achieved	Rationale and Comments
28	154	297	IIIB (11)	Surficial	Summerland		1969	78	2	1142	Manual	MOE		1969 - Present	39	Responds to freshet, Trout Creek and Okanagan Lake	Discharge	Deep	Good to Excellent	Retain	2a, b and c	Aquifer is relatively small, one observation well may be representative, overall water level decline since 1970s
29	162	not mapped	not mapped	Bedrock	Kalawoods		1972	13.25	6	1723	Thalimedes Datalogger	MOE	Private	1969 - Present	39	Appears to respond to long term climatic and local pumping effects	Discharge	Shallow	Excellent	Retain	1a, c and 2a	Declining trend since 2000.
30	176	not mapped	not mapped	Surficial	Kalawoods		1972	161	6	1426	Manual	MOE		1972 - Present	36	Affected by local pumping and possibly irrigation	Discharge	Deep	Good to Excellent	Retain	1a, c and 2a	Represents surficial conditions
31	279	803	IIIA (8)	Surficial	Revelstoke	not found	1982	35	4	1454	Thalimedes Datalogger	BC Hydro	Revelstoke?	1982 - 85 and 87 to Present	24	Recharge during freshet	Recharge	Shallow	Poor, several gaps	Retain, consider installation of diver to improve continuity of record	1a and b	Long term record, relationship to river
32	302	307	IA (13)	Surficial	Malakwa	road right of way	1988	75	12.0		Diver pressure transducer	MoE	MoTH	1988 - Present	20	Seasonal and pumping	Recharge	Shallow	Good with minor gaps	Retain	1a, b and 2a	Long period of record
33	309	450	IIB (8)	Surficial	Golden area	road right of way	1989	148	6.0		Thalamedes Telemetry	MoE	MoTH	1989 - Present	19	Recharge during freshet	Recharge	Deep	Excellent	Retain	1a, b and 2a	Long period of record. Key well reporting on ground water conditions for forecasting water supply outlook at River Forecast Centre (RFC) website.
34	356	344	1B (13)	Surficial	Winfield	Road right of way jurisdiction of the City of Kelowna	2004	40	6		Thalimedes Datalogger	MOE	City of Kelowna	2004-Present	4	seasonal and possibly surface flow effects	Discharge	Shallow	Excellent	Retain	1a, b and 2a	High water use area
35	363	540	IA (12)	Surficial	Wasa Lake	road right of way	2005	45	6.0	2566	Thalamedes datalogger	MoE	MoTH	2005 - Present	3	seasonal, possibly surface flow effects and pumping	Recharge	Shallow	Excellent	Retain	1a, b and 2a	Newly established well.
Skeena/Omineca/Peace Region																						
36	82	not mapped	not mapped	Bedrock	Barkerville (Lower)	Yes, Park Reserve	1967	95	6.0	5000	Diver Pressure Transducer	MoE	Crown	1967 to present	41	Seasonal effect of snowmelt	Recharge	Shallow	Excellent, info. gap between 80-82	Retain	1a, b, c	High elevation recharge area, long period of record, climate response monitoring site. Key well reporting on ground water conditions for forecasting water supply outlook at River Forecast Centre (RFC) website.
37	200	828	IIIB (10)	Surficial	Dease Lake	none found	1973	113	6.0	2644	Manual	MoE	Crown	1973 to present	35	Seasonal and pumping.	Recharge?	Shallow	Poor to good, several gaps.	Retain. Consider for transducer and telemetry.	1a, b and 2a	Long period of record.

* Note: Some original agreements have lapsed and landowners may have changed.

Table 48. Sampling frequency of observation wells during 2002 to 2008.

Region	Sampling 2002 to 2008		Comments*
	Sites	Sampling Frequency	
Vancouver Island	OW58 North Saanich	2004 and 2008	
	OW61 North Saanich	2004 and 2008	
	OW65 Sidney	2004	
	OW66 Saanich Kingswood	2002	not active 2008
	OW71 Cordova Bay	2004	
	OW124 Mayne Island	2006	
	OW125 Mayne Island	2003, 2006 and 2008	
	OW126 Mayne Island	2003	not active 2008
	OW128 Mayne Island	2008	
	OW194 Gabriola Island	2003	
	OW196 Gabriola Island	2003 and 2008	
	OW197 Gabriola Island	2006 and 2008	
	OW201 Alert Bay	2006	
	OW202 Alert Bay	2006	not active 2008
	OW204 Duncan	2003	planned for 2008-09
	OW205 Duncan	2003	
	OW211 Duncan	2003	planned for 2008-09
	OW212 North Saanich	2004	
	OW228 Cassidy	2002 and 2005	
	OW232 Lantzville	2002 and 2005	
	OW233 Cowichan Bay	2006	
	OW258 Galiano Island	2002, 2005 and 2008	
	OW265 North Saanich	2004	
	OW268 Denman Island	2002 and 2005	
	OW281 Saltspring Island	2002 and 2005	
	OW283 and 284 Pender	2002 and 2005	
	OW287 Coombs	2005	
	OW288 Hornby Island	2006	
	OW290 Saturna Island	2005	
	OW295 Qualicum Beach	2004	
	OW303 Qualicum	2004	
	OW304 Parksville	2002 and 2005	
	OW310 Bowser	2004	
	OW312 Cassidy	2004	
	OW314 Parksville	2004	
	OW316 Gabriola Island	2003 and 2008	
	OW317 Gabriola Island	2003	not active 2008
	OW318 Duncan	2003	planned for 2008-09
	OW319 Saturna Island	2005, 2006 and 2008	
	OW321 Qualicum	2002 and 2006	
	OW323 Hornby Island	2003	not active 2008
	OW326 Galiano Island	2003	not active 2008
	OW327 Galiano Island	2003 and 2008	
	OW329 Ucluelet	2003	planned for 2008-09
	OW330 Cassidy/Harmac	2004	not active 2008
	OW331 Deep Bay	2002 and 2006	not active 2008
	OW333 Central Saanich	2004	not active 2008
	OW337 North Oyster	2004	

Region	Sampling 2002 to 2008		Comments*
	Sites	Sampling Frequency	
Vancouver Island (cont.)	OW338 Saanichton	2003	planned for 2008-09
	OW340 Lantzville	2005	
	OW343 Saanich Mt. Newton	2008	planned for 2008-09
	OW345 Cobble Hill	2007	
	OW351 Comox	2002 and 2005	
	OW355 Chemainus	2004, 2005 and 2008	
	OW368 Quinsam East	twice in 2006, once in 2007	planned for 2008-09
	OW369 Quinsam East	twice in 2006, once in 2007	planned for 2008-09
	OW371 Fanny Bay	twice in 2006, once in 2007 and 2008	
	OW372 Highlands	2007	
	OW373 Saltspring	twice in 2006	
	OW383 Quadra	2007	planned for 2008-09
Lower Mainland	OW2, OW8 and OW15 in Aquifer 15	Seasonally 2x per year from 2003 to 2008 in most cases, generally 1st qtr and 3rd or 4th	All sites in Abbotsford Aquifer
	OW255 Yarrow	twice per year 2004 to 2008	
	OW259 Whonnock	twice per year 2003 to 2008	
	OW272 Abbotsford	twice per year 2003 to 2007 except once in 2004	planned for 2008-09
	OW273 Abbotsford	twice per year 2003 to 2006 except once in 2005	not active 2008
	OW275 Surrey	twice per year 2005 to 2007, once a year in 2003, 2004 and 2008	
	OW292 Powell River	twice per year 2003 to 2007, once in 2002 and 2008	
	OW299 Matsqui	twice per year in 2004, 2006 to 2008, once in 2005	
	OW301 Matsqui	twice per year in 2004, 2006 to 2008, once in 2003 and 2005	
	OW335 Lindell Beach	twice per year in 2005, 2006 and 2007, once in 2004 and 2008	
	OW349 Belcarra	twice per year from 2003 to 2008	
	OW352 Whistler	twice per year from 2005 to 2008 and once in 2004	
	OW353 Langley	twice per year from 2004 to 2008	
	OW354 Langley	twice per year from 2004 to 2008	
	OW357 Abbotsford	twice per year from 2004 to 2008	
	OW358 Langley	twice in 2004	
	OW359 Langley	twice in 2004 and 2006, once in 2005 and 2007	planned for 2008-09
	OW360 Langley	twice per year from 2005 to 2008	
	OW361 Aldergrove	twice per year from 2005 to 2008	

Region	Sampling 2002 to 2008		Comments*
	Sites	Sampling Frequency	
Thompson / Cariboo	OW35 Stump Lake	twice in 2005	
	OW 45 Westwold	twice in 2006	
	OW78 Lone Butte	2005	deactivated 2008
	OW80 Clinton	2002 and twice in 2005	
	OW81 83 Mile Lake	2005	
	OW82 Barkerville	2005	
	OW88 Williams Lake	2007 and 2008	
	OW185 Salmon River	twice in 2005	
	OW261 Williams Lake	twice in 2005 and 2008, once in 2006 and 2007	
	OW289 Williams Lake Pine	2006, 2007 and 2008	
	OW296 Merritt	twice in 2005 and once in 2008	
	OW302 Malakwa	twice in 2005	
	OW344 Cache Creek	twice in 2005, once in 2006 to 2008	
	OW346 Cache Creek	twice in 2005, once in 2006 to 2008	
	OW347 Quesnel	2003 and 2005	not active 2008
	OW364 Quesnel	2005 and 2007	
	OW365 Shuswap Lake	twice in 2006, deep and shallow X2	
	OW374 108 Mile Subdivision	2007	
	OW375 Blue River	2006 and 2008	
	OW376		planned for 2008-09
	OW381 Canoe Creek		deep and shallow
Kootenay / Okanagan	OW76 Keremeos	2003	
	OW119 Armstrong	2007	
	OW172 Kalawoods	2003 and 2007	
	OW294 Lumby	2007	
	OW322 Vernon Silver Star	2007	
	OW356 Kelowna	2004	
	OW362 Jaffray	three samples in 2005	
	OW367 Summerland	twice in 2007, once in 2002, 2003, 2004 and 2006	not active 2008
	OW363 Wasa Lake	three samples in 2005	
Skeena / Omineca / Peace	OW124 Charlie Lake	2006	
	OW286 Tumbler Ridge	2006	
	OW378 Prince George	2007	

Data extracted from EMS by C. Ballek December, 2008.

* Vancouver Island information provided by G. Henderson

Information on other sites planned for sampling in 2008-09 obtained from R. Zimmerman, Sept. 4, 2008.

Table 49. Summary of current ground water quality monitoring activities in MoE regions.

Region	Water Quality Monitoring Activities	Number of Sites	Sampling Frequency	Parameters	Comments	References
Vancouver Island	(a) Observation Wells	15 to 20 sites per year	once every 3 years, new wells sampled 3 years in a row	Major ions, total metals (Drinking Water Package) and bacteriological	14 sites planned in 2009-2010	January 27, 2009 e-mail from G. Henderson; January 28, 2009 e-mail from P. Lapcevic;
	(b) AWQM of IA aquifers in four areas namely:	10 private wells per area and some duplicates for QA/QC, sites with no water treatment, usually household taps	twice a year (wet and dry seasons) for 3 years	Major ions, total metals (Drinking Water Package) and bacteriological	originally focused on community water systems; now includes private domestic wells	interview with P. Lapcevic and G. Henderson, Nov. 14, 2008
	(i) Duncan					
	(ii) eastern Hornby Island					
	(iii) Chemainus/Crofton					
	(iv) North Gabriola Island					
	(c) Gulf Islands Geochemistry, Saltspring 07/08, Thetis, Quadra and Cortes 08/09	146 sites on Saltspring, 70 sites on Thetis, Quadra and Cortes	once	Major ions, total metals (Drinking Water Package) and bacteriological		
Lower Mainland	(a) Observation Wells	18 to 20 sites per year	twice a year, some once	standard potability		November 17, 2008 e-mail from M.
	(b) AWQM in 3 areas namely:		twice a year (wet and dry seasons)	standard potability, bacteria if		January 19, 2009 e-mail from M. Simpson:
	(i) Matsqui	4 piezometers	annually	nitrate of concern	Aquifer 15 (IA)	interview with M. Lepitre and M. Simpson, Jan. 21, 2009;
	(ii) Belcarra	7 community wells	annually		Aquifer 68 (IA)	
	(iii) Fraser Valley GMP	12 community wells	annually		various aquifers	
	(c) Other area studies, e.g. Maple Ridge	community wells and domestic wells	twice a year			

Region	Water Quality Monitoring Activities	Number of Sites	Sampling Frequency	Parameters	Comments	References
Thompson/ Cariboo	(a) Observation Wells	5 sites in 2008	once every 2 to 3 years	standard potability, Drinking Water Package		January 27, 2009 e-mail from K. Bennett interview with K. Bennett and L. Lyons, Dec. 15, 2008
	(b) AWQM of IA aquifers, Merritt and Cache Creek	5 community wells	annually	standard potability	Aquifers 74 (IA) and 134 (IA)	
	(c) Area studies in 3 areas namely:			standard potability	no other broad aquifer sampling planned in 2009-2010, only limited funds available	
	(i) Dog Creek, Williams Lake	domestic wells		caffeine and nitrate in Dog Creek aquifer to check for human sewage		
	(ii) Scotch Creek	nested piezometers				
	(iii) 150 Mile House					
Kootenay/ Okanagan	(a) Observation Wells	5 wells every other year, none planned in 2008	annually	standard potability, Drinking Water Package		February 9, 2009 e-mail from O. Ivanov; interview with O. Ivanov, Dec. 1, 2008
	(b) AWQM in 6 areas namely:			standard potability, Drinking Water Package		
	(i) Osoyoos East and West	10 piezometers and domestic well	annually in the fall	nitrate of concern	Aquifers 193 (IIA) and 194 (IIA), monitoring started in 1989	
	(ii) Oliver/Tugulnuit	2 wells	annually in the fall	nitrate and selenium concerns	Aquifer 255 (IA), monitoring started in 2003	
	(iii) Town of Oliver	community wells	annually in the fall	nitrate and selenium concerns	Aquifer 254 (IA), monitoring started in 2003	
	(iv) Spalumcheen	community wells	annually in the fall		Aquifer 352 (IA), monitoring started in 2003	
	(v) Hullcar	irrigation and domestic wells	annually in the fall		Aquifer 103 (IIA), monitoring started in 2007	

TABLE 49

Region	Water Quality Monitoring Activities	Number of Sites	Sampling Frequency	Parameters	Comments	References
Okanagan / Kootenay	(vi) Grand Forks	piezometers and domestic wells, 20 sites	annually in the fall	nitrate of concern	Aquifer 158 (IA), monitoring started in 1985	
Smithers/Omineca/Peace	(a) Observation Wells	1 or 2 wells per year		standard potability, Drinking Water Package		interview with D. Tamblyn, Nov. 25, 2008;
	(b) Other aquifer sampling, Aquifer 570 near Terrace subject to ongoing multi-year investigation of septic field contamination					January 28, 2009 e-mail from D. Tamblyn

Note: This summary is not necessarily complete and does not include ground water monitoring for waste management permitting and contaminated sites.

Table 50. Observation wells showing a declining trend 2000-2005.

Item	Observation Well	MOE Region	Location	Aquifer Classification	Aquifer Type	Years of Well Log Records	Comments
1	71	Vancouver Island	Saanich	IIC (11)	Surficial	1976 - present	
2	194	Vancouver Island	Gabriola Island	IIA (15)	Bedrock	1973 - 2007	
3	196	Vancouver Island	Gabriola Island	IIA (15)	Bedrock	1973 - present	
4	258	Vancouver Island	Galiano Island	IIB (14)	Bedrock	1980 - present	
5	265	Vancouver Island	Saanich (North)	IIB (13)	Bedrock	1980 - present	
6	284	Vancouver Island	Pender Island	IIA (13)	Bedrock	1983 - present	
7	287	Vancouver Island	Coombs	IIB (10)	Bedrock	1984 - present	influenced by neighbouring pumping wells
8	295	Vancouver Island	Qualicum	IB (14)	Surficial	1986 - present	influenced by neighbouring pumping wells
9	303	Vancouver Island	Qualicum	IB (14)	Surficial	1988 - present	influenced by neighbouring pumping wells
10	304	Vancouver Island	Parksville	IB (14)	Surficial	1988 - present	influenced by neighbouring pumping wells, significant downward trend from 2000 to 2004
11	314	Vancouver Island	Parksville - HC10	IB (13)	Surficial	1992 - present	influenced by neighbouring pumping wells, significant downward trend from 2000 to 2004
12	320	Vancouver Island	Cobble Hill	IIC (11)	Surficial	1992 - present	influenced by neighbouring pumping wells, significant downward trend from 2000 to 2005
13	321	Vancouver Island	Fr. Beach/ Qualicum	IB (14)	Surficial	1992 - present	influenced by neighbouring pumping wells
14	333	Vancouver Island	Central Saanich	11B (13)	Bedrock	1997- 2006	insufficient record in 2000 for trend analysis
15	337	Vancouver Island	Ladysmith	IIA (16)	Bedrock	1998 - present	insufficient record in 2000 for trend analysis, influenced by neighbouring pumping wells, significant downward trend from 2002 to 2005

Item	Observation Well	MOE Region	Location	Aquifer Classification	Aquifer Type	Years of Well Log Records	Comments
16	340	Vancouver Island	Lantzville	IIC (10)	Surficial	1999 - present	insufficient record in 2000 for trend analysis, influenced by neighbouring pumping wells
17	345	Vancouver Island	Arbutus Ridge	IIC (11)	Surficial	1999 - present	insufficient record in 2000 for trend analysis, influenced by neighbouring pumping wells
18	259	Lower Mainland	Whonnock	IIC (9)	Surficial	1980 - present	influenced by neighbouring pumping wells
19	292	Lower Mainland	Powell River	IIC (8)	Surficial	1985 - present	influenced by neighbouring pumping wells
20	80	Thompson/Cariboo	Clinton	IIIC (8)	Surficial	1967 - present	
21	88	Thompson/Cariboo	Williams Lake	IC (11)	Surficial	1969 - present	strongly influenced by neighbouring pumping wells, in municipal well field
22	185	Thompson/Cariboo	Salmon River	II A (13)	Surficial	1972 - present	influenced by neighbouring pumping wells, significant downward shift in hydrograph after 2000
23	296	Thompson/Cariboo	Merritt	IA (16)	Surficial	1987 - present	influenced by neighbouring pumping wells
24	344	Thompson/Cariboo	Cache Creek	IC (12)	Surficial	2000 - 2008	insufficient record in 2000 for trend analysis
25	347	Thompson/Cariboo	Quesnel	1A (12)	Surficial	2000 - 2007	insufficient record in 2000 for trend analysis
26	53	Okanagan/Kootenay	Carrs Landing	not mapped	Bedrock	1966 - present	significant downward shift in hydrograph after 2000
27	54	Okanagan/Kootenay	Carrs Landing	not mapped	Bedrock	1969 - present	significant downward shift in hydrograph after 2000
28	75	Okanagan/Kootenay	Keremeos	IIA (14)	Surficial	1967 - present	
29	77	Okanagan/Kootenay	Keremeos	IIA (14)	Surficial	1969 - present	
30	96	Okanagan/Kootenay	Osoyoos	II A (16)	Surficial	1969 - present	
31	102	Okanagan/Kootenay	Osoyoos	II A (16)	Surficial	1969 - 2008	
32	117	Okanagan/Kootenay	Armstrong	II C (11)	Surficial	1972 - present	influenced by neighbouring pumping wells
33	119	Okanagan/Kootenay	Armstrong	II C (11)	Surficial	1972 - present	influenced by neighbouring pumping wells
34	122	Okanagan/Kootenay	Enderby	II C (11)	Surficial	1972 - present	

Table 50

Item	Observation Well	MOE Region	Location	Aquifer Classification	Aquifer Type	Years of Well Log Records	Comments
35	158	Okanagan/Kootenay	Summerland	IIIB (11)	Surficial	1969 - 2008	
36	162	Okanagan/Kootenay	Kalawoods	not mapped	Bedrock	1969 - present	
37	173	Okanagan/Kootenay	Kalawoods	IIA(14)	Surficial	1972 - present	
38	174	Okanagan/Kootenay	Kalawoods	IIA(14)	Surficial	1972 - present	
39	180	Okanagan/Kootenay	Eagle Rock Waterworks, Armstrong	IA (14)	Surficial	1975 - Present	strongly influenced by neighbouring pumping wells, significant downward shift in hydrograph after 2003
40	236	Okanagan/Kootenay	Rutland	IC(14)	Surficial	1979 - present	influenced by neighbouring pumping wells
41	262	Okanagan/Kootenay	Kelowna (S.E.K.I.D.)	IC(14)	Surficial	1980 - present	influenced by neighbouring pumping wells
42	282	Okanagan/Kootenay	Meyers Flats	IIA (14)	Surficial	1983 - present	
43	332	Okanagan/Kootenay	Oliver	1A (16)	Surficial	1997 - present	insufficient record in 2000 for trend analysis, influenced by neighbouring pumping wells, declining since 1998
44	286	Skeena/Omineca/Peace	Tumbler Ridge	IIA (15)	Surficial	1983 - present	influenced by neighbouring pumping wells, in municipal well field

Table 51. Annual precipitation data for period 1995 to 2005 at representative sites.

Station No.	Station Name	Elevation (m)	Latitude	Longitude	Year	Total Precipitation (mm)		1971- 2000 Normal (mm)	Difference from 1971- 2000 Normal (mm)	Percent of 1971- 2000 Normal	Comments
1025370	Nanaimo A	28	49° 03' N	123° 52' W	1995	1417.2		1162.7	254.5	122	
					1996	1355.9		1162.7	193.2	117	
					1997	1307.9		1162.7	145.2	112	
					1998	1272.2		1162.7	109.5	109	
					1999	1496.6	E	1162.7	333.9	129	
					2000	977.9		1162.7	-184.8	84	
					2001	990.8		1162.7	-171.9	85	
					2002	1008.9	M	1162.7	-153.8	87	missing data
					2003	1143.4		1162.7	-19.3	98	
					2004	1166.7		1162.7	4	100	
1125079	Merritt STP	609	50° 06' N	120° 48' W	2005	1143.8		1162.7	-18.9	98	
					1995	337.4		322.2	15.2	105	
					1996	448.5	E	322.2	126.3	139	
					1997	372.2		322.2	50	116	
					1998	294.9		322.2	-27.3	92	
					1999	238.9	E	322.2	-83.3	74	
					2000	299.7		322.2	-22.5	93	
					2001	211.2		322.2	-111	66	
					2002	292.7	E	322.2	-29.5	91	
					2003	223.0	E	322.2	-99.2	69	
1123970	Kelowna A	430	49° 57' N	119° 22' W	2004	361.4		322.2	39.2	112	
					2005	266.3	M	322.2	-55.9	83	missing data
					1995	444.6	M	380.5	64.1	117	missing data
					1996	445.7		380.5	65.2	117	
					1997	444.9		380.5	64.4	117	
					1998	370.8		380.5	-9.7	97	
					1999	374.0		380.5	-6.5	98	
					2000	345.4		380.5	-35.1	91	
					2001	336.9		380.5	-43.6	89	
					2002	212.8	M	380.5	-167.7	56	missing data
					2003	288.4		380.5	-92.1	76	
					2004	451.8		380.5	71.3	119	
					2005	-	M	380.5			missing data

Data from: Environment Canada (2009), http://www.climate.weatheroffice.ec.gc.ca/Welcome_e.html

M = missing data

E = estimated

Table 52. Summary of observation wells used to report on ground water level conditions at the River Forecast Centre (RFC) website.

Item	Obs Well No.	Location	Region	Drainage Basins and regions (River Forecast Centre)	Major Watershed	Hydrologic Zone	Biogeoclimatic Zone	Aquifer Type	Well Depth (feet)	Collar Elevation (feet)	Duration of Record (Years)	Water Level Response	Recharge or Discharge Regime	Shallow or Deep Flow Regime	Quality of Hydrograph Record	Comments and Recommendations for Reporting
1	65	Saanich	Vancouver Island	Vancouver Island & Coastal Region	Vancouver Island (East) Rivers	Eastern Vancouver Island	Coastal Douglas-fir (CDF)	Bedrock	505	53	33	Seasonal	Discharge	Deep	Excellent	continue use
2	60	Saanich	Vancouver Island	Vancouver Island & Coastal Region	Vancouver Island (East) Rivers	Eastern Vancouver Island	Coastal Douglas-fir (CDF)	Surficial	54	89	42	Seasonal	Recharge	Shallow	Excellent	continue use
3	228	Cassidy	Vancouver Island	Vancouver Island & Coastal Region	Vancouver Island (East) Rivers	Eastern Vancouver Island	Coastal Douglas-fir (CDF)	Surficial	218	210	55	Seasonal and Haslam Ck.	Discharge	Deep	Excellent	appears to respond to flows on Haslam Creek,continue use
4	2	Abbotsford	Lower Mainland	Lower Fraser	Washington (Coast) Rivers	Western South Coast Mountains	Coastal Western Hemlock (CWH)	Surficial	63	193	46	Seasonal and pumping	Recharge	Shallow	Excellent	continue use
5	260	Quesnel	Thompson/Cariboo	Upper Fraser	Quesnel River/Fraser River	Fraser Plateau	Sub-Boreal Spruce (SBS)	Surficial	245		28	Pumping Interference, rising since 1988	Discharge	Deep	Excellent	discontinue reporting at RFC as repending to pumping effects
6	82	Barkerville	Thompson/Cariboo	Upper Fraser	Fraser River	Northern Columbia Mountains	Engelmann Spruce-Subalpine Fir (ESSF)	Bedrock	95	5000	41	Seasonal effect of snowmelt	Recharge	Shallow	Excellent, info. gap between 80-82	high elevation recharge area, climate response monitoring site, continue use
7	81	83 Mile	Thompson/Cariboo	Middle Fraser	Thompson River	Fraser Plateau	Interior Douglas-fir (IDF)	Bedrock	498	4000	41	Seasonal and long term climatic fluctuations	Discharge	Deep	Excellent / few gaps	responds to longer term climatic fluctuations, continue use
8	80	Clinton	Thompson/Cariboo	Middle Fraser	Thompson River	Fraser Plateau	Interior Douglas-fir (IDF)	Surficial	50	3050	41	Pumping Interference	Recharge	Shallow	Excellent	discontinue reporting at RFC as repending to pumping effects
9	35	Stump Lake	Thompson/Cariboo	Thompson	Thompson River	Fraser Plateau	Bunchgrass (BG)	Surficial	79	2574 (ground)	40	Seasonal	Discharge	Shallow	Excellent / few gaps	declining trend since late 1990s, consider discontinuing use at RFC as outside key areas for monitoring

Table 52

Item	Obs Well No.	Location	Region	Drainage Basins and regions (River Forecast Centre)	Major Watershed	Hydrologic Zone	Biogeoclimatic Zone	Aquifer Type	Well Depth (feet)	Collar Elevation (feet)	Duration of Record (Years)	Water Level Response	Recharge or Discharge Regime	Shallow or Deep Flow Regime	Quality of Hydrograph Record	Comments and Recommendations for Reporting
10	45	Westwold	Thompson/Cariboo	Thompson Basin	South Thompson River	Fraser Plateau	Interior Douglas-fir (IDF)	Surficial	55	2023	43	Seasonal, pumping and streamflow effects	Discharge	Shallow	Excellent / few gaps	continue use
11	180	Armstrong	Kootenay/Okanagan	Okanagan, Kettle and Similkameen Basins	Okanagan River	Northern Columbia Mountains	Interior Douglas-fir (IDF)	Surficial	123	1377	33	Local pumping interference	Discharge	Deep	Excellent	discontinue reporting at RFC as repending to pumping effects
12	174	Kalawoods	Kootenay/Okanagan	Okanagan, Kettle and Similkameen Basins	Okanagan River	Fraser Plateau	Interior Douglas-fir (IDF)	Surficial	133	1404	36	Appears to respond to runoff period and local pumping	Discharge affected by streamflow conditions	Deep	Good to Excellent	continue use
13	115	Mission Creek	Kootenay/Okanagan	Okanagan, Kettle and Similkameen Basins	Okanagan River	Okanagan Highland	Engelmann Spruce-Subalpine Fir (ESSF)	Bedrock	72	6000	38	Evident seasonal recharge effects to snowmelt	Recharge	Shallow	Excellent	high elevation recharge area, climate response monitoring site, continue use
14	282	Meyers Flat	Kootenay/Okanagan	Okanagan, Kettle and Similkameen Basins	Okanagan River	Southern Thompson Plateau	Pondersosa Pine (PP)	Surficial	55		25	responds to long-term climatic, runoff conditions	Recharge	Shallow	Good to Excellent	fluctuations in water levels related to long-term climate variations and runoff conditions, continue use
15	75	Keremeos	Kootenay/Okanagan	Okanagan, Kettle and Similkameen Basins	Okanagan River	Southern Thompson Plateau	Bunchgrass (BG)	Surficial	89	1357	41	Recharge during freshet and pumping effects,	Discharge	Deep	Good to Excellent	recharged during freshet possibly from Keremeos Creek, minor pumping effects, continue use
16	217	Grand Forks	Kootenay/Okanagan	Okanagan, Kettle and Similkameen Basins	Kettle River	Okanagan Highland	Pondersosa Pine (PP)	Surficial	29	1688	31	Recharge during freshet and pumping effects.	Recharge	Shallow	Good with minor gaps	recharged during freshet from Kettle River, minor pumping effects, continue use
17	309	Golden	Kootenay/Okanagan	Columbia Basin	Columbia River	Upper Columbia Basin	Interior Douglas-fir (IDF)	Surficial	148		19	Recharge during freshet	Recharge	Deep	Excellent	continue use
18	291	Cranbrook	Kootenay/Okanagan	Kootenay Basin	Upper Kootenay River	Central Kootenay Basin	Interior Douglas-fir (IDF)	Bedrock	250		23	Seasonal and pumping	Discharge	Deep	Excellent	continue use

Table 52

Table 53. General location of River Forecast Centre observation wells in relationship to key areas, priority aquifers and biogeoclimatic zones.

REGION	SUB REGION	KEY AREA	PRIORITY UNCONSOLIDATED AQUIFERS	EXISTING OBSERVATION WELLS IN UNCONSOLIDATED DEPOSITS	PRIORITY BEDROCK AQUIFERS	EXISTING OBSERVATION WELLS IN BEDROCK	BIOGEOCLIMATIC ZONES INCLUDING PRIORITY AQUIFERS	RIVER FORECAST CENTRE INDEX WELLS IN KEY AREA
Vancouver Island	Vancouver Island East	Cassidy-Nanaimo	161	OW312	162	OW337	CDF* and CWH	OW228
		Saanich-Mill Bay	206		608 & 680	OW65, 212, 240, 265, 338, 343 & 372	CDF	OW60 & 65
		Chemainus-Crofton	172	OW355			CDF and CWH	
		Parksville-Qualicum	216, 217, 219, 221, 662 & 664	OW295, 303, 304, 314 & 321			CDF and CWH	
		Comox	408	OW351			CWH	
		Cowichan	186,187,188, 189 & 197	OW204, 211, 233, 318, 320 & 345			CDF and CWH	
	Vancouver Island West	Alberni Valley			702		CWH	
		Metchosin-Sooke			606		CDF and CWH	
		Ucluelet	159	OW329			CWH	
	Gulf Islands	Saltspring-Galiano			320, 721, 722 & 723	OW258, 281, 327 & 373	CDF and CWH	
		Gabriola-Thetis			706, 709 and 731	OW196 & OW197	CDF	
		Pender-Mayne			447, 620, 710, 711,712 and 720	OW125, 128, 283 & 284.	CDF	
		Saturna			735 & 737	OW290 & 319	CDF	
	South Coast Islands	Quadra-Cortes	762, 753 & 841	OW383 outside aquifer 353			CWH	
		Alert Bay	858	OW201			CWH	
		Hornby-Denman			435, 740, 438 and 436	OW268 & 288	CDF	

REGION	SUB REGION	KEY AREA	PRIORITY UNCONSOLIDATED AQUIFERS	EXISTING OBSERVATION WELLS IN UNCONSOLIDATED DEPOSITS	PRIORITY BEDROCK AQUIFERS	EXISTING OBSERVATION WELLS IN BEDROCK	BIOGEOCLIMATIC ZONES INCLUDING PRIORITY AQUIFERS	RIVER FORECAST CENTRE INDEX WELLS IN KEY AREA
Lower Mainland	Fraser Valley	Fraser Valley South	15, 27, 33, 35, 36, 41, 50 & 58	OW2, 8, 15, 272, 275, 299, 301, 353, 354, 359, 360, & 361			CWH and CDF	OW2
		Fraser Valley North			18, 19, 68 and 882	OW349	CWH	
		Chilliwack-Vedder	6, 8, 9, 12, 13 & 20		890		CWH	
	Whistler	Whistler	390 & 395	OW352			CWH	
	Islands	Bowen Island			747 & 749		CWH	
		Gambier Island			549		CWH	
		Savary Island	834				CDF	
	Sechelt-Powell River	Sechelt	554/560		558, 559 & 561		CWH and CDF	
		Powell River	836	OW292	840		CWH and CDF	
Thompson / Cariboo	Thompson /Cariboo East	Quesnel	115, 116, 117, 359 & 370	OW260 & 364	118		SBS	OW260
		Salmon Arm	97, 98, 223, 229, 236, 289, 354 & 867	OW45, 185 & 365	110, 224 & 233		IDF, ICH and PP	OW45
		Kamloops	283, 286 & 728		250, 272 & 727		BG, PP, MS, ESSF, ICH and IDF	
		100 Mile House	423		124 & 126	OW78, 81 & 374	IDF	OW81
		North Thompson	769 & 770				IDF	
		Lower Nicola	74 & 77	OW296			BG and PP	
		Williams Lake	146, 147, 152 & 384	OW88	148	OW261	IDF	
		Cache Creek	133, 134 & 135	OW344 & 346			BG, PP and IDF	
	Thompson /Cariboo West	Lillooet	324 & 325				IDF and PP	
		Anahim Lake			767		SBPS	

Table 53

REGION	SUB REGION	KEY AREA	PRIORITY UNCONSOLIDATED AQUIFERS	EXISTING OBSERVATION WELLS IN UNCONSOLIDATED DEPOSITS	PRIORITY BEDROCK AQUIFERS	EXISTING OBSERVATION WELLS IN BEDROCK	BIOGEOCLIMATIC ZONES INCLUDING PRIORITY AQUIFERS	RIVER FORECAST CENTRE INDEX WELLS IN KEY AREA
Kootenay/ Okanagan	Okanagan /Kettle	North Okanagan	102,103,111,316,317, 346,347,349,352,353, 354 & 849	OW117,119,122,18 0,294,322 & 384	104, 107, 110, 350 & 351	OW311	IDF	OW180
		Kelowna	464, 463, 344 & 345	OW172,173,174, 236,262 & 305	304, 473, 861 & 863		IDF, PP, MS and ESSF	OW174
		Summerland	299 & 860	OW366,367 & 379	298 & 300		IDF, PP, MS and ESSF	
		Skaha Lake	261 & 264		260 & 263		IDF, PP, BG, MS and ESSF	
		Osoyoos	193, 194, 254, 255 & 257	OW96,101,105, 107, 282 & 332	808		IDF, PP and BG	OW282
		Similkameen	259	OW75,76,77 & 203			IDF, PP and BG	OW75
		Kettle Valley	158, 477,478 & 482	OW217 & 306			IDF and PP	OW217
	Kootenay /Columbia	Cranbrook-Kimberley	524, 525, 538 & 540		523, 537, 535 & 536	OW291	IDF, MS and PP	OW291
		Golden	456	OW308			IDF and MS	OW309
		Wardner - Jaffray	521 & 528	OW362	529		IDF and MS	
		Castlegar	505,507 & 508	OW74			ICH	
		Kootenay Lake	516				ICH	
		Invermere - Windermere	603				IDF	
		Creston	487		488		ICH and ESSF	
		Slocan	514		511		ICH	
Skeena/ Omineca/ Peace	Skeena/ Omineca	Prince George	92, 94 & 332	OW293 & 378	81, 84, 89 , 91 & 339		SBS	
		Terrace	570, 571, 572, 574 & 575				CWH	
		Smithers-Telkwa	582, 584 & 585	OW89 & 377	579		SBS	
		Vanderhoof-Fraser Lake	242 & 244	OW199	243 & 673		SBS	
		Burns Lake	645 & 649		644 & 651		SBS	
		Houston	659		658		SBS	
	Peace	Peace River	431, 442, 635 & 687	OW286	451 & 591	OW124	SBS and BWBS	

* Biogeoclimatic zones shown in red font have one or more observation wells.

Note: River Forecast Centre observation wells OW35 (Stump Lake), OW80 (Clinton), 82 (Barkerville) and 115 (Mission Ridge) are located outside of key areas.