

**Regional District of Nanaimo**

**NANOOSE  
BAY**

**Water Local Service Area  
Annual Report**

**2007**



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Appendix A - Map of Nanoose Bay Water Local Service Area

Appendix B - Water Quality Testing Results

Appendix C - Emergency Response Plan

## 1. Introduction

The following annual report describes the Nanoose Bay Water Local Service Area and summarizes the water quality and production data from 2007. This report also includes a summary of inquiries and complaints, completed and proposed maintenance activities, the Emergency Response Plan, and the Cross Connection Control Program.

This report is to be submitted to the Vancouver Island Health Authority by the Spring of 2008.

## 2. Nanoose Bay Water System

The Nanoose Bay Water Service Area was established in 1980 when the Eagle Heights water service area was merged with the Beachcomber/Seacrest/Dorcas Point water service area. Today, the Nanoose Bay Water Service Area comprises the majority of the properties within 300 metres of the ocean on the north shore of the Nanoose Peninsula. The water source for the Nanoose Bay Water Service Area comes from a series of groundwater wells located nearby. The water source is chlorinated and stored in three reservoirs. A map of the Nanoose Bay Water System is provided in Appendix A for reference.

### 2.1 Groundwater Wells

Six groundwater production wells are present near Northwest Bay Road, Claudet Road, Delanice Way, and Nuttal Drive in Nanoose Bay, B.C. Nanoose Well #5 has not been used since 2002 when saltwater intrusion was encountered. The well has not yet been closed permanently.

Well / Name	Well Depth	Wellhead Protection	Treated/Untreated with Chlorine
Nanoose #1	68.9 m	Yes	Treated
Nanoose #2	53.3 m	Yes	Treated
Nanoose #3	52.7 m	Yes	Treated
Nanoose #4	59.1 m	Yes	Treated
Nanoose #5	130.0 m	Yes	not in use
Nanoose #6	107.0 m	Yes	Treated

### 2.2 Reservoirs

Three service reservoirs are present in the Nanoose Bay Water System as follows;

- Beachcomber (steel construction) - 591 m<sup>3</sup> (130,000 imperial gallons) capacity
- Eagle Heights (concrete construction) - 341 m<sup>3</sup> (75,000 imperial gallons) capacity
- Dolphin (steel construction) - 455 m<sup>3</sup> (100,000 imperial gallons) capacity

### 2.3 Distribution System

The water distribution system in Nanoose Bay is comprised of 100mm and 150mm asbestos-concrete watermains, 150mm, 200mm, and 250mm PVC watermains, and 250mm ductile iron watermains. Fire hydrants are located throughout the system.

### 3. Water Sampling and Testing Program

Water sampling and testing is carried out weekly in the distribution system. The following table includes a summary of all testing:

Timing	Location	Tests
Weekly	RDN (in-house) Laboratory	Total coliforms, E.Coli Temperature, pH, Conductivity Chlorine residual, Salinity Total Dissolved Solids Iron, Manganese
Weekly (Health Dept. Requirement)	North Island Labs	Total, Fecal coliforms
Annual Source Water Testing	North Island Labs	Complete potability testing of each well
Annual System Water Testing	North Island Labs	Complete potability testing of distribution system

### 4. Water Quality - Source Water and Distribution System

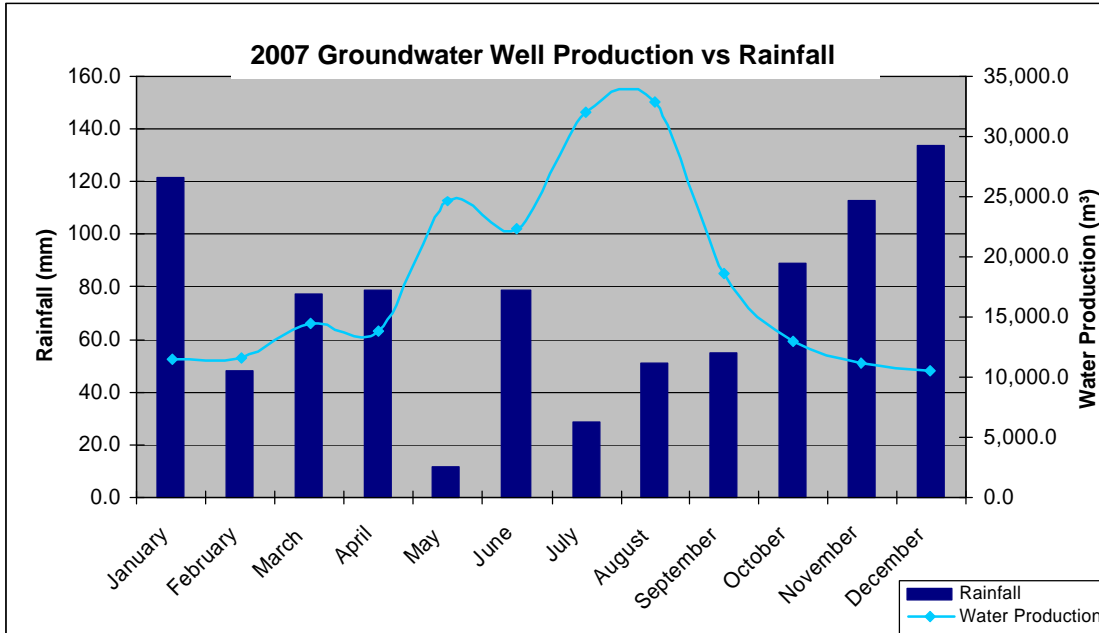
Up-to-date water quality reports and lab data are posted monthly on the RDN website at [www.rdn.bc.ca](http://www.rdn.bc.ca) in the WaterSmart section, under “Communities”. Tables of water quality testing results for both the source water and distribution system are provided at the end of this report under Appendix B.

### 5. Water Quality Inquiries and Complaints

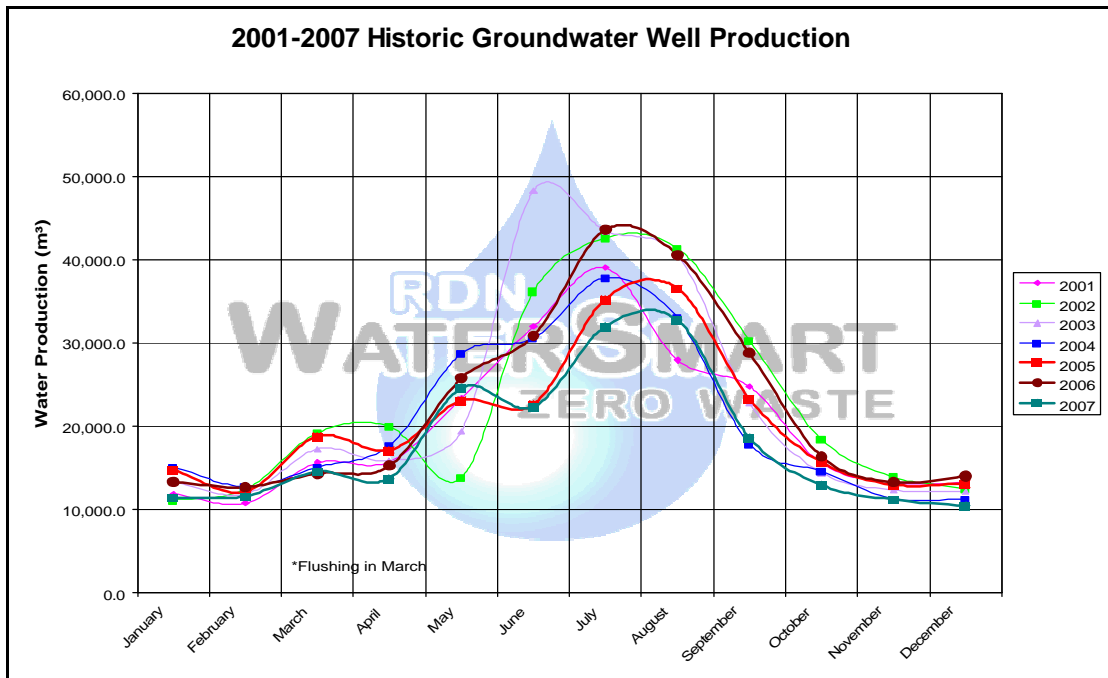
Very few complaints and inquiries were received from the Nanoose Bay water service area, and were typically related to iron and manganese in the tap water.

## 6. Groundwater Production and Consumption

The 2007 monthly groundwater production for Nanoose is shown in the chart below. There are 872 water service connections in Nanoose. Groundwater production has been charted against rainfall data from the City of Parksville website to show how rainfall affects the amount of groundwater pumped.



The monthly groundwater production for Nanoose for the past 7 years is shown in the chart below. Groundwater production in 2007 was typically lower than previous years.



### Consumption

In the Fall/Winter of 2007, the average usage per home in Nanoose was 0.52 cubic metres per day (114 imperial gallons). In the summer, the average water usage was 1.2 cubic metres per day (264 imperial gallons).

## **7. Maintenance Program**

Regular maintenance and inspections are completed around the wellhead areas to reduce or eliminate the risk of contamination and system failure. Watermains are flushed once annually; in the Spring.

## **8. Water System Projects**

### 8.1 2007 Completed Studies & Projects

- Nanoose Wells #2 and #4 were re-developed, and had variable speed drive units installed on the pumps.
- A Drinking Water - Watershed Protection Action Plan was completed.
- An Innovative Water Use and Re-Use Study was completed.
- A Water Use Bylaw - Best Practices Review was completed.
- A Nanoose Bay Peninsula Water Sourcing Study was completed.
- A formalized Cross Connection Control Program was initiated.
- A comprehensive water conservation program ([WaterSmart](#)) was carried out from May to October.
- The RDN [WaterSmart](#) website was updated and improved.
- The Emergency Response Plan was reviewed and updated.
- A SCADA (Supervisory Control and Data Acquisition) Study was initiated.
- A pilot treatment plant for iron & manganese removal from drinking water was set-up and run for a two-week trial.
- The annual watermain flushing was completed.

### 8.2 2008 Proposed Projects & Upgrades

- Develop and pump test new well on Claudet Road
- Upgrade Outrigger PRV station
- Upgrade Eagle Heights altitude valve
- Convert two abandoned wells to observation wells
- Radio Meter Pilot Study (for water meters)
- Well exploration program
- Upgrades to flush-outs
- New signage for all Utilities facilities
- Re-keying all locked facilities
- Implement innovative use and re-use technology
- Stand-alone water testing stations to be installed
- Promote Cross Connection Control awareness and facility audits

### 8.3 2008 Proposed Studies

- Complete SCADA study and integrate into 2009 budget
- Rainwater management strategy
- Sodium hypochlorite vs. on-site chlorine generation
- Comprehensive capital plan development

## 9. **Emergency Response Plan**

The Emergency Response Plan (ERP) was reviewed and updated in 2007. A copy of the ERP is attached in Appendix C.

## 10. **Cross Connection Control**

A formalized Cross Connection Control Program was initiated in 2007. Cross connection controls in-place include dual check valves at each service connection, fire hydrant use permits, and water supply bylaws noting discontinued service if a threat to the water supply is perceived by staff.

A consultant who specializes in municipal Cross Connection Control was hired to enhance the RDN Cross Connection Control Program in 2007/2008. The program in 2008 will include:

- A review and comparison of successful cross-connection control programs implemented by other small water systems nearby,
- A survey of existing or potential cross-connection risks for each category of RDN customer (i.e., residential, commercial, industrial, institutional, etc.),
- An audit of RDN-owned facilities in each water service area,
- The preparation of a draft bylaw to allow enforcement of the Cross Connection Control Program,
- The set up of a customer database with a maintenance history of testable backflow prevention assemblies at each facility, and
- Staff training and certification in Backflow Assembly Testing (BCWWA certified).

## 11. **Closing**

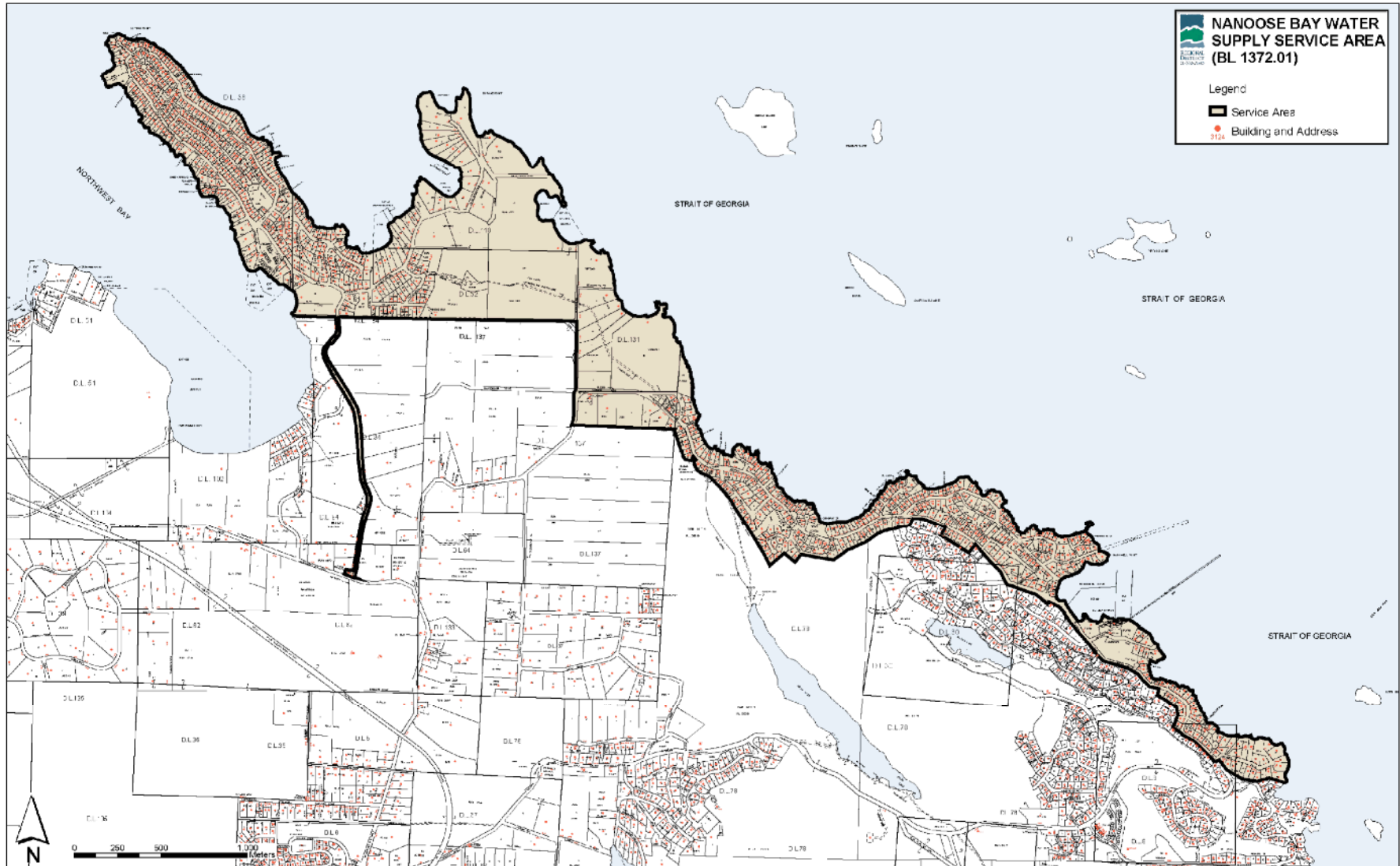
An annual report for the year 2008 will be prepared and submitted to the Vancouver Island Health Authority in the Spring of 2009. Annual reports are also available on our website at [www.rdn.bc.ca](http://www.rdn.bc.ca) in the WaterSmart section, under “Communities”.

**APPENIDX A**

**MAP OF NANOOSE BAY  
WATER LOCAL SERVICE AREA**



## NANOOSE BAY WATER LOCAL SERVICE AREA



## **APPENDIX B**

### **WATER QUALITY TESTING RESULTS**

## **APPENDIX C**

### **EMERGENCY RESPONSE PLAN**