

Fraser River Action Plan



Urban Runoff Quantification and Contaminants Loading in the Fraser Basin and Burrard Inlet

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URBAN RUNOFF QUANTIFICATION AND CONTAMINANTS LOADING IN THE FRASER BASIN AND BURRARD INLET

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DISCLAIMER

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1.0 INTRODUCTION

The pollution abatement component of the Fraser River Action Plan is charged with the task of identifying contaminants entering the Fraser River Basin from point and non-point sources. Contamination from sources including urban runoff, industrial and municipal discharges, agricultural runoff, groundwater, contaminated sites and airborne sources are to be quantified under this program. Information on contaminant quantification gathered from all these sources will eventually be linked on one Geographic Information System (GIS) to present basin-wide loadings in a concise form.

The current study is a planning-level assessment of surface water contaminant loadings to the Fraser Basin, including Burrard inlet, from urban runoff sources. The Fraser Basin study area is located in southern British Columbia and occupies approximately 25% of the land area of the Province. The Fraser Basin is divided into four separate hydrographic regions as shown on Figure 1. Similarly, Burrard Inlet is divided into four hydrographic regions (Figure 2). Runoff volumes and selected contaminant loadings have been quantified on a mean monthly basis for each chosen municipality, grouped for each hydrographic region, and combined to present mean monthly and mean annual loadings to both the Fraser River and Burrard Inlet. Twenty-five municipalities have been selected for consideration; combined they represent approximately 91% of the total basin population.

The B.C. Research report entitled *Urban Runoff Quality and Treatment: A Comprehensive Review* has been used as the primary source of data to quantify typical urban runoff contaminant concentrations, and has been supplemented by additional sources as required. The B.C. Research report recommends a range of typical municipal contaminant concentrations for planning purposes and states:

“It is apparent from the information reviewed that the quality of urban runoff must be investigated on a site-specific basis; data cannot be extrapolated from one location to another with any degree of confidence”.

Notwithstanding the above, for planning level studies such as the current project, typical concentration data is available from large databases compiled in the United States such as the Nationwide Urban Runoff Program (NURP) and from other sources. The B.C. Research report also concludes that because of the high degree of variability in typical values

“Where site - specific data are not available, there is little justification for differentiating among general land use categories” (residential, commercial, and industrial).

The B.C. Research report presents typical contaminant runoff concentration values for “general urban land use”. Typical values to be used for planning level studies are not available for individual land uses. In the current study, individual land use areas have been determined for each municipality for urban runoff considerations. However, for contaminant loading concerns, all urban land uses have been grouped together to obtain total urban area. This area is used as “general urban land use” to quantify contaminant loadings.”

One simplification of physical runoff conditions presented in the literature, including both the B.C. Research report and the NURP study is that no variation in typical concentration data is available to account for seasonal variations in quality. In areas with winter snowpack accumulation, higher than average concentrations of hydrocarbons, etc may be expected in spring melt runoff. While selected studies have attempted to quantify seasonal variations in parameter concentrations, insufficient data is currently available to warrant this level of analysis. Therefore, seasonal effects in concentration levels were not introduced into the current study.

Typical contaminant concentrations presented in the B.C. Research report identified as “estimates for planning purposes” have been used to quantify loadings, where available. The USEPA NURP literature, along with other sources, has been used to supplement B.C. Research information as required. The B.C. Research report reviewed extensive literature on site specific monitoring programs. Based on this review, the report recommends a range of estimated contaminant concentrations for planning purposes. In the current

planning level report, the estimated range recommended by B.C. Research has been adopted as an upper and lower concentration boundary. The loading of each contaminant has been quantified using these lower and upper estimates of concentration. A typical value has been presented to provide a “most-likely” loading. Thus, for each contaminant in each municipality, a low, typical, and high estimate of loading is provided.

The quantification of increase in contaminant loadings due to urban development is difficult. Many contaminants, such as suspended solids, nutrients, metals, BOD and COD are known to be present in storm runoff from undeveloped land. Typical pre-development loadings are difficult to quantify and vary widely through orders of magnitude. It should be noted that the urban runoff loadings contained in this report for several parameters cannot be solely attributed to anthropogenic sources, background loadings would be present in the absence of urban development.

Various contaminants considered in this report, such as oil and grease, phenols, pesticides and polycyclic aromatic hydrocarbons (PAH) are not present in undeveloped land runoff, their loading can be attributed entirely to anthropogenic sources.

Calibration of contaminant loadings through field sampling and analysis is not within the scope of this project. This study investigates, at a planning level of analysis, contaminant loadings based on typical runoff concentrations from the available literature. In order to refine contaminant loading estimates, a field sampling program is required. If site specific contaminant concentration data becomes available, more site specific estimates of contaminant loadings can rapidly be generated based on provided urban runoff volumes.

2.0 MUNICIPALITY SELECTION

Municipalities in the Fraser River and Burrard Inlet basin with a population in excess of 5,000 people have been investigated in this study. Data from the British Columbia Municipal Census was used to determine the 25 municipalities which met this criteria. The chosen municipalities, and their approximate population are presented in Table 2.1. The population of British Columbia as of June 4, 1991, based on the 1991 census, was 3,282,061. Information presented in Fraser River Action Plan literature states that 63% (2,067,700) of the population of British Columbia resides in the Fraser Basin. The 25 chosen municipalities in the basin with a population in excess of 5,000 contain approximately 91% of the total Fraser Basin population. Using these 25 municipalities provides a representative indication of urban runoff contaminant loadings, only 9% of the population which live in smaller centres and rural areas will not be considered. These smaller centres typically have a less developed urban core, and are not anticipated to contribute significantly to overall basin wide urban runoff,

Table 2.1
Selected Study Municipalities

Municipality	Population	Municipality	Population
District of Abbotsford	18,864	District of North Vancouver	75,157
City of Burnaby	158,858	District of Pitt Meadows	11,147
District of Chilliwack	49,531	City of Port Moody	17,712
City of Coquitlam	84,021	City of Port Coquitlam	36,773
District of Delta	88,978	City of Prince George	69,653
City of Kamloops	67,057	City of Quesnel	8,179
District of Langley	66,040	City of Richmond	126,624
District of Maple Ridge	48,422	District of Salmon Arm	12,115
District of Matsqui	68,064	District of Surrey	245,173
City of Merritt	6,253	City of Vancouver	471,844
District of Mission	26,262	District of West Vancouver	38,783
City of New Westminster	43,585	City of Williams Lake	10,385
City of North Vancouver	38,430	TOTAL	1,887,910

Notes 1. Population based on 1991 Census.

All 25 selected municipalities have been contacted to obtain land use information, including base plan drawings, Official Community Plans, and other available information. Land area for each of residential, commercial and industrial use have been quantified based on available information. These urban land use areas are individually used in the determination of runoff volumes but are grouped together as 'general urban' to estimate contaminant loadings. Area contained within the municipal boundaries which has not been developed, has not been included in our analysis. These non-urban areas will be available for consideration in subsequent studies on non-point contaminant sources.

The majority of chosen municipalities drain entirely into either the Fraser River Basin or into Burrard Inlet. However, four of the municipalities, the City of Port Moody, the City of Coquitlam, the City of Burnaby, and the City of Vancouver, are split to some degree between the two basins. In these situations, the urban runoff and contaminant loadings have been split based on contributing land area. Table 2.2 presents total urban and various land use areas for each of the municipalities which drain into a single basin. Table 2.3 presents the land area data for municipalities that are split between the Fraser Basin and Burrard Inlet.

Table 2.2
Land Use Data
Municipalities Draining Into Single Basin

Municipality	Basin	Total Municipal Area (ha)	urbanArea (ha)	Urbanized Land Area		
				Industrial (ha)	Comm/Inst (ha)	Residential (ha)
District of Abbotsford	Fraser	13,930	2,440	375	70	1,995
District of Chilliwack	Fraser	26,533	1,972	303	56	1,613
Corporation of Delta	Fraser	36,433	5,900	2,950	450	2,500
City of Kamloops	Fraser	31,142	9,724	1,316	1,077	7,331
Township of Langley	Fraser	31,765	4,112	1,029	178	2,905
District of Maple Ridge	Fraser	27,710	3,274	353	101	2,820
District of Matsqui	Fraser	21,921	2,280	165	145	1,972
City of Merritt	Fraser	871	487	140	86	261
District of Mission	Fraser	25,300	2,315	246	79	1,990
City of New Westminster	Fraser	2,200	2,200-	234	134	1,832
City of North Vancouver	Burrard	1,316	1,316	232	110	974
District of North Vancouver	Burrard	17,819	2,618	535	84	1,999
District of Pitt Meadows	Fraser	5,006	651	139	30	482
City of Port Coquitlam	Fraser	2,509	1,920	193	74	1,653
City of Prince George	Fraser	32,249	18,715	3,828	200	14,687
City of Quesnel	Fraser	2,480	2,011	1,023	75	913
City of Richmond	Fraser	16,819	11,060	4,240	280	6,540
District of Salmon Arm	Fraser	17,212	1,820	288	208	1,324
District of Surrey	Fraser	37,140	5,264	1,263	52	3,949
District of West Vancouver	Burrard	8,966	2,857	110	90	2,657
City of Williams Lake	Fraser	2,333	1,264	598	139	527

Table 23
Land Use Data
Municipalities Draining Into Multiple Basins

Municipality	Total Municipal Area (m ²)	Combined Urban Area (ha)	Fraser Basin (ha)			Burrard Inlet (ha)		
			Industrial (ha)	Commercial (ha)	Residential (ha)	Industrial (ha)	Commercial (ha)	Residential (ha)
City of Burnaby	10,674	9,788	934	650	7,290	240	18	686
City of Coquitlam	15,275	3,976	732	244	2,554	--	--	446
City of Port Moody	2,980	1,208	58	287	57	806
City of Vancouver	11,615	10,815	360	65	4,721	680	315	4,674

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Both the Fraser Basin and Burrard Inlet are divided into four hydrographic regions as shown on Figures 1 and 2. For the purposes of identifying areas in which to concentrate future programs, urban contaminant loadings will be grouped in accordance with these regional divisions. The four Fraser Basin regions, along with a listing of which municipalities drain into each region are presented in Table 2.4. Similarly, municipalities in the Burrard Inlet regions are presented in Table 2.5. Figure 3 illustrates the relative contribution of urban land area to the basin total for both Burrard Inlet and the Fraser River.

Table 2.4
Municipalities in Fraser Basin Hydrographic Regions

Region	Municipality
Lower Region	<ul style="list-style-type: none"> - City of Burnaby - City of New Westminster - City of Coquitlam - District of Pitt Meadows - District of Matsqui - Corporation of Delta - City of Richmond - City of Vancouver <ul style="list-style-type: none"> - District of Maple Ridge - District of Mission - District of Abbotsford - District of Chilliwack - Township of Langley - District of Surrey - City of Port Coquitlam - City of Port Moody
Middle Region	<ul style="list-style-type: none"> - City of Williams Lake - City of Quesnel
Thompson Region	<ul style="list-style-type: none"> - City of Kamloops - City of Merritt <ul style="list-style-type: none"> - District of Salmon Arm
Upper Region	<ul style="list-style-type: none"> - City of Prince George

Table 2.5
Municipalities in Burrard Inlet Hydrographic Regions

Region	Municipality
Outer Harbour	<ul style="list-style-type: none">- District of West Vancouver- City of Vancouver
Inner Harbour	<ul style="list-style-type: none">- District of North Vancouver- City of Vancouver- City of North Vancouver
Central Harbour	<ul style="list-style-type: none">- District of North Vancouver- City of Burnaby
Eastern Harbour	<ul style="list-style-type: none">- City of Port Moody- City of Coquitlam

3.0 URBAN RUNOFF QUANTIFICATION

3.1 GAUGE SELECTION

Environment Canada Atmospheric Environment Services (AES) operates numerous climatological measurement stations throughout British Columbia. These gauging stations are usually located within municipality boundaries and are considered representative of the local climatological regime. For the 25 municipalities under consideration, only the District of Matsqui did not have at least one AES gauging station located within its boundaries. For Matsqui an average of the nearby gauges in Abbotsford and Mission were used as representative of conditions in Matsqui.

Mean monthly data has been used for all hydrologic parameters, based on published AES climate normals. These normals are based on a 30 year period of record; current published data is for the period 1951 to 1980. AES is currently in the process of updating these climate normals to the period from 1961 to 1990. These updated normals were not available at the time of report preparation.

Various municipalities have numerous gauge locations within their boundaries, i.e. North Vancouver has 11 sites. For these locations, an average of monthly hydrologic data was considered representative of hydrologic conditions throughout the municipality. For a planning level study such as this, detailed municipality refinement including the creation of numerous sub-basins is not warranted: Gauges used in the analysis for each municipality are presented in the individual municipality data sheets located in Appendix B.

3.2 HYDROLOGIC DATA

Mean monthly precipitation data for the summer months is readily available from the AES database. In the winter months the climate can vary considerably through the Fraser Basin, from areas in which snowfall accumulations are rare to those where substantial accumulations can be found. In the Vancouver area where significant snowfall accumulations are uncommon, urban runoff can be expected throughout the year, with

peaks occurring in the winter months. In areas of average winter subzero temperatures little winter runoff is expected. Winter runoff conditions were assessed for each municipality on an individual basis. For those areas in which winter snowfall accumulations are normal, degree days of thaw data (based on the climate normal average month) were used to account for the melt contribution to urban runoff in the spring.

Snowmelt and Runoff

The most commonly used approach for forecasting snowmelt runoff is the use of a degree-day factor. Since snowmelt simplistically does not occur with temperatures below the freezing point, degree-days above 00 C are frequently used to establish the potential snowmelt runoff from study areas. The values of a degree-day snowmelt factor generally range between 2-5 mm of runoff per Celsius degree-day. Other studies suggest that to avoid being overly conservative in forecasting snowmelt, it is justified to calculate degree-days by decreasing mean daily temperature by 2" C.

The current study area in general can be characterized as a high precipitation region with large amounts of rainfall occurring in the winter months. These winter rainfall events can significantly intensify snowmelt.

Considering the above factors, and the planning nature of this study, it was assumed that a degree-day factor of 3 mm of runoff per degree Celsius above 0 °C would be used for forecasting snowmelt runoff. For the majority of municipalities there will be no snowfall accumulation on a monthly basis. In these locations, on average, all snow which falls is melted and runs off in the same month in which it was deposited.

3.3 RUNOFF COEFFICIENT SELECTION

Runoff coefficients are used to quantify the fraction of precipitation that will be conveyed as runoff from a given land use. As land use density increases, the runoff coefficient can be expected to increase. These coefficients are a lumped representation of numerous factors, including season, soil type, topography, rainfall event, etc. Typical values of runoff

coefficients are available tied on land use and rainfall event. As the intensity of a rainfall event increases, less runoff will infiltrate into the soil, and the runoff coefficient will increase. In the current study, mean monthly rainfall is considered. On a monthly average basis, rainfall intensities will be smoothed and a less intense rainfall pattern is anticipated. Runoff coefficients on a basin-wide basis should be in the lower end of the coefficient range.

In the summer months infiltration and depression storage capture a substantial portion of runoff. However, during the winter months these factors are less significant. At a planning level, it is anticipated that runoff coefficients should be higher in the winter months than in the summer. Based on the work of Swain (1983) and an annual runoff mass balance, the Greater Vancouver Regional District (*GVRD, 1988) determined typical residential runoff coefficients at 0.44 for the winter months and 0.23 for the summer. Stanley has conducted an assessment of seasonal runoff coefficient variation in the lower mainland (unpublished) which supports the GVRD recommendations. Typical runoff coefficients, and the modified values to account for summer conditions, are presented in Table 3.1. For the purposes of this analysis, the summer season is set from May 1st to September 30.

Table 3.1
Typical Seasonal Runoff Coefficients

Land Use	Summer	Winter
Residential	0.23	0.45
Commercial	0.65	0.70
Industrial	0.52	0.65

Hydrologic conditions vary widely throughout the Fraser Basin and Burrard Inlet. Annual rainfall varies from 170 mm in Kamloops to 2025 mm in North Vancouver. In addition, topography varies widely from moderately flat areas in the interior to areas with significant relief near the coast. In order to more accurately quantify urban runoff, a series of correction factors has been developed and applied to the various municipalities based on

average annual precipitation and topography. These adjustment factors have been established qualitatively.

Rainfall

Average annual rainfall will, in general, have an effect on the percentage of urban runoff. In areas with large annual rainfall, the soil will remain moist and less runoff will infiltrate into the soil. In dry areas, a larger portion of runoff will be absorbed by the soil, reducing runoff volumes. Based on average annual precipitation, runoff coefficients have been adjusted throughout the basin as per the qualitative factors presented in Table 3.2.

**Table 3.2
Runoff Coefficient
Adjustment Due to Annual Precipitation**

Annual Precipitation (mm)	Runoff Coefficient Adjustment
>1600	+ 10 %
1000 - 1600	+ 5 %
600-1000	No Change
<600	- 15 %

Topography

Topography also has an influence on runoff volumes. In very flat areas, overland runoff progresses more slowly and has a longer period of time in which to infiltrate. The converse is true in mountainous areas. Based on average topography in the municipality, runoff coefficients were adjusted as per Table 3.3.

Table 3.3
Runoff Coefficient
Adjustment Due to Topography

Topography	Runoff Coefficient Adjustment
Highly Contoured Moderate Flat	+ 5 - 10% No Change - 10%

These qualitative adjustments were made to seasonal runoff coefficients for each municipality on an individual basis. Table 3.4 presents the adjustments considered to base runoff coefficients for each municipality. Seasonally adjusted runoff coefficients for each land use in each municipality, along with the area-weighted runoff coefficient for each season is given in the municipality data sheets in Appendix B.

3.4. QUANTIFICATION

Mean monthly (and annual) urban runoff has been quantified for each of the 25 selected municipalities. For those municipalities which drain into both the Fraser Basin and Burrard Inlet, runoff volumes have been split between the two basins based on contributing drainage area. Figure 4 presents the contribution to mean annual runoff volumes in both the Fraser Basin and Burrard Inlet from each of the hydrographic regions. Of note is the increased proportion of Fraser Basin runoff attributable to the Lower Fraser Region, when compared to the contribution by area as presented in Figure 3. Municipalities in the Lower Fraser characteristically receive more annual precipitation than other Fraser Basin regions. Figure 5 represents mean monthly runoff volumes for each municipality draining into the Fraser Basin, while Figure 6 illustrates this information for those municipalities draining into Burrard Inlet. Tabular data for all runoff information is presented in Appendix B.

TABLE 3.4
MUNICIPALITY RUNOFF COEFFICIENT ESTIMATION

MUNICIPAL	ANNUAL PRECIP. (mm)	ADJUSTMENT DUE TO RAINFALL	GENERAL TOPOGRAPHY	ADJUSTMENT DUE TO TOPOGRAPHY
City of Kamloops	170	DECREASE 15%	MODERATE	NO CHANGE
City of Merrit	180	DECREASE 15%	CONTOURED	INCREASE 10%
City of Williams Lake	253	DECREASE 15%	CONTOURED	INCREASE 10%
City of Quesnel	342	DECREASE 15%	CONTOURED	INCREASE 10%
District of Salmon Arm	381	DECREASE 15%	CONTOURED	INCREASE 10%
City of Prince George	409	DECREASE 15%	CONTOURED	INCREASE 10%
District of Delta	849	NO CHANGE	FLAT	DECREASE 20%
City of Richmond	1188	INCREASE 5%	FLAT	DECREASE 20%
City of Vancouver	1285	INCREASE 5%	MODERATE	NO CHANGE
District of Surrey	1307	INCREASE 5%	FLAT	DECREASE 10%
District of Chilliwack	1438	INCREASE 5%	FLAT	DECREASE 10%
City of New Westminster	1472	INCREASE 5%	FLAT	DECREASE 10%
District of Matsqui	1498	INCREASE 5%	MODERATE	NO CHANGE
District of Abbotsford	1590	INCREASE 5%	MODERATE	NO CHANGE
District of Langley	1841	INCREASE 10%	MODERATE	NO CHANGE
District of Mission	1888	INCREASE 10%	MODERATE	NO CHANGE
City of Coquitlam	1725	INCREASE 10%	MODERATE	NO CHANGE
District of Pitt Meadowa	1731	INCREASE 10%	MODERATE	NO CHANGE
City of Burnaby	1780	INCREASE 10%	MODERATE	NO CHANGE
City of Port Coquitlam	1800	INCREASE 10%	MODERATE	NO CHANGE
District of Maple Ridge	1813	INCREASE 10%	MODERATE	NO CHANGE
City of Port Moody	1819	INCREASE 10%	MODERATE	NO CHANGE
District of West Vancouver	1988	INCREASE 10%	CONTOURED	INCREASE 5%
City of North Vancouver	2023	INCREASE 10%	CONTOURED	INCREASE 5%
District of North Vancouver	2023	INCREASE 10%	CONTOURED	INCREASE 5%

As anticipated, mean annual urban runoff volumes vary considerably throughout the study area, from a low of 697,000 m³ in the City of Merritt to a high of 89,800,000 m³ in the City of Burnaby. Of note is the prevalent trend of higher runoff volumes during the winter months. As contaminant loadings are ultimately based on runoff volumes in the current planning level study, this seasonal trend is important to note.

For reference, Figures 7 and 8 present mean monthly runoff and mean annual total runoff for the Fraser Basin and Burrard Inlet respectively. The contribution from each of the hydrographic regions is presented as well.

4.0 Contaminant Quantification

The Fraser River Pollution Abatement Program has identified 20 'specific urban runoff pollutants to be investigated and quantified. As previously discussed, several of these parameters are anticipated to be found at background concentrations in undeveloped watersheds. The extent of this pre-development loading is widely variable and difficult to quantify. Thus, for various naturally occurring parameters such as suspended solids, nutrients, metals, BOD and COD the total loading should not be considered as entirely produced from urban development. Parameters such as polycyclic aromatic hydrocarbons, oil and grease, phenols and pesticides can be wholly attributed to anthropogenic sources.

The USEPA NURP program investigated the use of both pollutant loading rates (mass per unit area per unit time) and event mean concentration (EMC) methods of quantifying contaminants loading. The NURP study found that pollutant loading rate methods were heavily affected by the individual storm characteristics (amount of precipitation and runoff). Given that all storms are not monitored, the NURP study concluded that large or small storms could bias the data. The event mean concentration (total contaminant mass divided by total runoff volume) was found to be less sensitive to the amount of storm precipitation. The NURP study concluded that the use of the EMC was the most robust basis for quantifying annual or seasonal contaminant loadings.

4.1 CONCENTRATIONS

Typical parameter concentrations for selected contaminants have been primarily based on data presented in the B.C. Research report. This report reviewed extensive literature from both the United States and Canada detailing the results of urban runoff sampling programs conducted at numerous locations. Based on this large database, B.C. Research selected a range of typical concentrations for use in planning level assessments. Although there are some studies conducted in British Columbia, including Hall and Anderson (1988), Lawson et al. (1985), Swain (1983) and Bennett (1983), the larger database of the NURP study and B.C. Research report will better reflect conditions from a planning perspective. The B.C. Research report considered these local British Columbia studies in selecting the range of

concentrations to be recommended for planning studies. Table 4.1 presents the urban runoff contaminants considered, as well as the estimated concentration range and typical values used in this report. It is interesting to note that the maximum and minimum observed concentrations are frequently orders of magnitude above and below this estimated concentration range. The concentration range presented in Table 4.1 does not represent the extremes of observed concentration, but rather is indicative of a reasonable range of concentration values typically observed

Table 4.1
Contaminant Concentration

Contaminant	Concentration Range	Typical Concentration
TSS (mg/L)	100-150	125
BOD (mg/L)	5-14	9
COD (mg/L)	6 0 - 8 0	70
Fecal Coliforms(MPN/100mL)	20-24,000	12,000.
Ammonia (mg/L)		
Nitrate/Nitrite (mg/L)	0.17-1.19	0.7
Total Nitrogen (mg/L)	1.5- 2.0	1.75
Total Phosphorus (mg/L)	0.3- 0.4	0.35
Lead ($\mu\text{g}/\text{L}$)	100-200	150
Copper ($\mu\text{g}/\text{L}$)	20-50	35
Zinc ($\mu\text{g}/\text{L}$)	100-200	150
Chromium ($\mu\text{g}/\text{L}$)	5-15	10
Cadmium ($\mu\text{g}/\text{L}$)	5-10	8
Nickel ($\mu\text{g}/\text{L}$)	20-30	25
Arsenic ($\mu\text{g}/\text{L}$)	10-15	13
Phenols ($\mu\text{g}/\text{L}$)	1-115	13
Oil and Grease (mg/L)	3-31.0	5
Total Hydrocarbons (mg/L)	1.8- 9.2	4
Polynuclear Aromatic Hydrocarbons (PAH) ($\mu\text{g}/\text{L}$)	0.3-12	1

Note: 1. MPN - most probable number.

The B.C. Research report provides "estimated (concentrations) for planning purposes" for many of the selected parameters. Contaminants for which estimates could not be obtained directly from the B.C. Research or NURP literature, -or those parameters which require additional information, are discussed in subsequent sections.

The use of a range of concentrations is justified in a basin-wide planning level study. Throughout the basin, differences in the character of residential and industrial developments can be expected to provide variation in contaminant concentrations. Further,

“Considerable variation in pollutant concentrations and loadings are typically observed at a particular site within single storm events, among different storm events, and among different rainfall years” (B.C. Research, Pg. 5).

In addition to the contaminant concentration variation between sites and between storm events at a particular site, seasonal variation can be expected. The state of investigation into urban runoff loadings has not reached any consensus on the magnitude of these influences.

Coliforms

Fecal coliforms are a unique contaminant. The range of concentration (measured as #/100 mL) representing the MPN (most probable number) from Swain (1983) varies between 20 and 24,000. Wailer (1972) found a mean value of 10,000/100 mL on the basis of 48 samples taken at two separate sites. For this study, a typical number of 12,000/100 mL has been used. Quantifying the loading of coliforms to the basin in the same manner as for a conservative pollutant such as oil and grease is not strictly correct. Coliforms exhibit simple first order die-off characteristics and, as such, their numbers will naturally decrease in the receiving watercourse. However, time of travel considerations (and resultant reduction in numbers) is beyond the scope of this study. The total number of coliforms potentially generated by urban runoff is presented.

Total Suspended Solids

Suspended solids impact aquatic life in receiving waters by inducing turbidity which can reduce feeding success rate for sight feeders, clog fish gills and smother benthal communities. In addition, various pollutants (such as toxic metals and organics are frequently attached to sediment particles. The concentration of suspended solids observed in studies in the literature varies considerably. Based on a review of data obtained from various studies in British Columbia (Swain, 1983; Lawson et al, 1985; and Hall and Anderson, 1988) as well as other sources including the NURP database, a typical concentration range of 100-150mg/L was recommended in the B.C. Research Report.

Biochemical Oxygen Demand

Biochemical Oxygen Demand (BOD) is often used to quantify oxygen demand. However, concerns have been raised with regard to its applicability in representing urban runoff due to the potential inhibition of biological activity attributable to contaminants in the runoff. The B.C. Research Report does not present typical BOD estimates for use in planning studies. However, the results of Stahre and Urbonas (1990) are presented which show a mean BOD between 9 and 10 mg/L for residential, commercial and general urban land use, with a coefficient of variation between approximately 0.4 and 0.5. For the planning purposes of this study a mean BOD of 9 mg/L was chosen, with a coefficient of variation of 0.5. Therefore, the BOD range used in this study was from a low of 5 mg/L to a high of 14 mg/L, with a typical value of 9 mg/L

Chemical Oxygen Demand

Chemical Oxygen Demand (COD) estimates the amount of dissolved oxygen consumed by the chemical oxidation of organic matter. While BOD estimates may be in error due to the influence of runoff contaminants, the COD estimate may also be erroneous when applied to stormwater samples. The COD estimate includes organics that may not be biodegradable (and therefore would not exert an oxygen demand) as well as reduced inorganic substances. Of the two oxygen consumption estimates, the COD estimate has

gained favour for use in urban runoff studies. The B.C. Research report recommends a COD estimate of between 60 and 80 mg/L for use in planning studies.

Total Hydrocarbons

Anderson (1982), as reported in the B.C. Research report, investigated industrial, commercial and residential areas in British Columbia. The Anderson study found that for all three land use categories combined, the range of total hydrocarbons varied from 1.8 to 9.2 mg/L. Mean values of total hydrocarbons, reported as iso-octane, were 3.3 mg/L (residential), 4.3 mg/L (commercial) and 7.5 mg/L (industrial). Given the typical land use distribution found in most municipalities, a typical value of 4 mg/L will be used for planning purposes.

Phenols

Two studies considering general urban land use, Cole et al. (1983) and Calvin and Moore (1982), found maximum phenol concentrations of 115 µg/L. These same studies found minimum phenol concentrations of 1 µg/L and 8 µg/L respectively. Other studies have found concentrations in the same range, with mean values between 9 and 13 µg/L. The range of phenol concentrations used in the current planning level study uses a low of 1 µg/L and a high of 115 µg/L. The work of Swain (1983) found phenol concentrations in approximately the same range, and provided a mean value of 13 µg/L. This mean will be used as a typical value in the current study.

Polynuclear Aromatic Hydrocarbons

The NURP program in the United States found a concentration ranging between 0.3 and 12 µg/L for Total Polynuclear Aromatic Hydrocarbons (PAH). Other studies have found PAH concentrations from 0.01 to 98 µg/L, however these studies were less extensive than the NURP investigation. The concentration range recommended by the NURP study (0.3-12 µg/L) is adopted in the current study. A typical value of 1 µg/L has been used, based on the study of Marsalek and Schroeter (1988), conducted in Seattle.

Organic Pesticides

The NURP program, Cole et al. (1983), recommends a range between 0.0027 and 10 µg/L based on results of the nationwide sampling program, no information is presented on an appropriate mean value. However, Calvin and Moore (1982) found pesticide concentrations up to 0.35 µg/L in Seattle. Pesticide application and runoff is highly seasonal and represents a whole family of compounds. This general parameter has been removed from the list of contaminants under consideration.

Oil and Grease

Typical values for oil and grease are not presented in either of the NURP database nor the B.C. Research report. Data on observed concentrations is scarce. Swain (1983) found concentrations of up to 27.6 mg/L in residential development (with a mean of 3 mg/L). Lawson et al. (1985), investigating an industrial development, found concentrations up to 35.7 mg/L Given that a typical urban land use is a blend of these land uses, an upper limit of 31 mg/L was used to estimate general urban use. No data is given in the B.C. Research report on the distribution of concentration. For planning purposes a low estimate of 3 mg/L was used. Mean values observed ranged between 3 mg/L for residential developments to 7.8 mg/L in industrial, an estimate of 5 mg/L was used in the current study as a typical concentration.

Ammonia

Data on typical ammonia concentrations is quite minimal. None of the NURP studies or USEPA databases referenced in the B.C. Research Report quote typical ammonia numbers. Two studies conducted in British Columbia, Swain (1983) and Lawson et al. (1985), have considered ammonia in residential and industrial areas, respectively. Ammonia concentrations range from non-detectable to 0.74 mg/L in residential and to 0.94 mg/L in industrial developments. Given a typical general urban land use, minimum and upper limits of 0 and 0.80 mg/L were chosen for this planning study. Mean values varied

between 0.09 mg/L and 0.17 mg/L, a value of 0.15 is used herein as an estimate of typical concentration.

Nitrate and Nitrite

NURP studies found a typical concentration ranging (within one standard deviation of the mean) for general urban land use between 0.17 mg/L and 1.19 mg/L (Stahre and Ubonas (1990). These limits were used in the current study. The B.C. Research Report recommends a mean concentration of 0.7 mg/L based on numerous studies. A value of 0.7 mg/L has been adopted as a typical concentration.

Metals

Of all pollutants in urban runoff, Whipple et al. (1987) concluded that heavy metals have the greatest potential to adversely impact aquatic life. Metal chemistry can become quite complex, including discussions on the bioavailability of the metal in a particular phase, settling resuspension, solubilization, etc. These discussions are beyond the scope of this study. For the purposes of the current planning level study, a range of typical concentrations (as presented in the B.C. Research report) were used to obtain an estimate of metals loadings.

4.2 QUANTIFICATION

Mean monthly (and annual) loadings based on typical concentrations for each of the selected contaminants for the combined Fraser Basin are presented in Figure 9. Figure 10 presents this information for Burrard Inlet. Again, it should be noted that the values presented are estimates for planning level assessments. Site specific sampling is necessary to obtain more accurate values. Tabular data of this information is presented in Appendix B.

As anticipated from the runoff quantification exercise, larger mean monthly loadings are observed in the winter months. This, of course, is attributable to a single contaminant

concentration value being applied to all monthly data, with no seasonal effects introduced. Annual loadings of all parameters are higher to the Fraser Basin than to Burrard Inlet, as a result of the larger urban land use area (and consequent runoff) in the Fraser Basin.

A comparison of mean annual contaminant loadings for each parameter between the Fraser Basin and Burrard Inlet is presented in Table 4.2. The mean annual loadings presented in Table 4.2 are based on typical contaminant concentrations-and should not be considered as an absolute value of loadings.

Table 4.2
Mean Annual Contaminant Loading

Contaminant	Fraser Basin (tonnes)	Lower Fraser (tonnes)	Thompson (tonnes)	Middle Fraser (tonnes)	Upper Fraser (tonnes)	Burrard Inlet (tonnes)	Outer Harbour (tonnes)	Inner Harbour (tonnes)	Central Harbour (tonnes)	Eastern Harbour (tonnes)
TSS	62,782	54,584	1,689	913	5,598	16,638	5,741	6,969	2,038	1,889
BOD	4,520	3,930	121.6	65.8	402.9	1,198	413.3	502	146.7	136
COD	35,158	30,567	946.1	511	3,134	9,318	3,214	3,902	1,141	1,058
Fecal Coliforms	60.3 (1)	52.4 (1)	1.6 (1)	0.9 (1)	5.4 (1)	16.0	5.5	6.7	2.0	1.8
Ammonia	75.3	65.5	2.0	1.1	6.7	20.0	6.9	8.4	2.4	2.3
Nitrate/Nitrite	351.6	305.7	0.5	5.1	31.3	93.2	32.1	39.0	11.4	10.6
Total Nitrogen	878.9	764.2	23.7	12.8	78.3	232.9	80.4	97.8	28.5	26.5
Total Phosphorus	175.8	152.8	4.7	2.6	15.7	46.6	16.1	19.5	5.7	5.3
Lead	75.3	65.5	2.0	1.1	6.7	20.0	6.9	8.4	2.4	2.3
Copper	17.6	15.3	0.5	0.3	1.6	4.7	1.6	2.0	0.6	0.5
Zinc	75.3	65.5	2.0	1.1	6.7	20.0	6.9	8.4	2.4	2.3
Chromium	5.0	4.4	0.14	0.07	0.45	1.33	0.46	0.56	0.16	0.15
Cadmium	4.0	3.6	0.1	0.06	0.36	1.1	0.37	0.45	0.13	0.12
Nickel	12.6	10.9	0.3	0.18	1.1	3.3	1.15	1.39	0.41	0.38
Arsenic	6.5	5.7	0.2	0.1	0.6	1.7	0.6	0.7	0.2	0.2
Phenols	6.5	5.7	0.2	0.1	0.6	1.7	0.6	0.7	0.2	0.2
Oil and Grease	2,511	2,183	67.6	36.5	223.8	665.4	229.8	278.7	81.5	75.6
Total Hydrocarbons	2,009	1,747	54.1	29.2	179.1	532.3	183.7	223.0	65.2	60.5
Polynuclear Aromatic Hydrocarbons	0.50	0.44	0.01	0.01	0.04	0.13	0.05	0.05	0.02	0.02

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Notes: (1) Fecal coliforms are measured in number of coliforms x 10

5.0 CONCLUSIONS AND RECOMMENDATIONS

Mean monthly urban runoff volumes and typical contaminant loadings have been quantified for 25 municipalities in the Fraser Basin, including Burrard Inlet. These municipalities, which contain 91% of the basin population, can be considered representative of urban loading sources throughout the study area. The current study is to serve as a planning level document to spearhead further investigation.

Contaminant concentrations were based on typical ranges found in extensive studies throughout North America. However, the extrapolation of site specific data from one location to another, for any use other than a preliminary planning study, should be discouraged. The use of this data for the current study is useful in 'scoping' the magnitude of urban runoff loadings to the receiving watercourses.

For this planning level study, contaminant loadings have been determined based primarily on volume of urban runoff. As uniform contaminant concentration was used for all municipalities, the variation in loading between locations is based on urban runoff volumes. Figure 4 clearly illustrates that the Lower Fraser Region in the Fraser Basin is the largest contributor of urban runoff in the study area, and is the prime location to focus subsequent investigation.

Over the entire study area, mean annual urban runoff volume can be used to pinpoint specific municipalities for review. It should be noted that the current study has not investigated site-specific conditions in any municipality. Inclusion in the following list of selected municipalities does not indicate that runoff contamination is particularly prevalent in any municipality, but rather indicates that by virtue of size and climatological conditions that the potential for large contaminants loading is present. Based on annual urban runoff volume, Table 5. I provides a "top ten" list of municipalities for further, more detailed investigation. Annual runoff can be used to approximately quantify risk potential.

Table 5.1
Municipalities for
Future Investigation

Municipality	Mean Annual Urban Runoff		
	Fraser Basin ($\times 10^6 \text{m}^3$)	Burrard Inlet ($\times 10^6 \text{m}^3$)	Total ($\times 10^6 \text{m}^3$)
City of Burnaby	81.1	8.7	89.8
City of Vancouver	30.2	35.1	65.3
City of Richmond	64.4	..	64.4
District of Pitt Meadows	60.0	..	60.0
City of Prince George	44.7	..	44.7
City of Coquitlam	32.8	3.8	36.6
District of Langley	36.2	..	36.2
District of Surrey	31.7	..	31.7
District of North Vancouver	..	30.4	30.4
District of West Vancouver	..	28.4	28.4

In order to obtain a better understanding of the urban runoff loadings in the Fraser Basin, several site specific monitoring programs should be undertaken. The municipalities presented in Table 5.1 represent ideal sites for the initiation of such a program. However, these municipalities in general represent high precipitation municipalities in the Lower Fraser Region and Burrard Inlet. It may be advantageous to include selected municipalities in a lower precipitation area in an effort to quantify the effect of precipitation on contaminant concentration, if present. Any sampling program must be carefully planned prior to implementation to ensure valid results.

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APPENDIX A
REFERENCED FIGURES

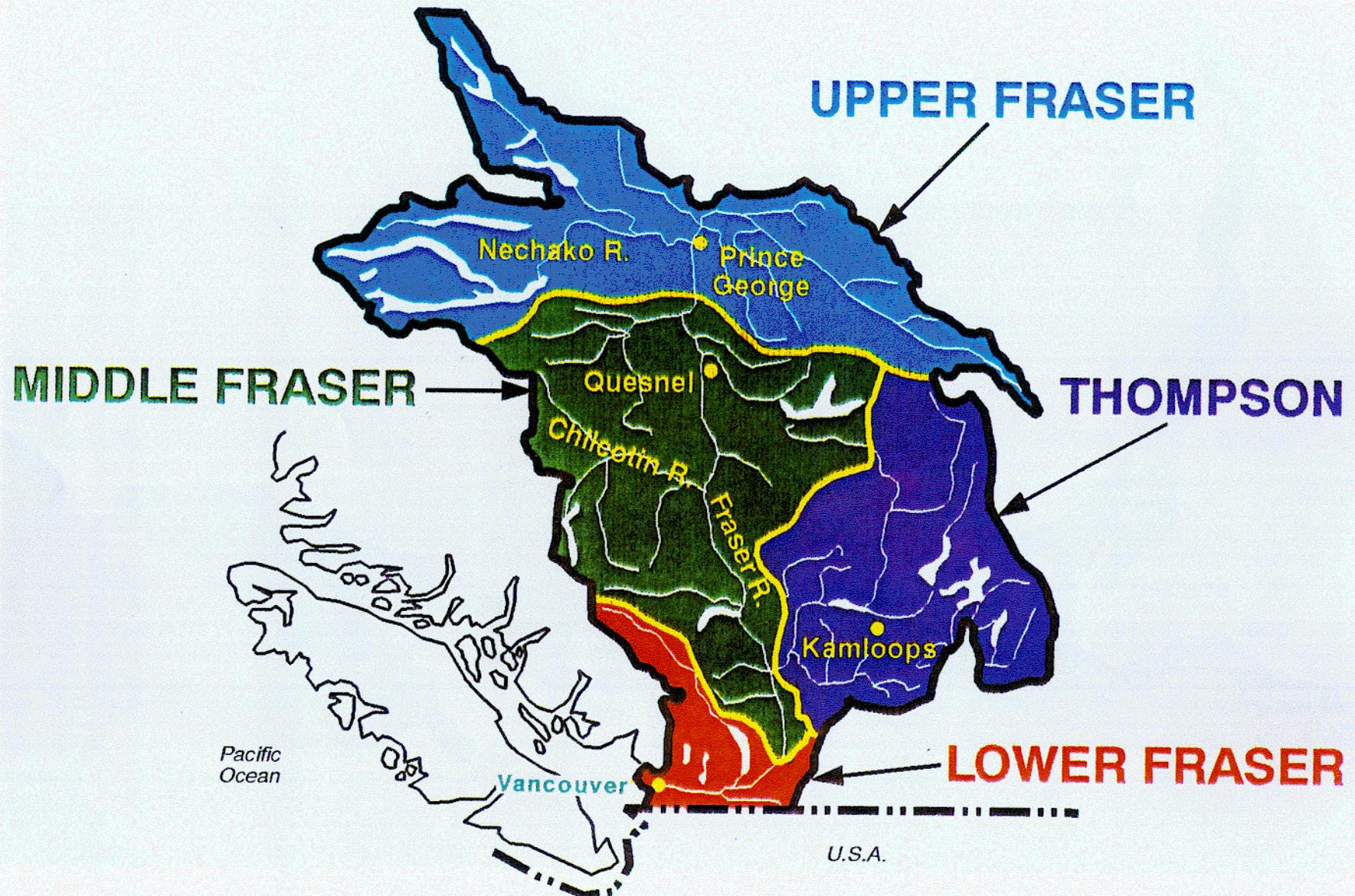


Figure 1

FRASER BASIN SITE PLAN
AND HYDROGRAPHIC REGIONS

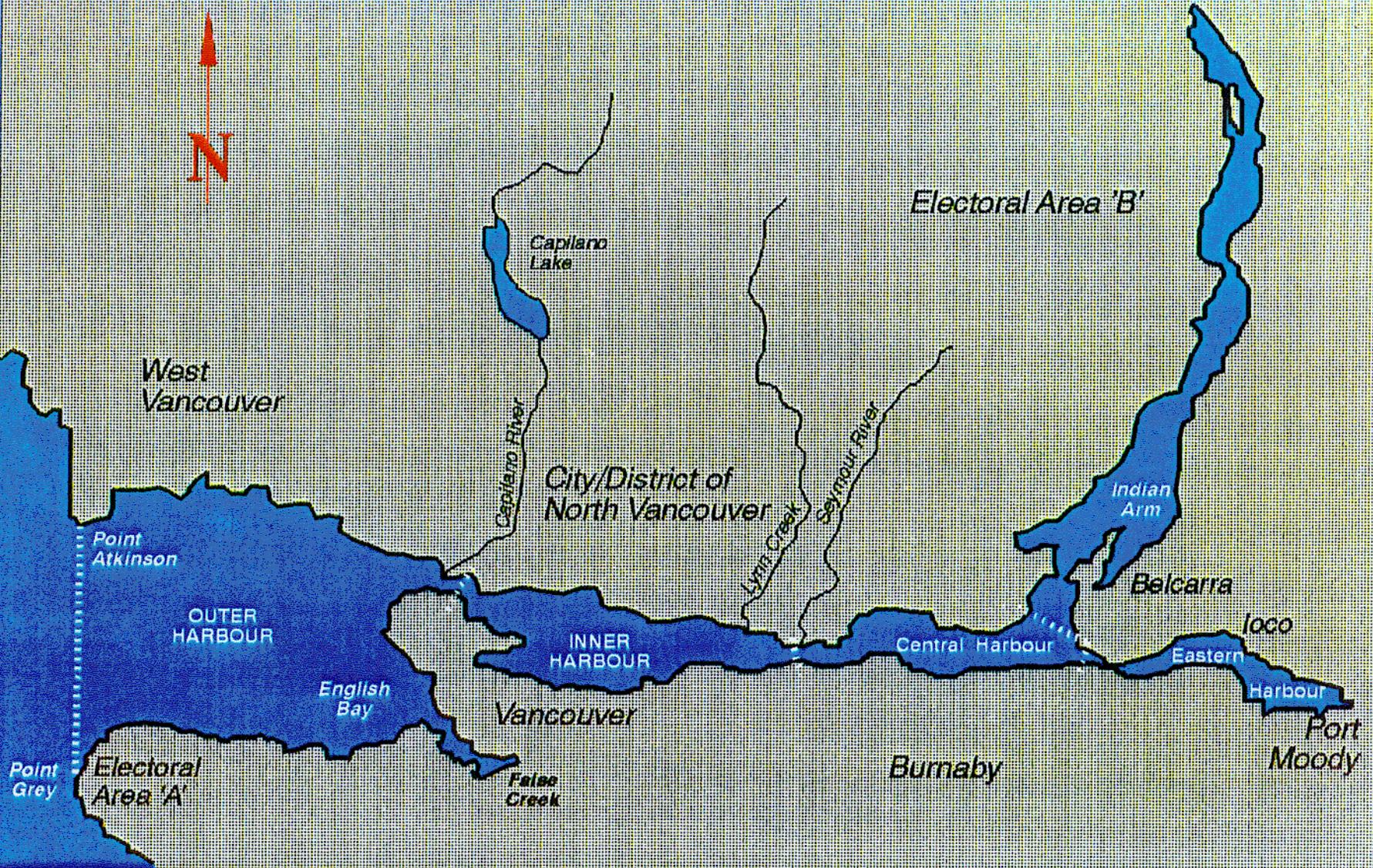


Figure 2

BURRARD INLET SITE PLAN
AND HYDROGRAPHIC REGIONS

FIGURE 3- URBAN AREAS CONTRIBUTION

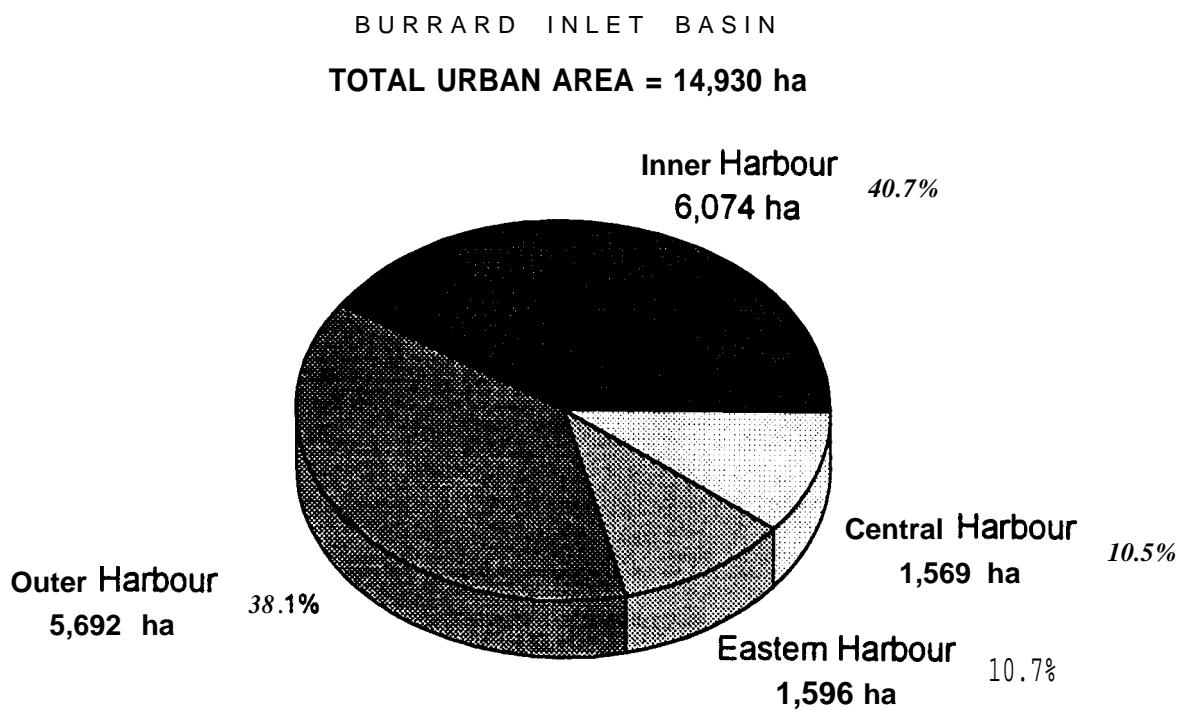
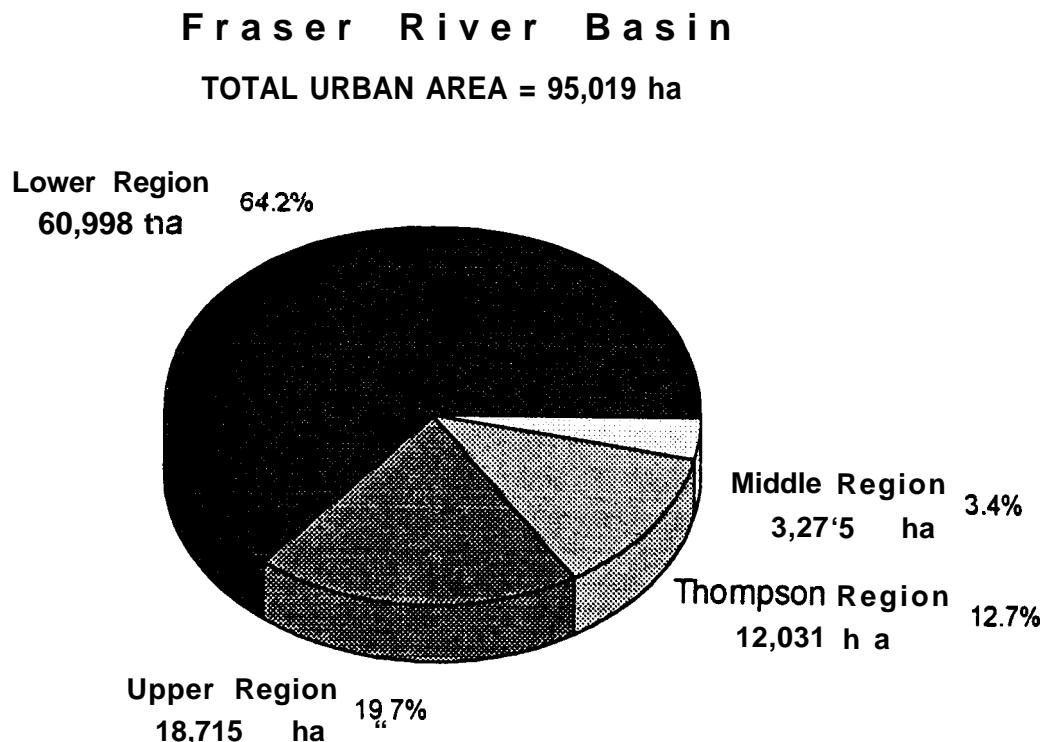
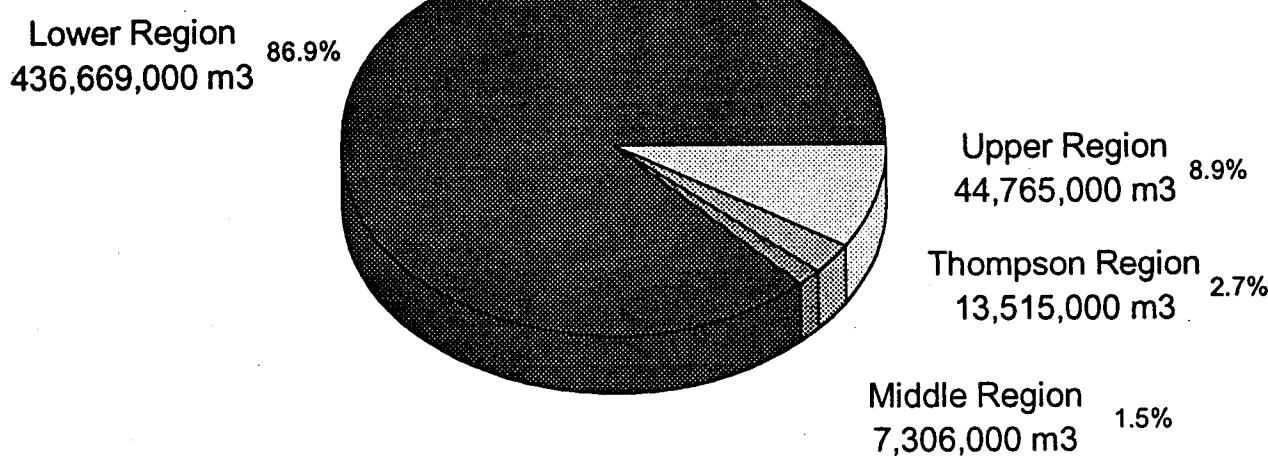


FIGURE 4 - REGIONAL RUNOFF CONTRIBUTION

FRASER RIVER BASIN

TOTAL ANNUAL URBAN RUNOFF = 502,255 ,000 m³



BURRARD INLET BASIN

TOTAL ANNUAL URBAN RUNOFF = 133,086,000 m³

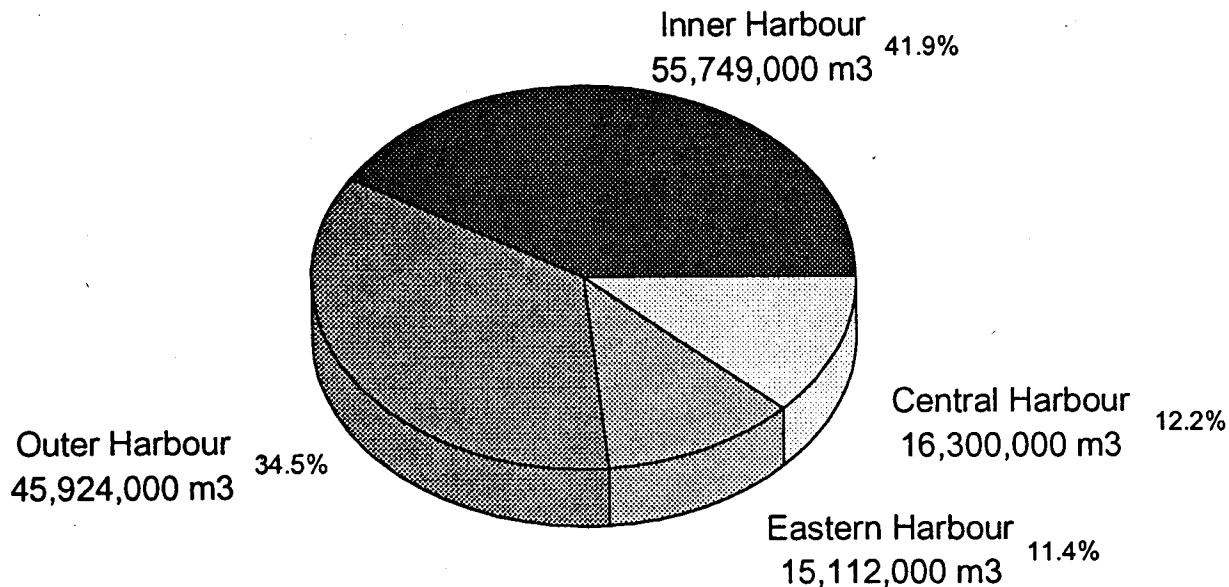
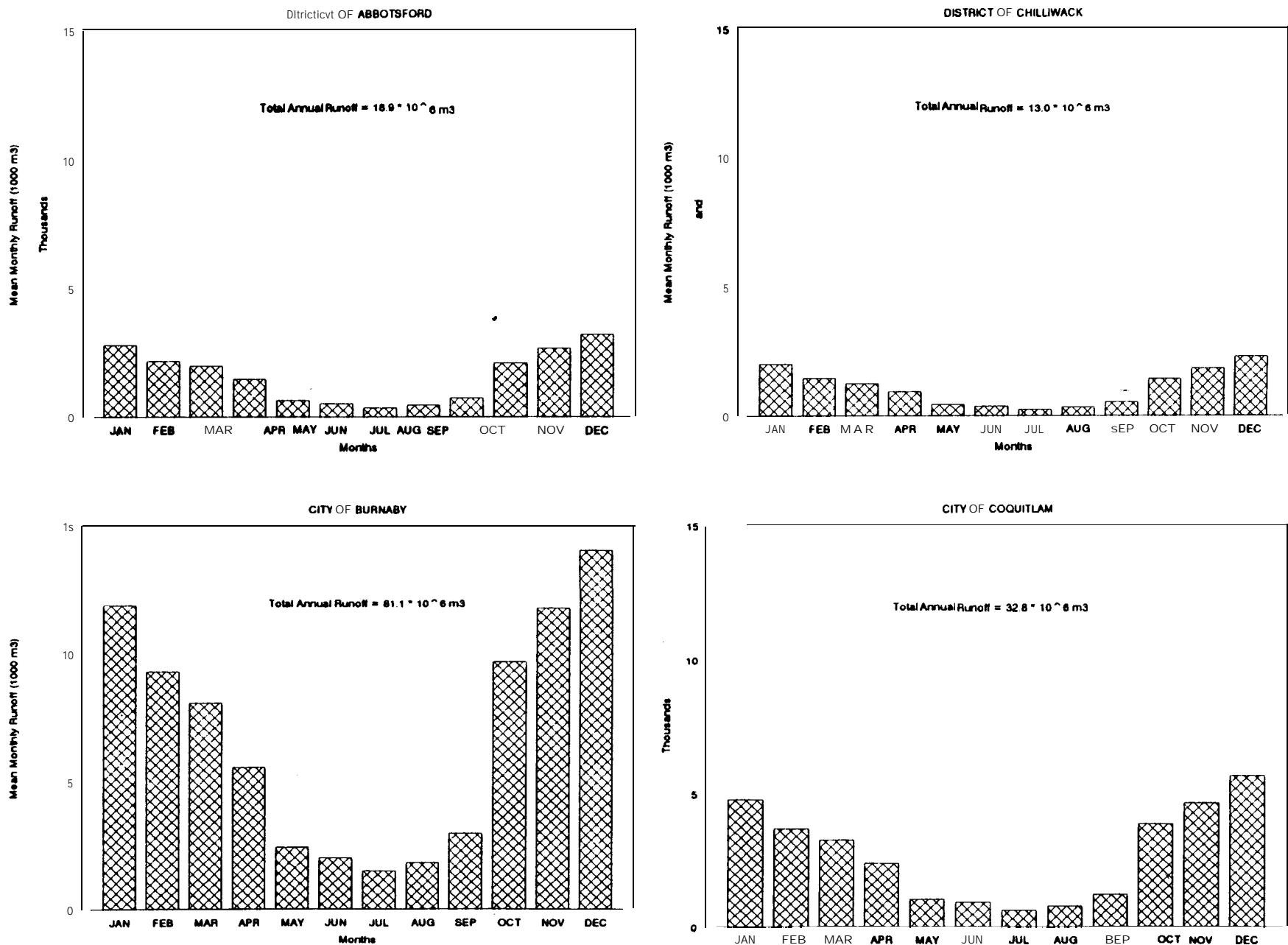
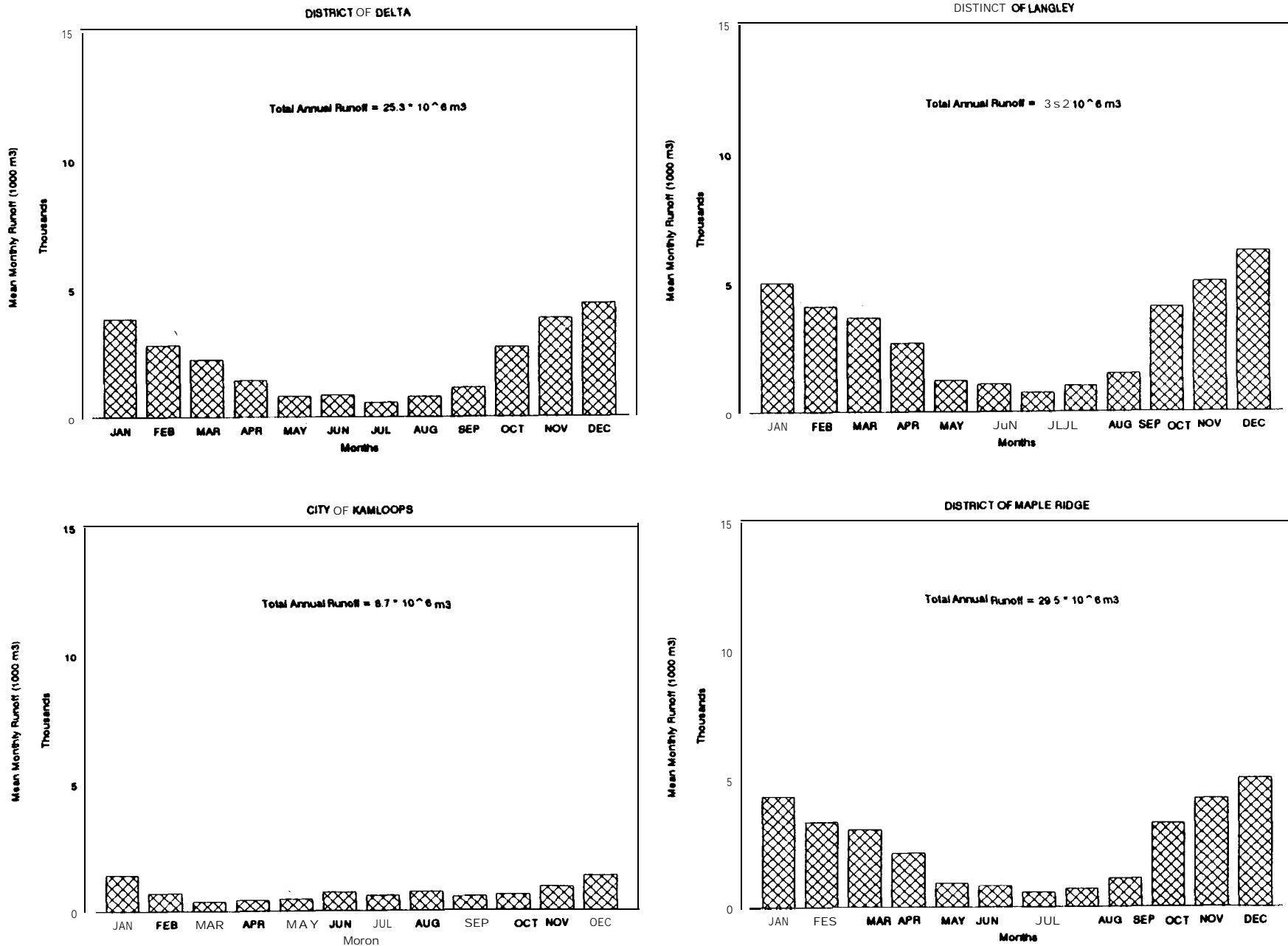


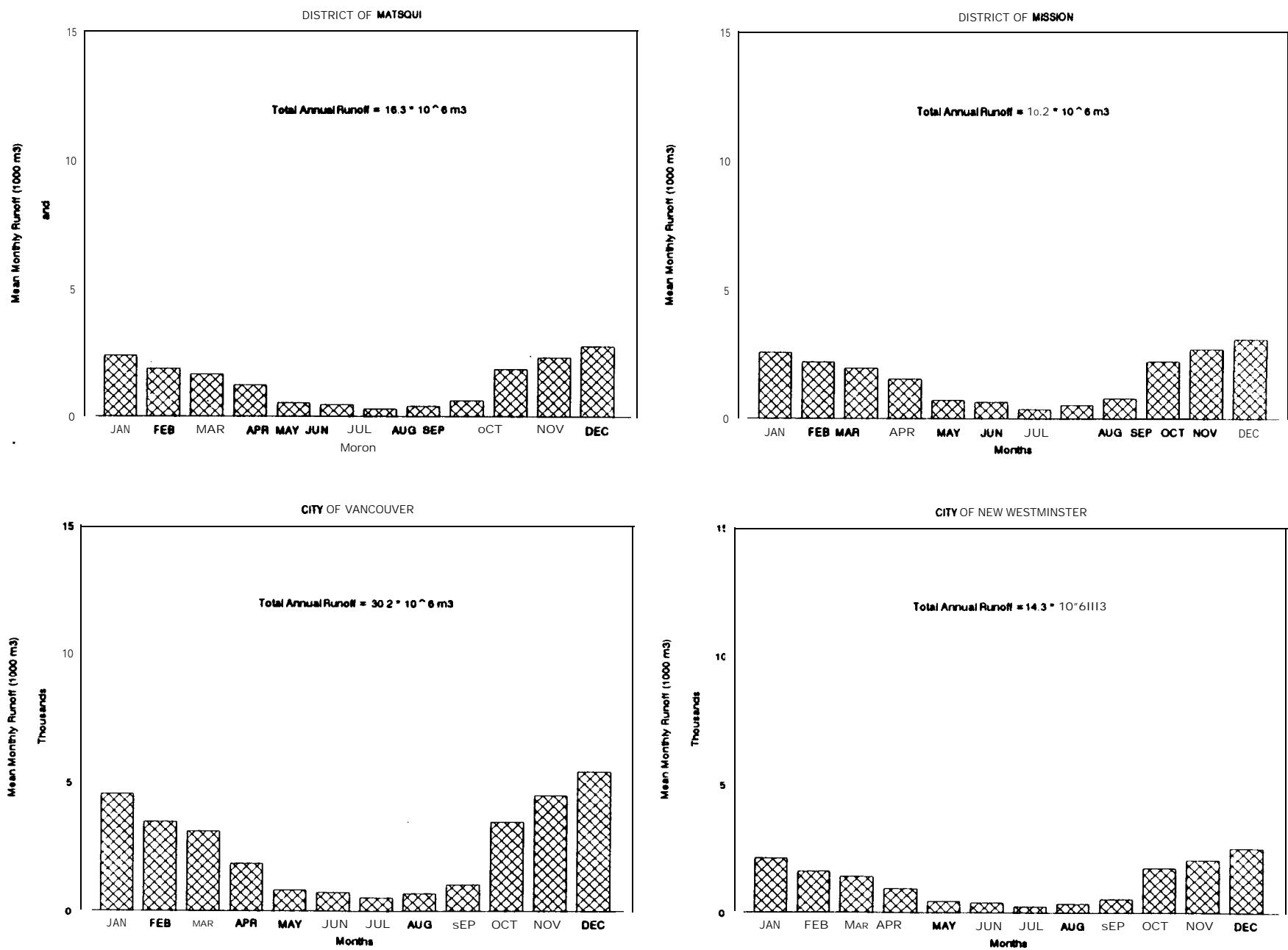
FIGURE 5 – MONTHLY URBAN RUNOFF VOLUMES FRASER RIVER BASIN



**FIGURE 5(cont.) – MONTHLY URBAN RUNOFF VOLUMES
FRASER RIVER BASIN**



**FIGURE 5(cont.) – MONTHLY URBAN RUNOFF VOLUMES
FRASER RIVER BASIN**



**FIGURE 5(cont.) – MONTHLY URBAN RUNOFF VOLUMES
FRASER RIVER BASIN**

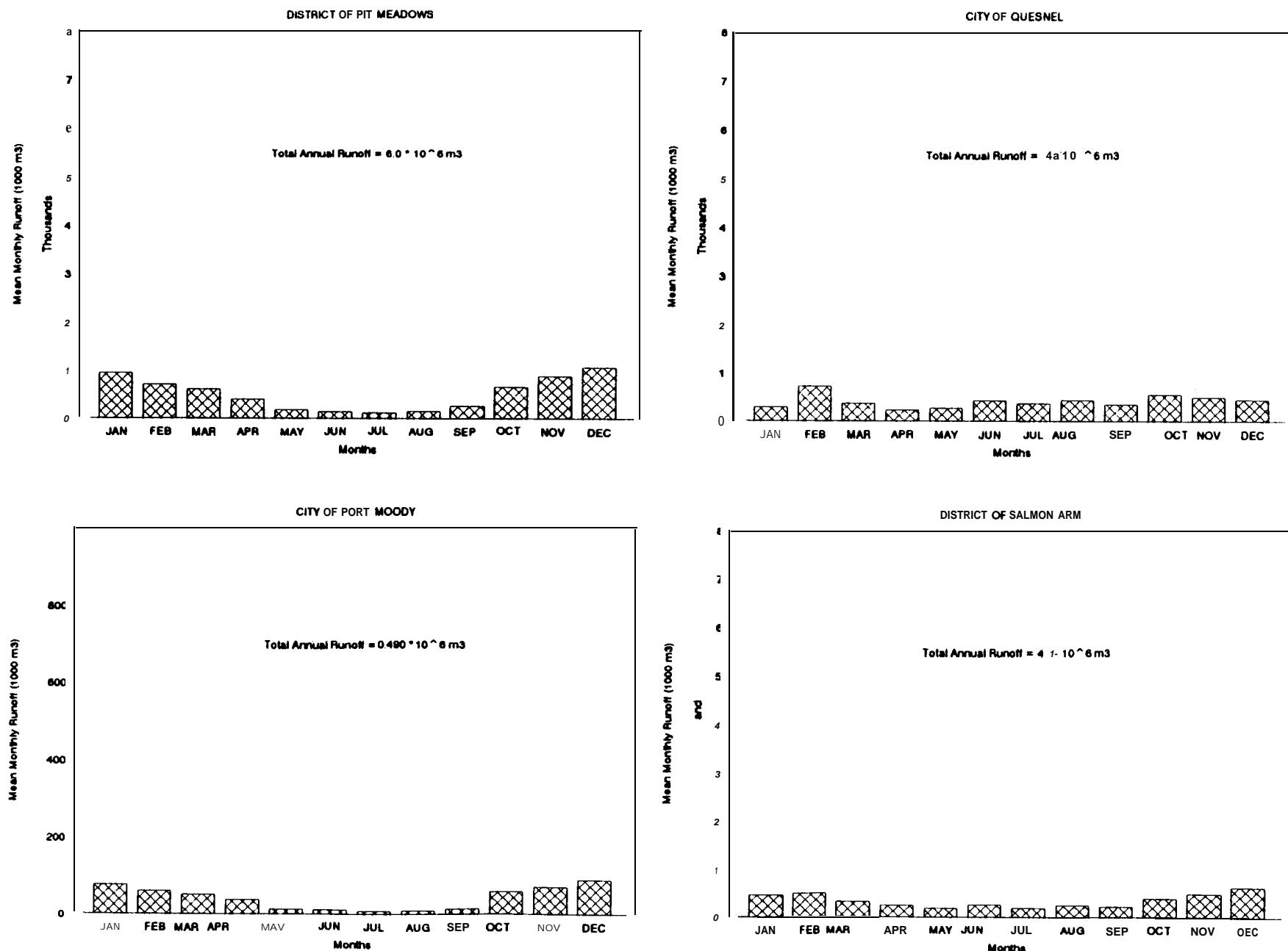


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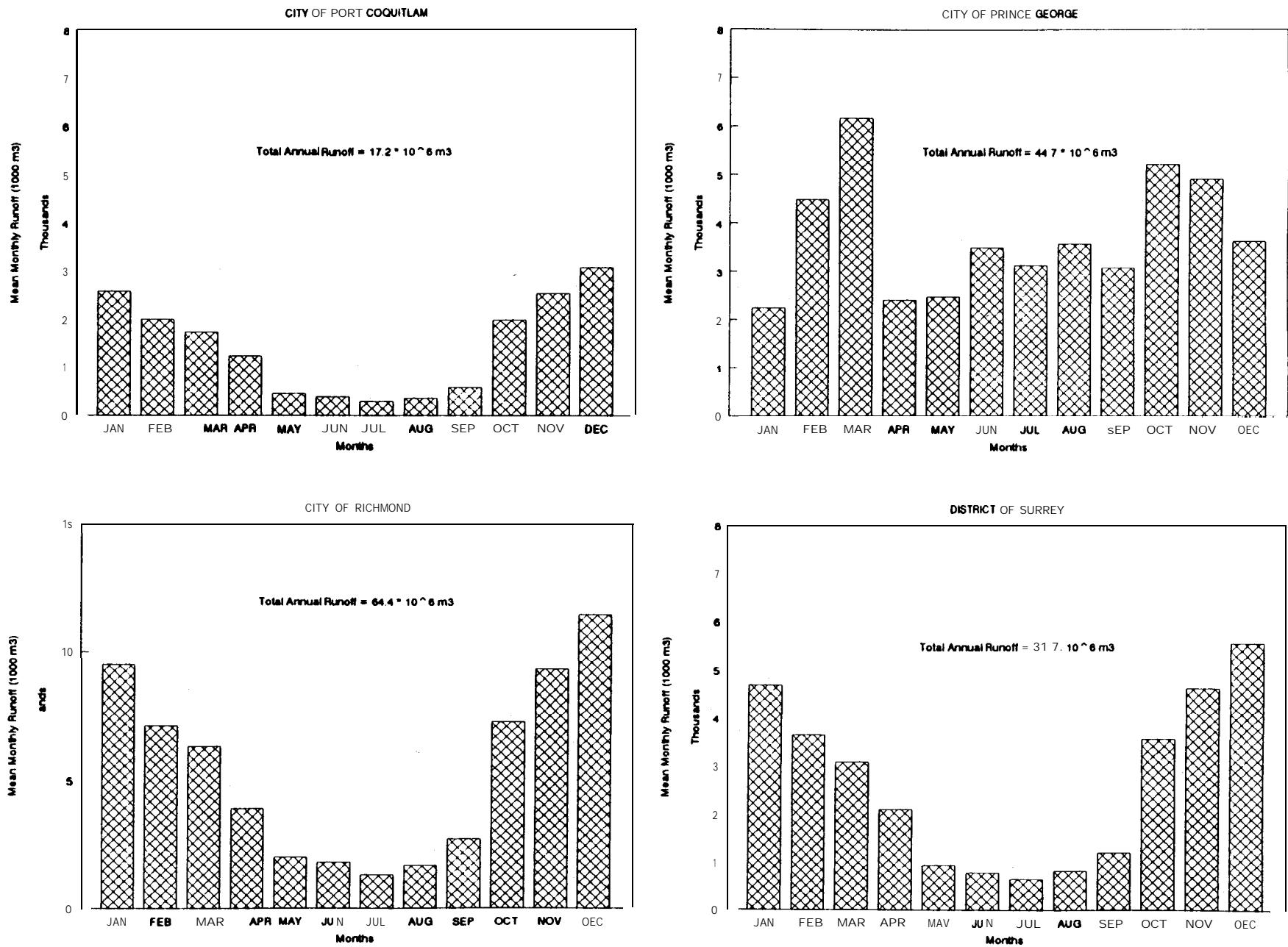
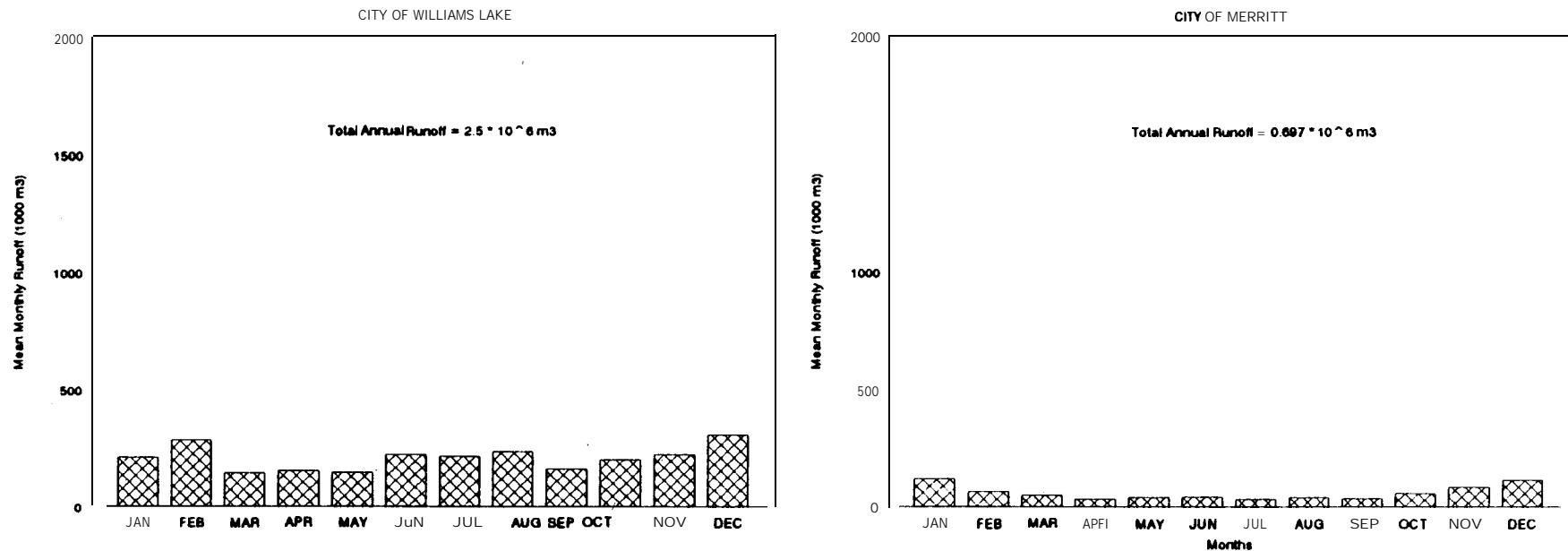
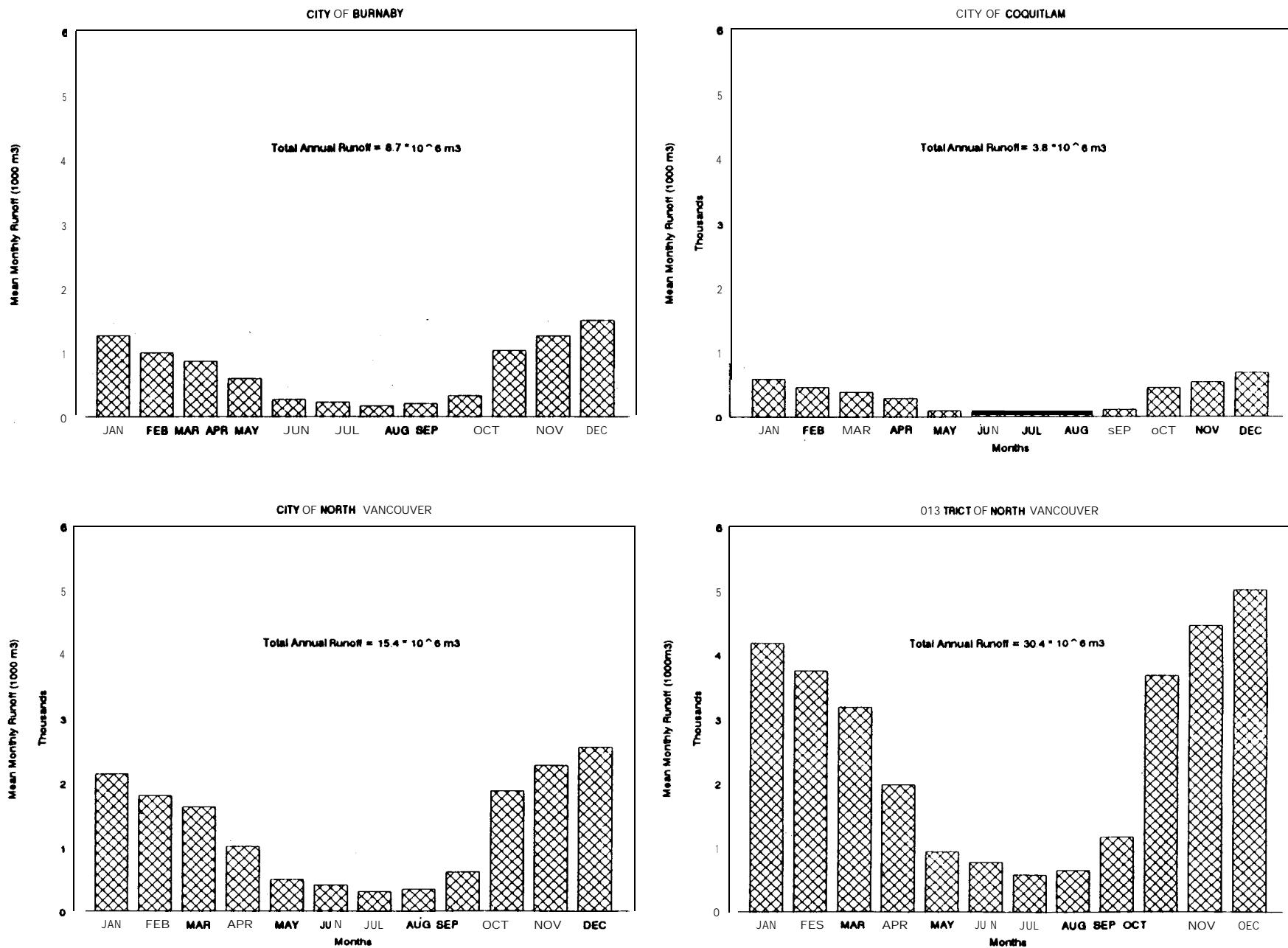


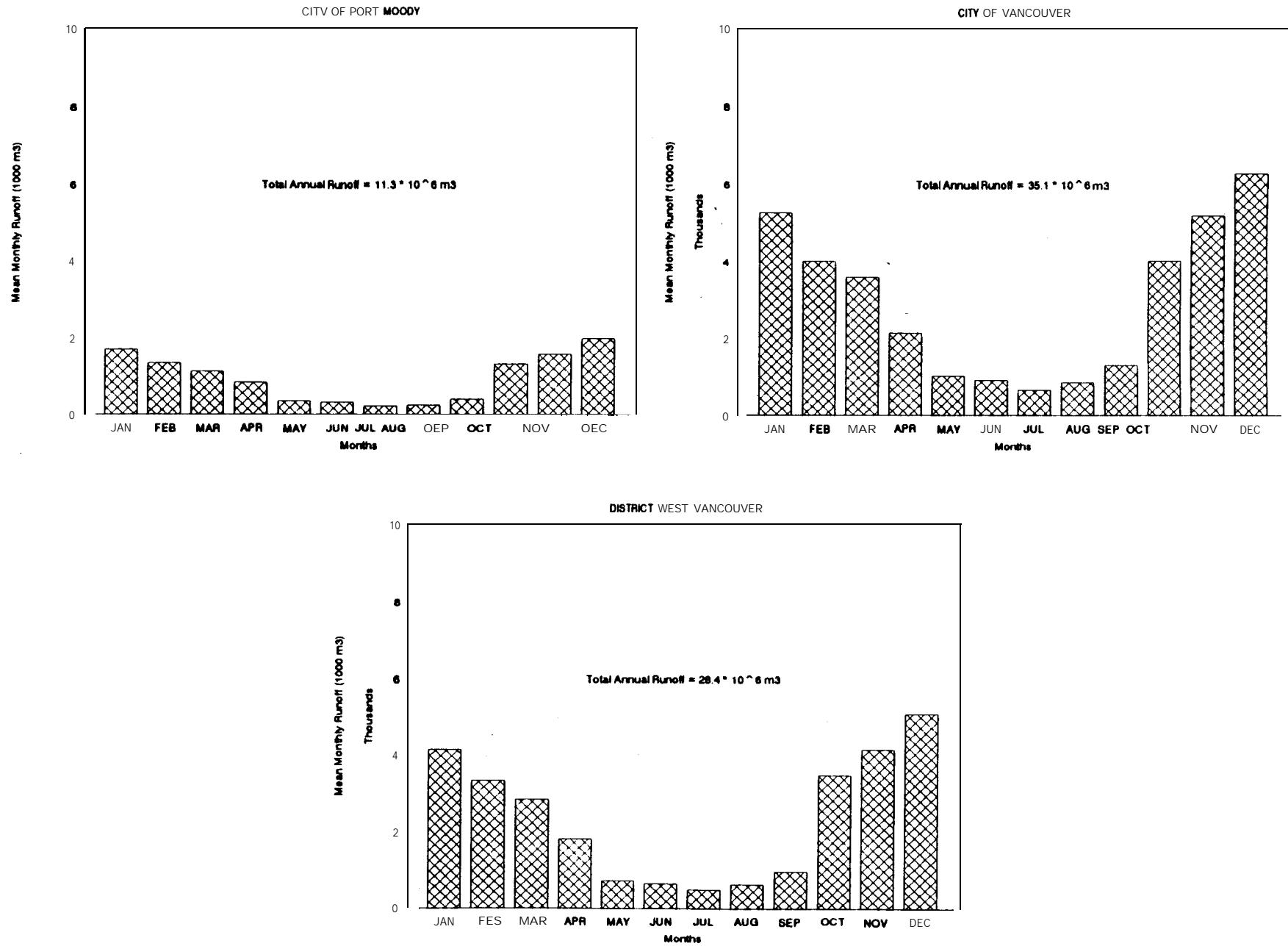
FIGURE 5(cont.) – MONTHLY URBAN RUNOFF VOLUMES FRASER RIVER BASIN



**FIGURE 6 – MONTHLY URBAN RUNOFF VOLUMES
BURRARD INLET BASIN**



**FIGURE 6(cont.) – MONTHLY URBAN RUNOFF VOLUMES
BURRARD INLET BASIN**



**FIGURE 7 – MONTHLY URBAN RUNOFF VOLUMES
FRASER RIVER BASIN AND REGIONS**

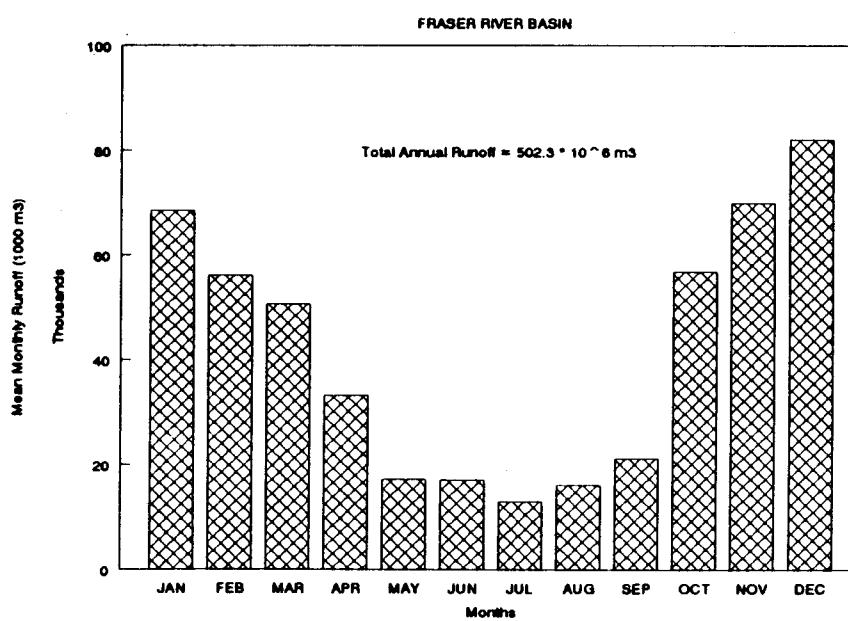
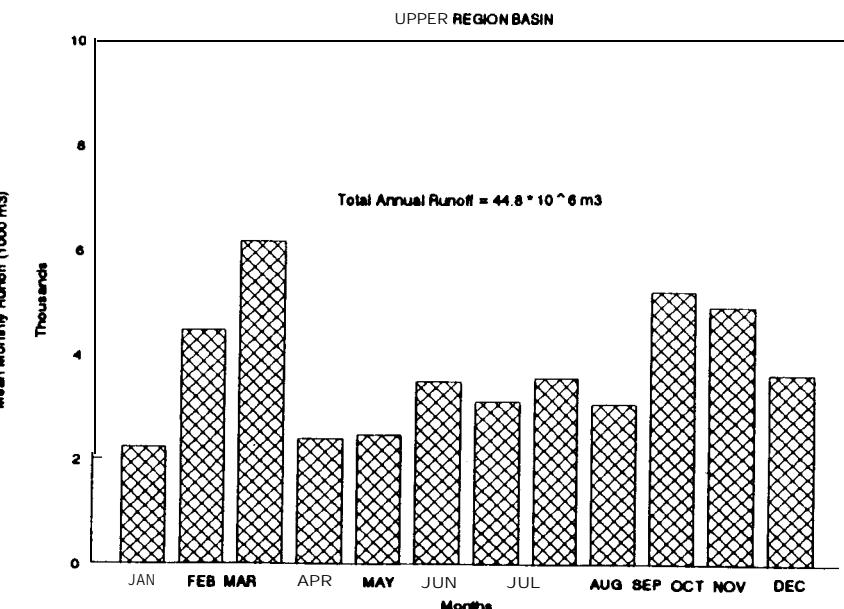
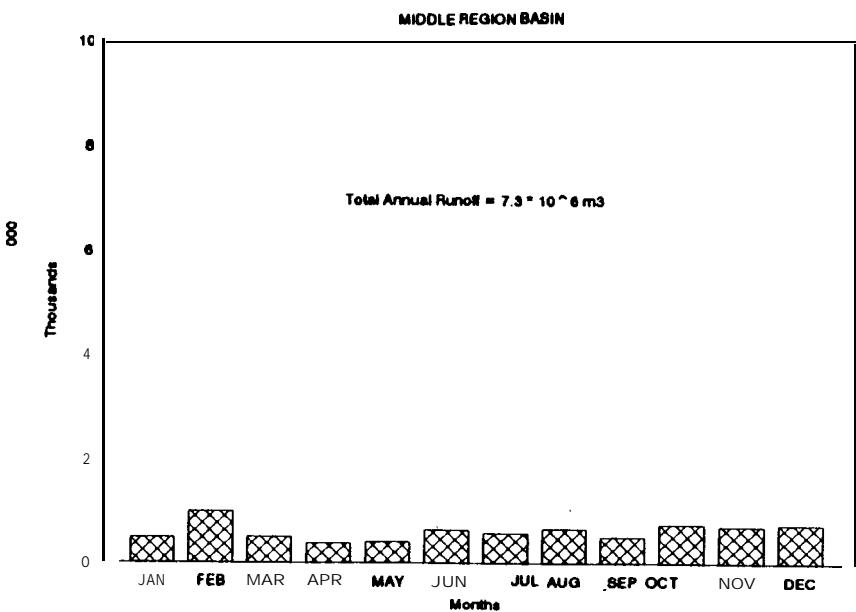
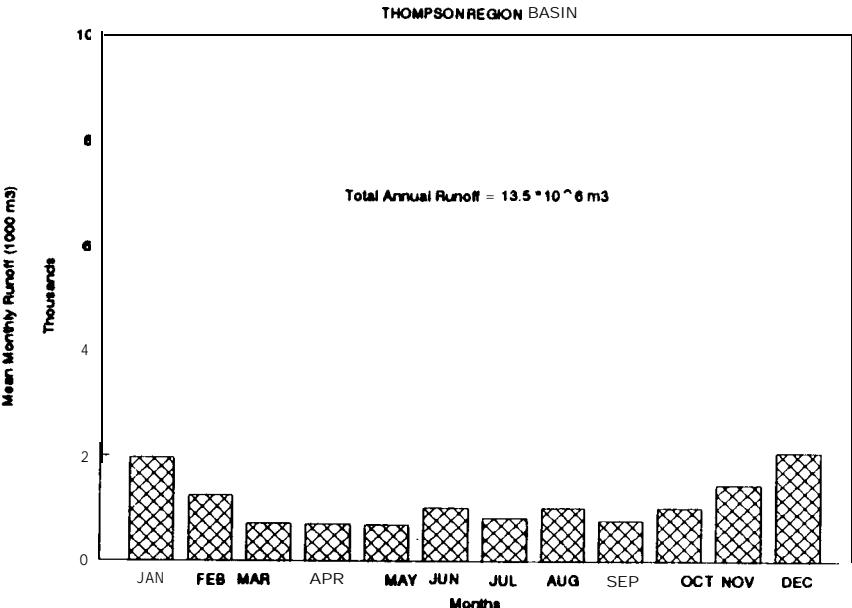
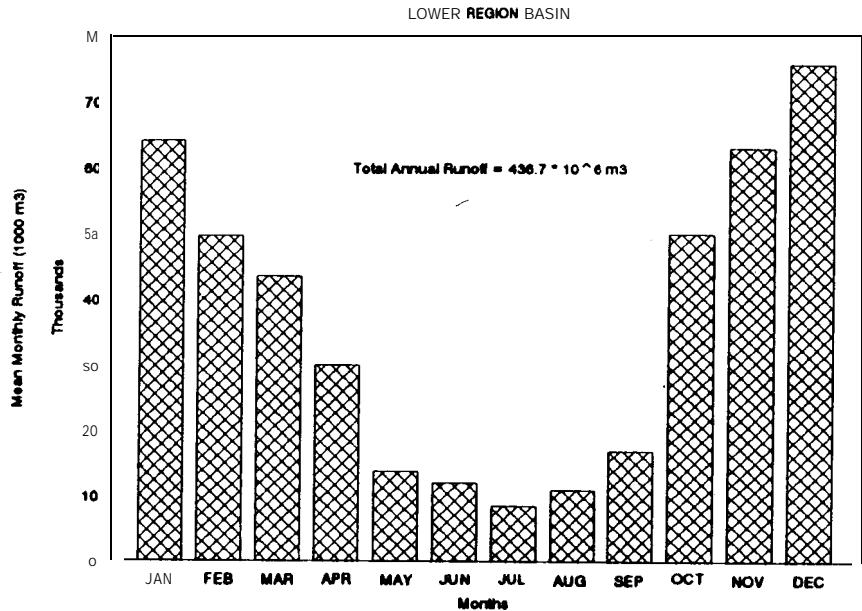
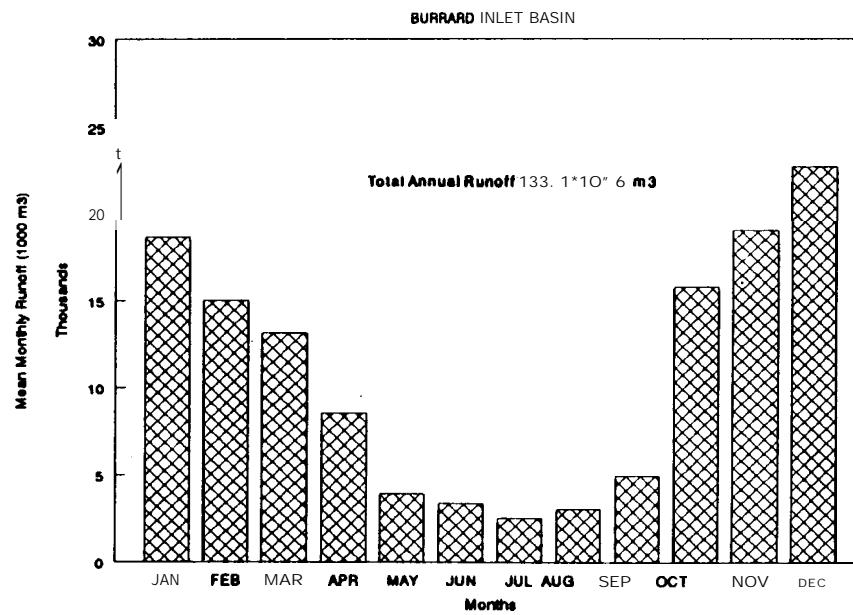


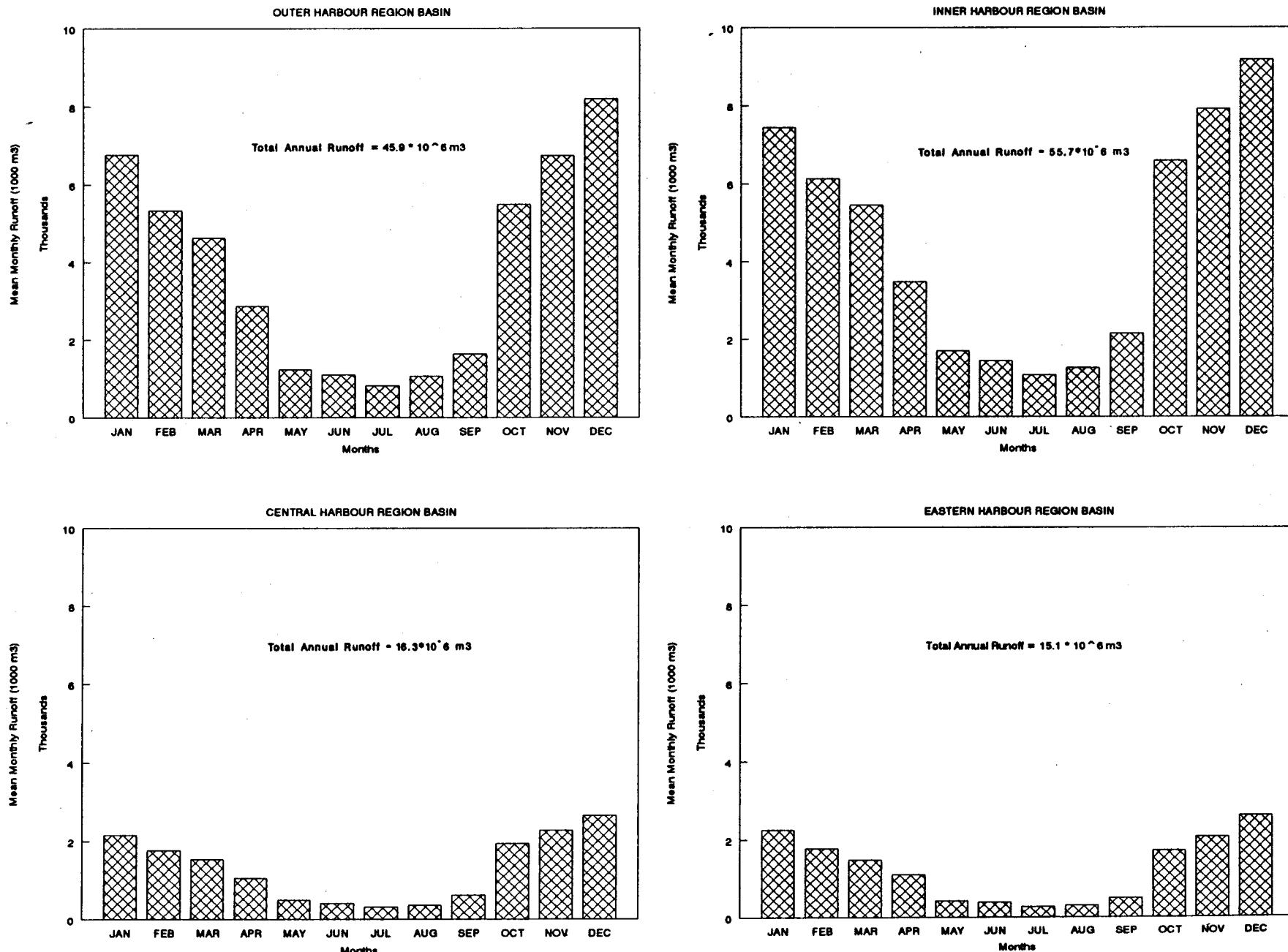
FIGURE 7(cont.) – MONTHLY URBAN RUNOFF VOLUMES FRASER RIVER BASIN AND REGIONS



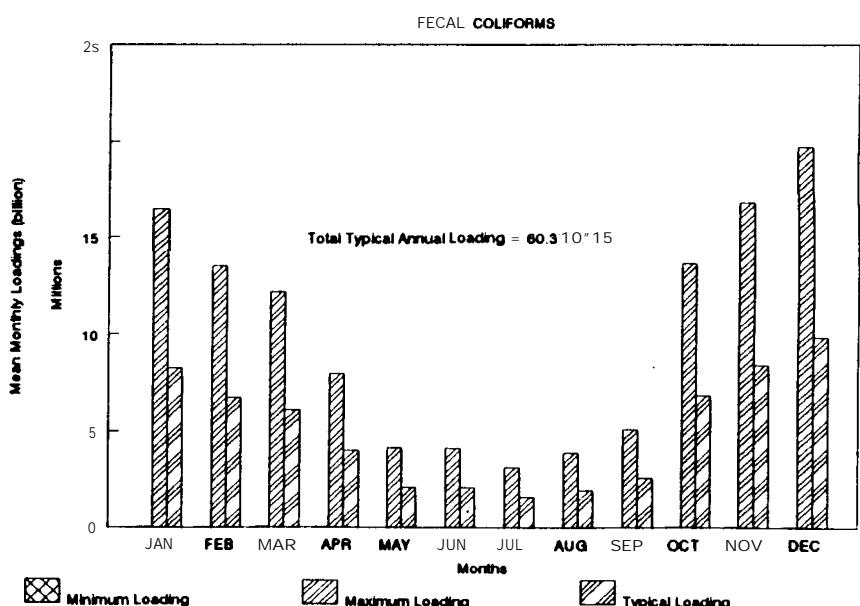
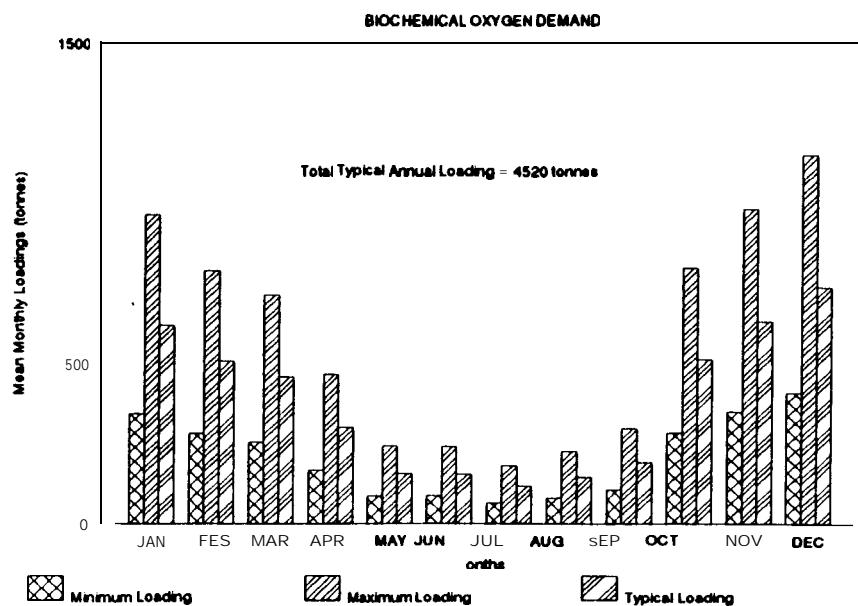
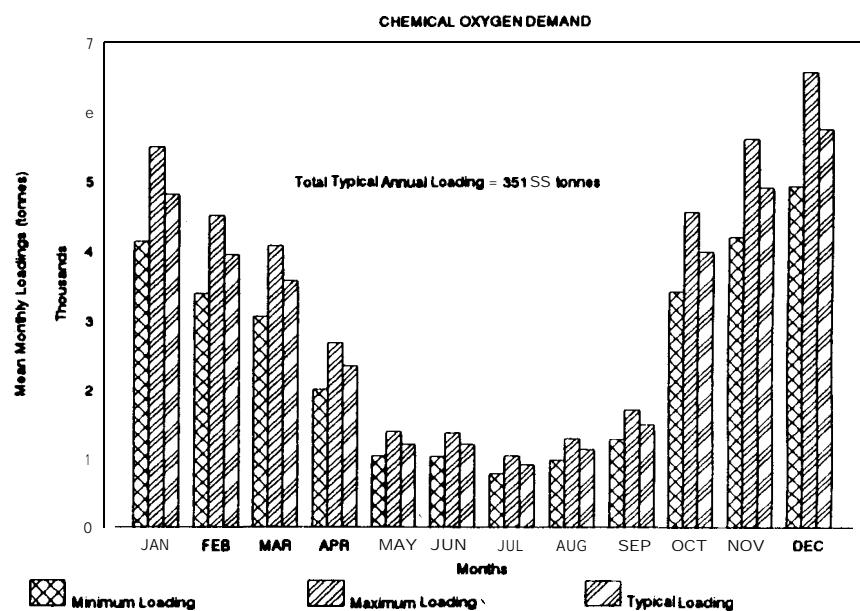
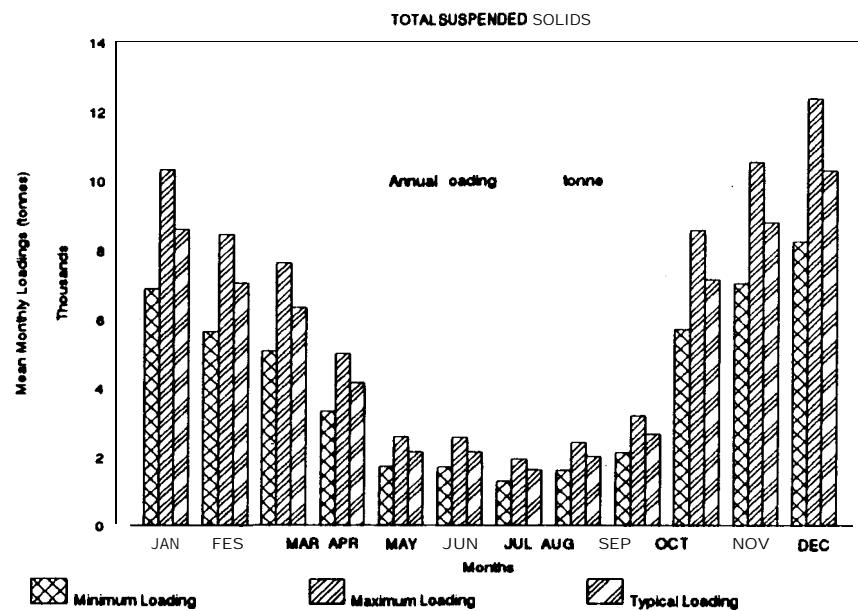
**FIGURE 8 – MONTHLY URBAN RUNOFF VOLUMES
BURRARD INLET BASIN AND REGIONS**



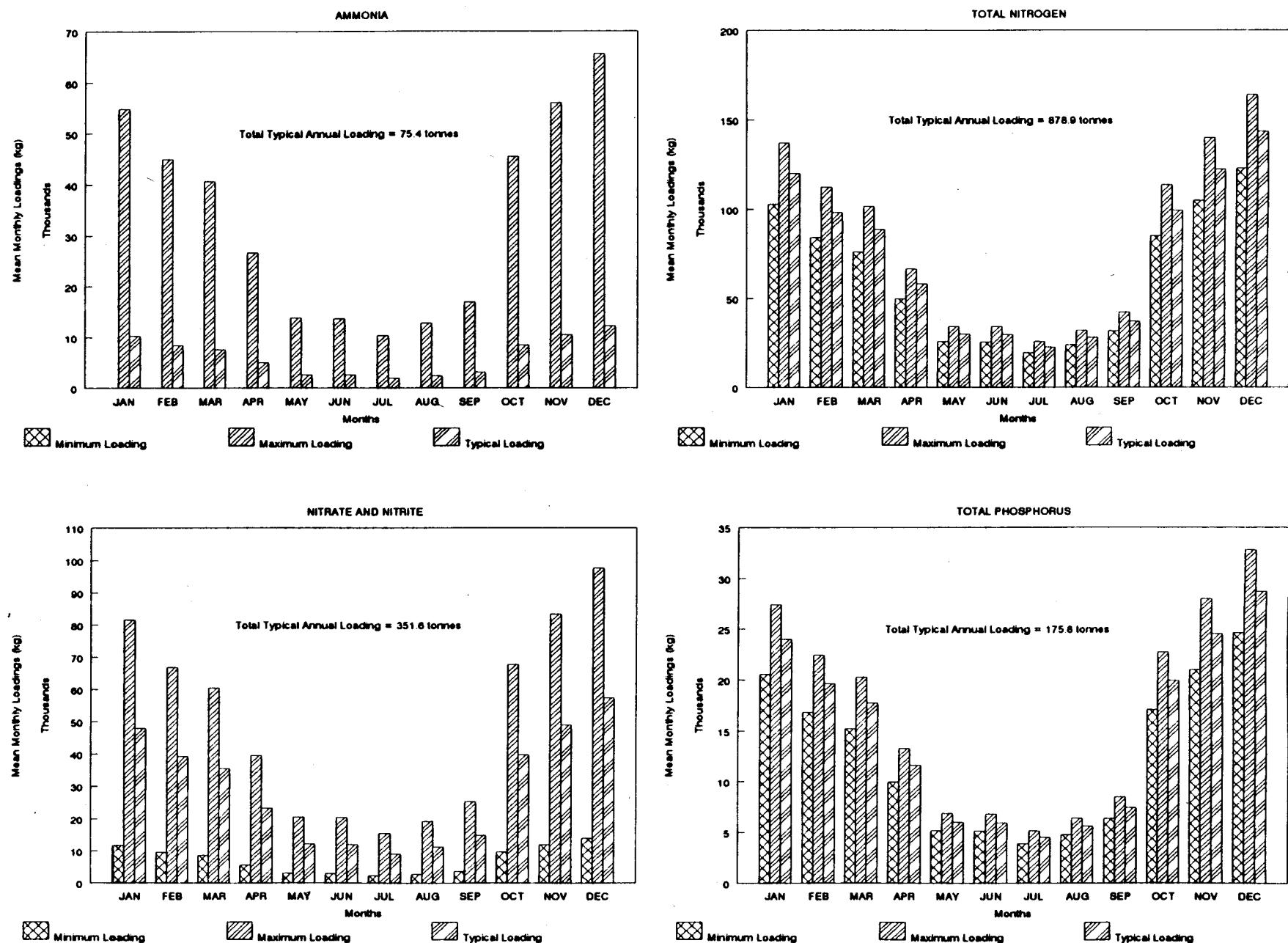
**FIGURE 8(cont.) – MONTHLY URBAN RUNOFF VOLUMES
BURRARD INLET BASIN AND REGIONS**



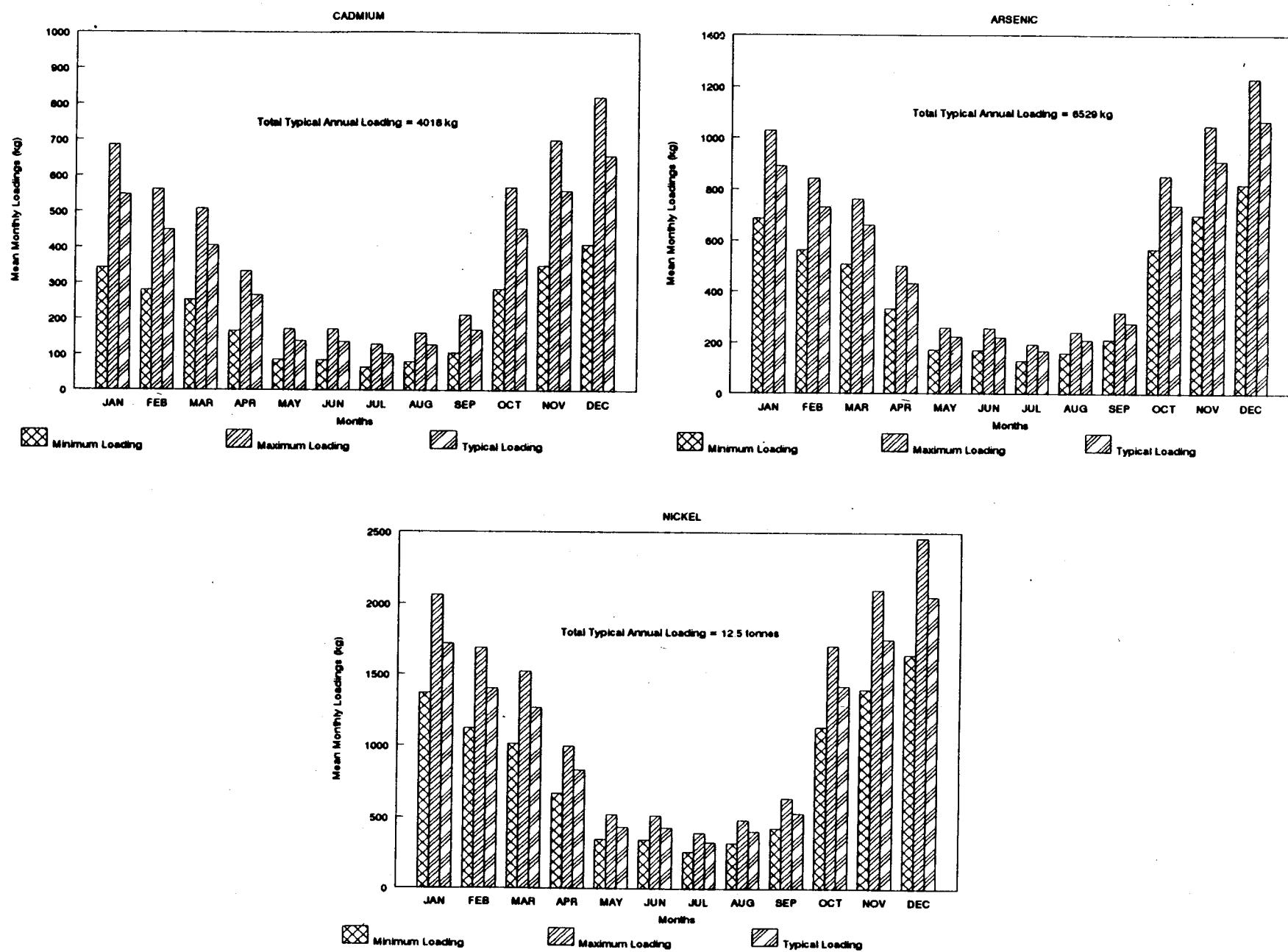
**FIGURE 9 – TOTAL URBAN RUNOFF CONTAMINANT LOADINGS
FRASER RIVER BASIN**



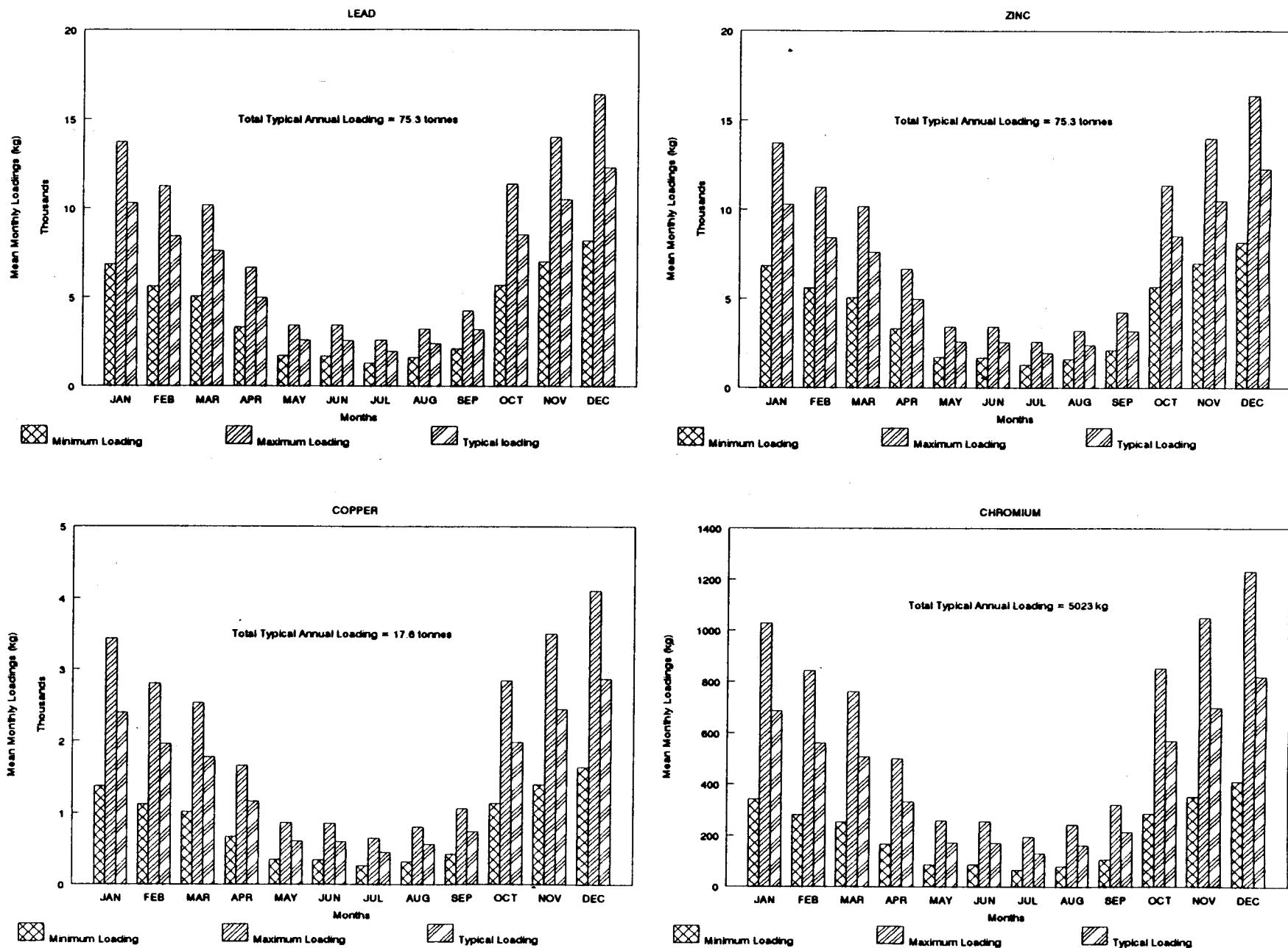
**FIGURE 9(cont.) – TOTAL URBAN RUNOFF CONTAMINANT LOADINGS
FRASER RIVER BASIN**



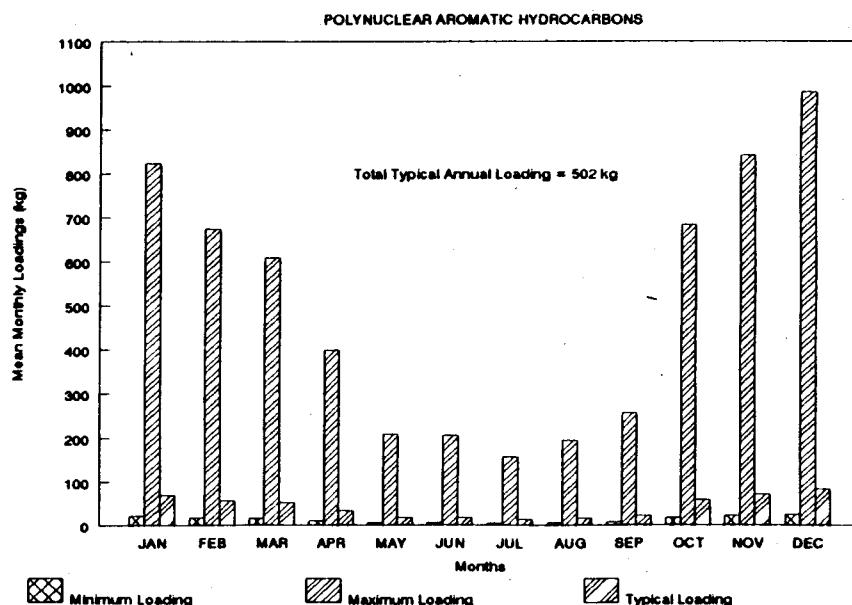
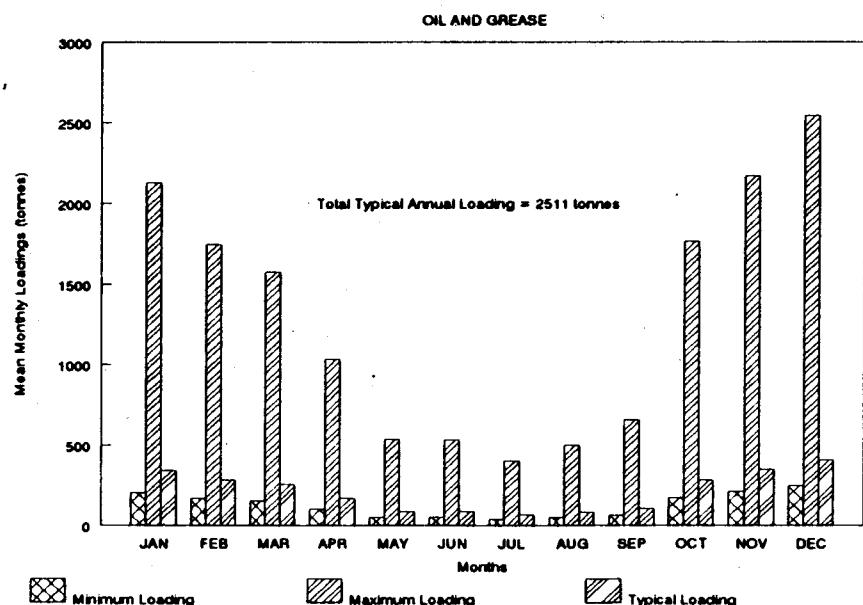
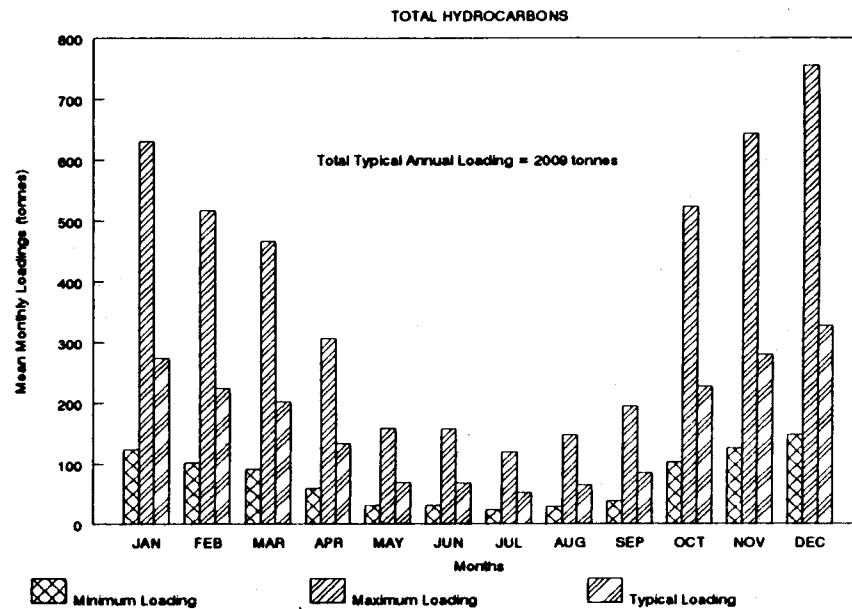
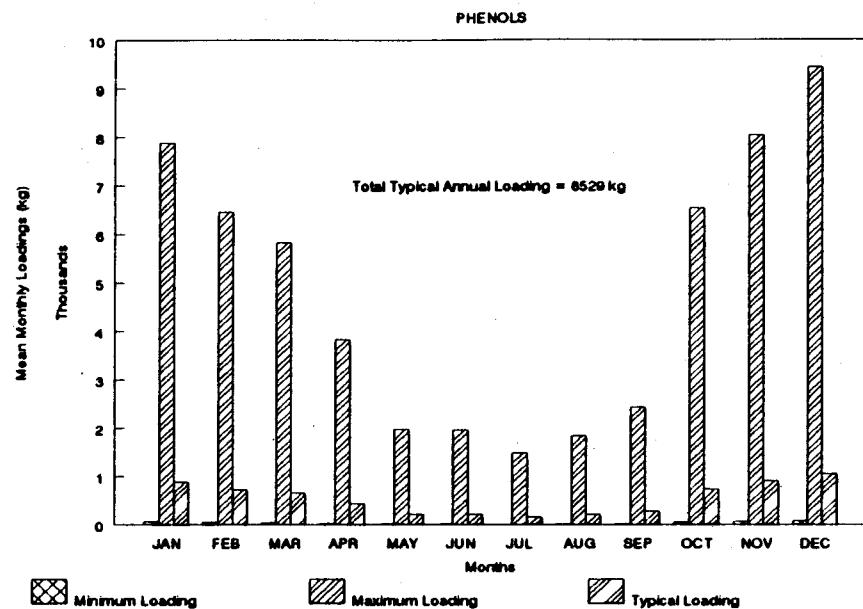
**FIGURE 9(cont.) – TOTAL URBAN RUNOFF CONTAMINANT LOADINGS
FRASER RIVER BASIN**



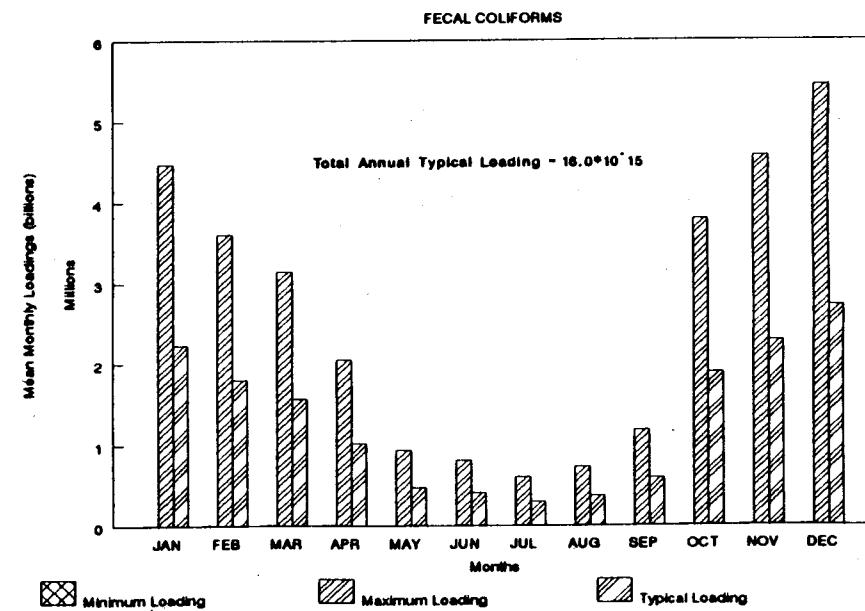
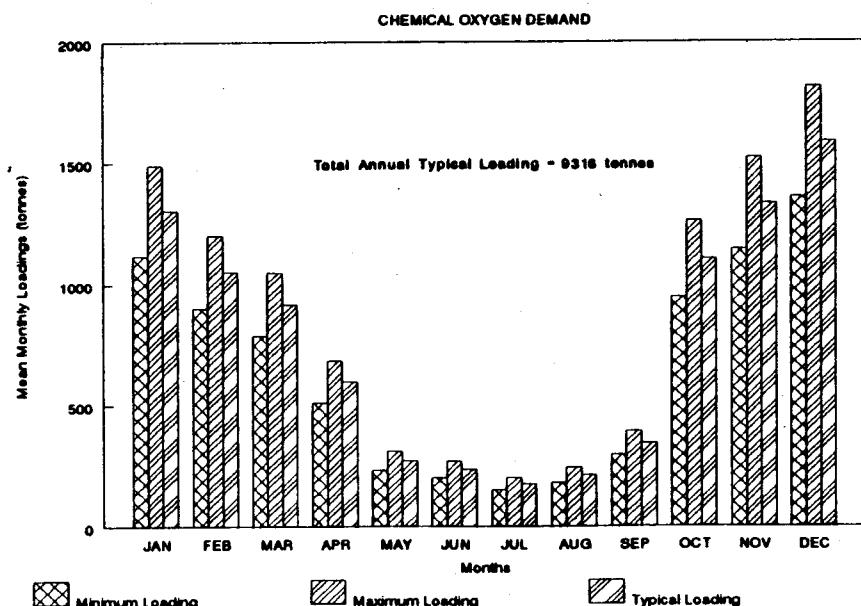
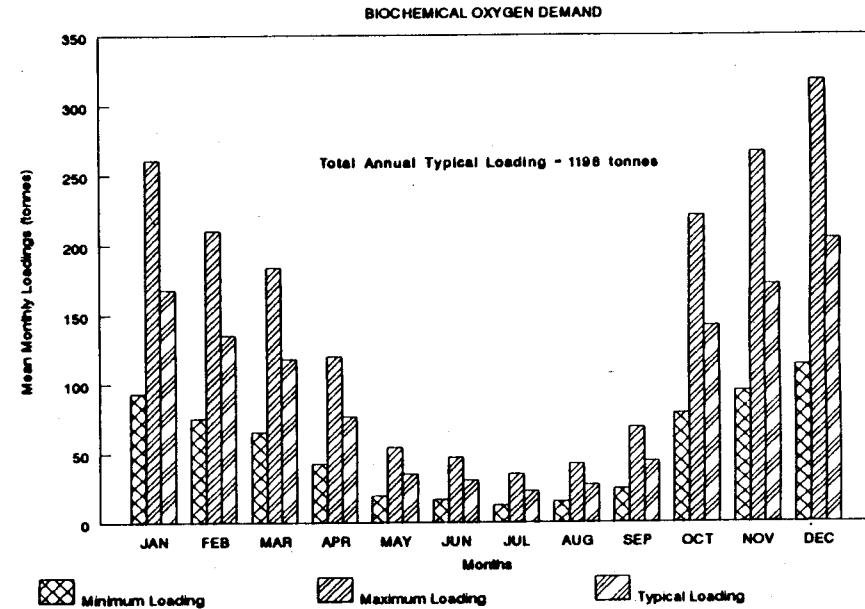
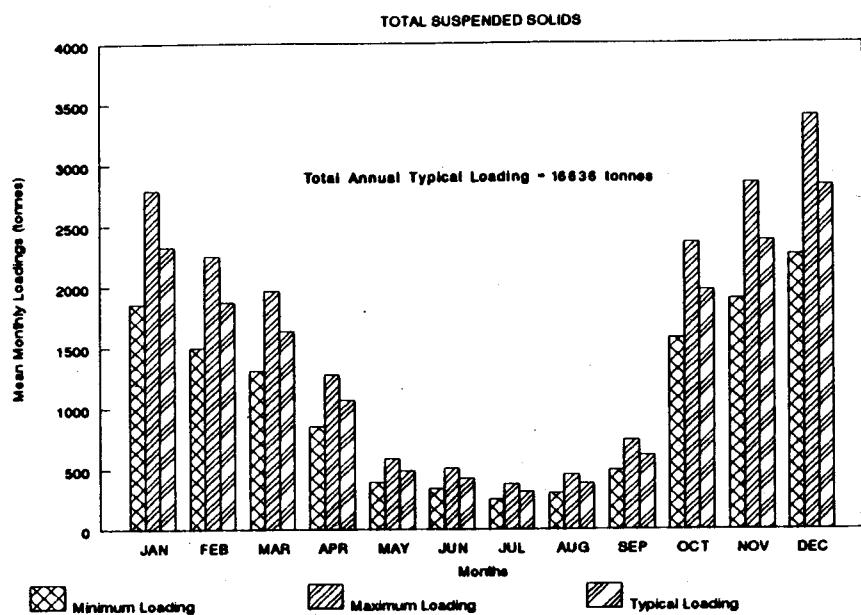
**FIGURE 9(cont.) – TOTAL URBAN RUNOFF CONTAMINANT LOADINGS
FRASER RIVER BASIN**



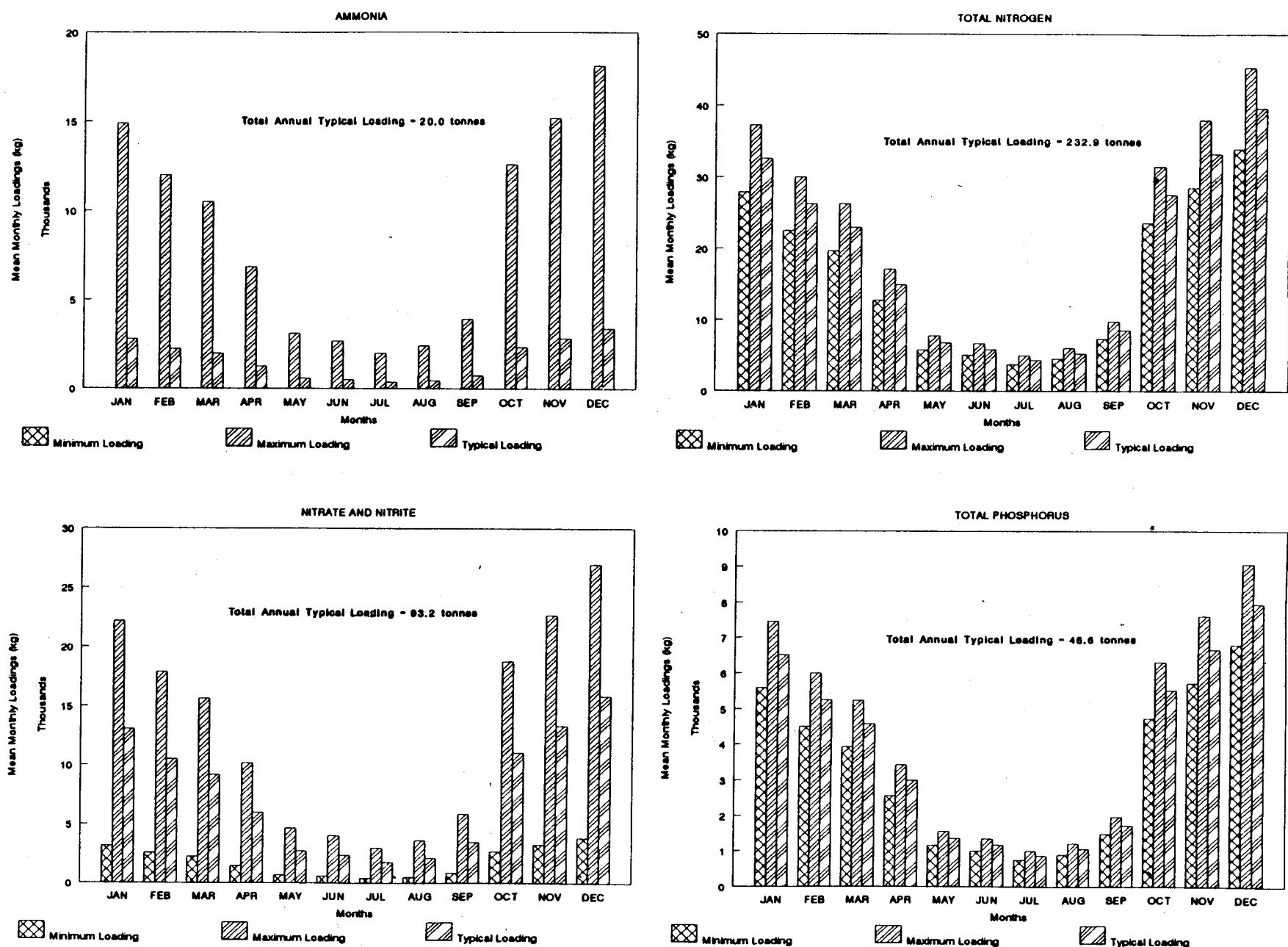
**FIGURE 9(cont.) – TOTAL URBAN RUNOFF CONTAMINANT LOADINGS
FRASER RIVER BASIN**



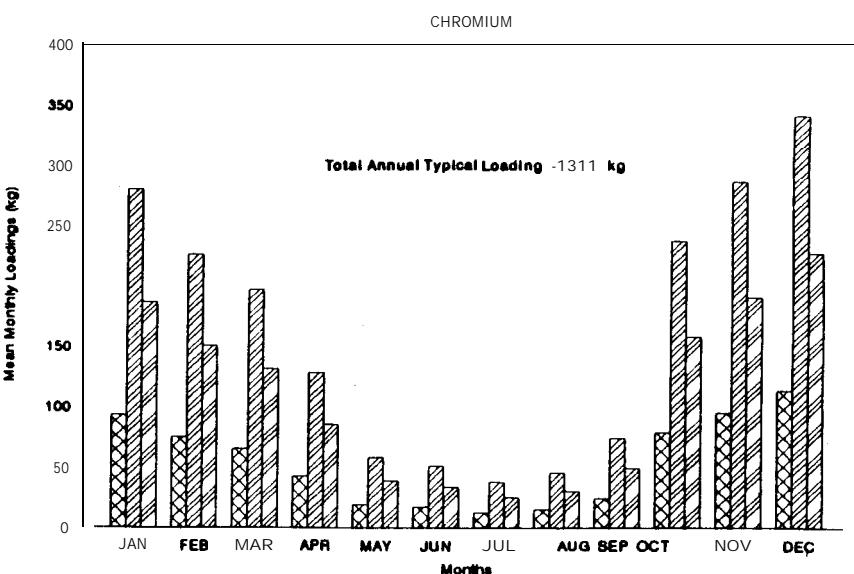
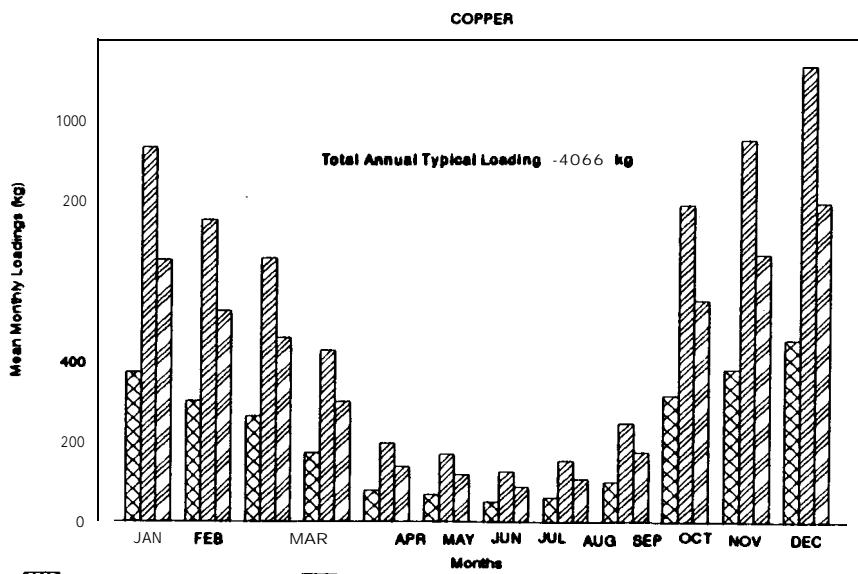
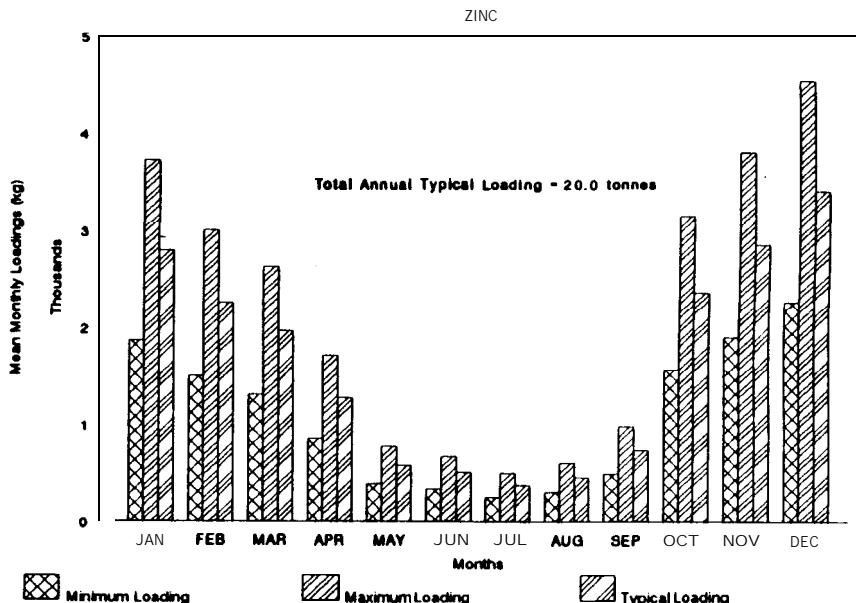
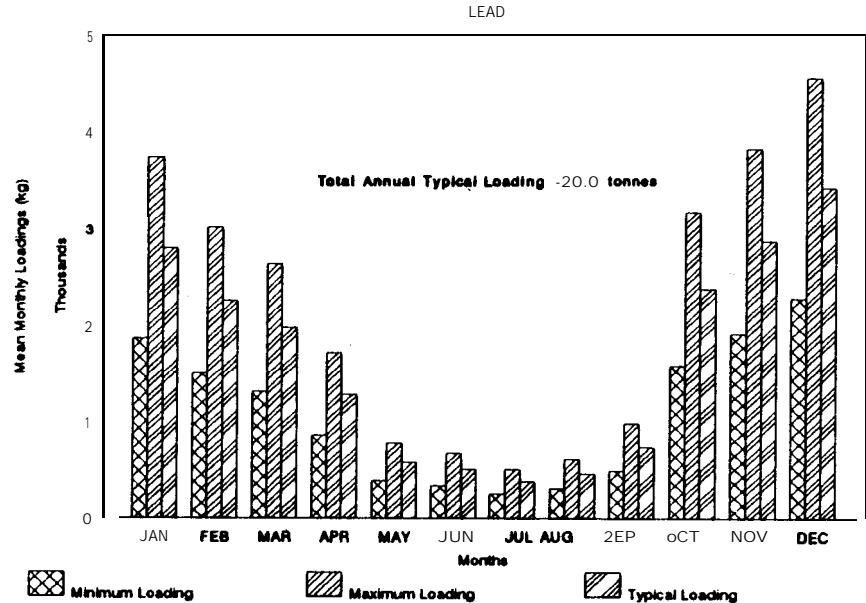
**FIGURE 10 – TOTAL URBAN RUNOFF CONTAMINANT LOADINGS
BURRARD INLET BASIN**



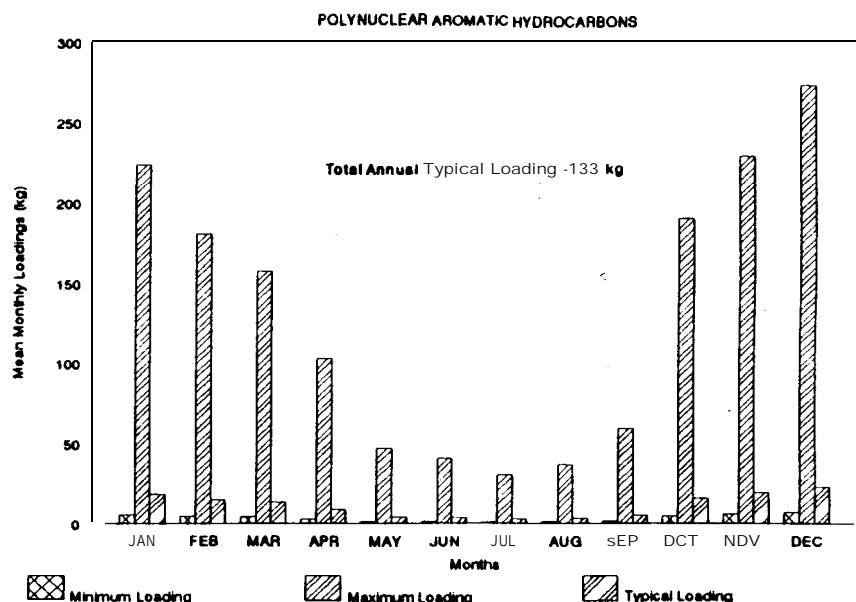
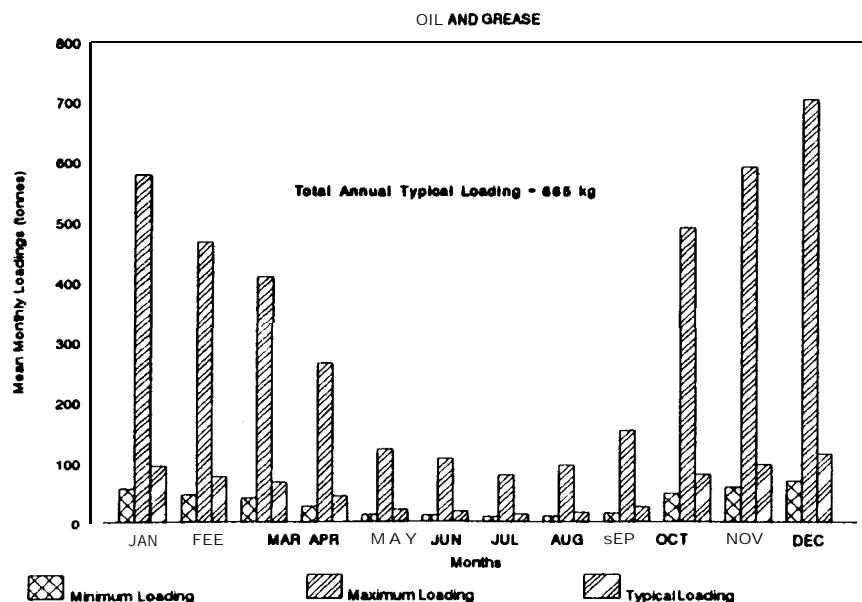
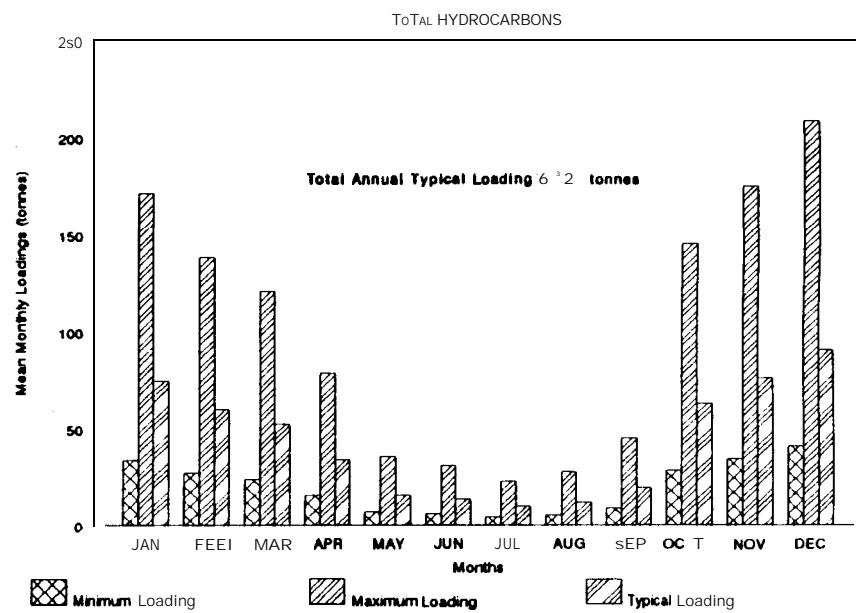
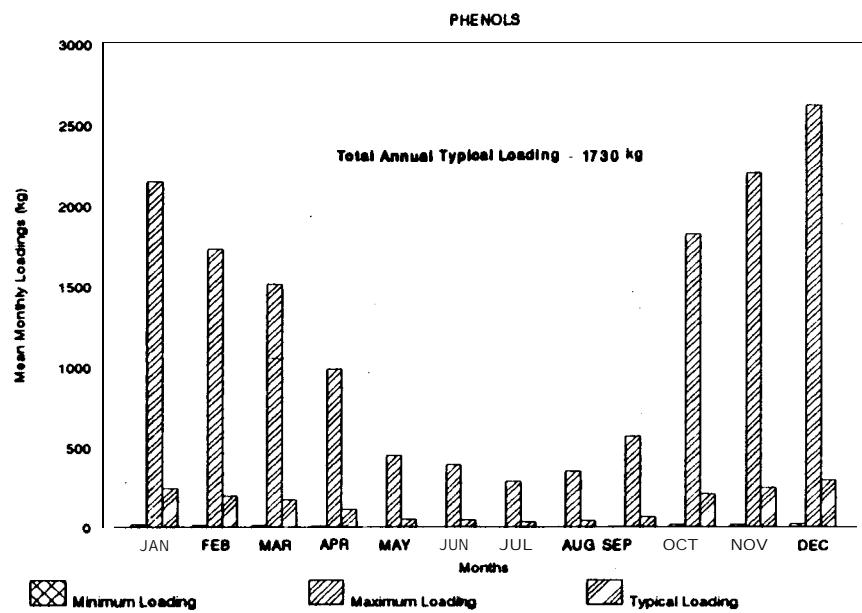
**FIGURE 10(cont.) – TOTAL URBAN RUNOFF CONTAMINANT LOADINGS
BURRARD INLET BASIN**



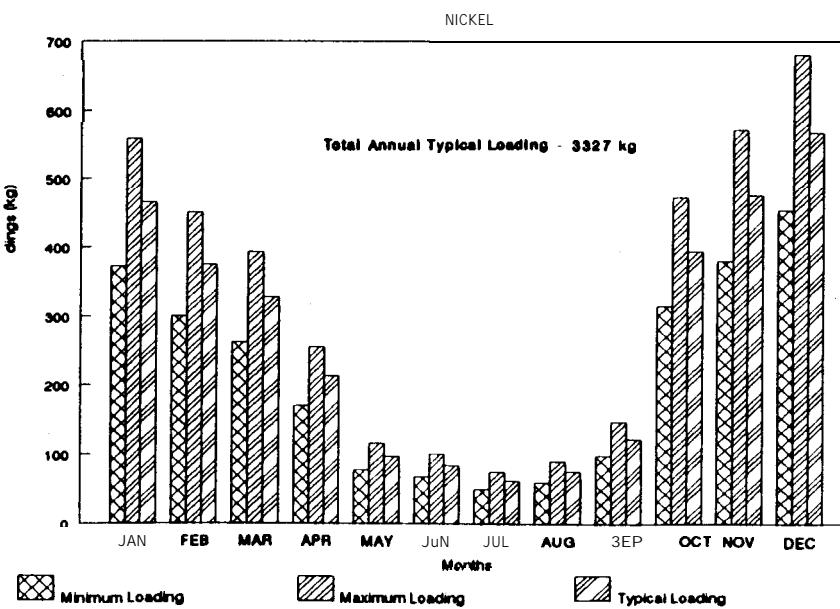
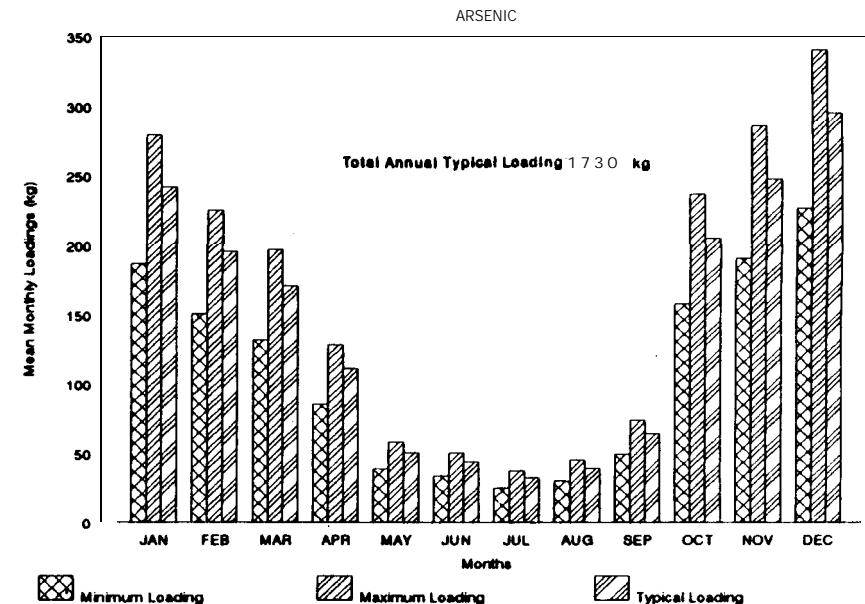
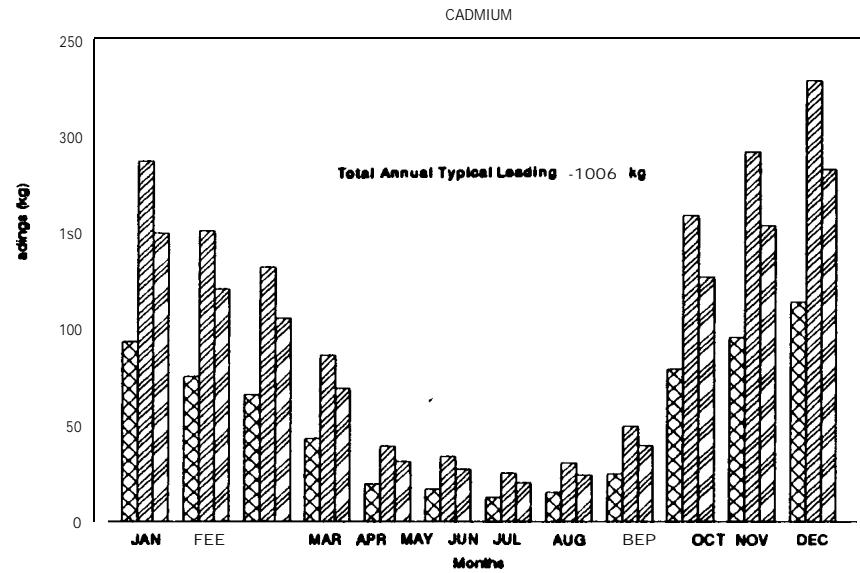
**FIGURE 10(cont.) – TOTAL URBAN RUNOFF CONTAMINANT LOAD NGS
Burrard Inlet Basin**



**FIGURE 10(cont.) – TOTAL URBAN RUNOFF CONTAMINANT LOADINGS
BURRARD INLET BASIN**



**FIGURE 10(cont.) – TOTAL URBAN RUNOFF CONTAMINANT LOADINGS
Burrard Inlet Basin**



FRASER BASIN AND **HYDROGRAPHIC** REGIONS

RUNOFF AND **CONTAMINANT** LOADING DATA

APPENDIX B
DATA TABLES

	Area (ha)
Industrial	20709
Commercial	4363
Residential	69917
Total urbanized area	95019
Total municipal area	333553

Fraser River Basin

CONTAMINANT LOADINGS

MONTH	RUNOFF VOLUME (1000m ³)
January	68561
February	56170
March	50752
April	33268
May	17238
June	17079
July	12981
August	16109
September	21244
October	56832
November	69983
December	82037
Total	502255

	(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)			AMMONIA (mg/L)		
	MIN 100	MAX 150	TYP 125	MIN 5	MAX 14	TYP 9	MIN 60	MAX 80	TYP 70	MIN 20	MAX 24000	TYP 12000	MIN 0.00	MAX 0.80	TYP 0.15
	(tonne)	(tonne)	(tonne)	(tonne)	(tonne)	(tonne)	(tonne)	(tonne)	(tonne)	(billion)	(billion)	(billion)	(kg)	(kg)	(kg)
January	6856.1	10284.1	8570.1	342.8	959.9	617.0	4113.7	5484.9	4799.3	13712	16454611	8227306	0	54849	10284
February	5617.0	8425.5	7021.2	280.8	786.4	505.5	3370.2	4493.6	3931.9	11234	13480727	6740363	0	44936	8425
March	5075.2	7812.7	6343.9	253.8	710.5	456.8	3045.1	4060.1	3552.6	10150	12180360	6090190	0	40601	7613
April	3326.8	4980.3	4158.5	166.3	465.8	298.4	1986.1	2681.5	2328.8	6654	7984406	3992203	0	26615	4990
May	1723.8	2585.7	2154.8	86.2	241.3	155.1	1034.3	1379.0	1206.7	3448	4137145	2068573	0	13790	2586
June	1707.9	2561.8	2134.8	85.4	239.1	153.7	1024.7	1366.3	1195.5	3416	4098866	2049433	0	13663	2562
July	1298.1	1947.2	1622.7	64.9	181.7	116.8	778.8	1038.5	908.7	2586	3115500	1557750	0	10365	1947
August	1610.6	2416.4	2013.7	80.5	225.5	145.0	966.6	1288.8	1127.7	3222	3866251	1933126	0	12888	2416
September	2124.4	3186.7	2655.5	106.2	297.4	191.2	1274.7	1699.5	1467.1	4249	5098649	2549325	0	16995	3187
October	5683.2	8524.9	7104.0	284.2	795.7	511.5	3409.9	4546.6	3978.3	11366	13639765	6619882	0	45466	8525
November	6998.3	10497.5	8747.9	349.9	979.8	629.8	4199.0	5598.7	4888.8	13897	16795894	8397997	0	55987	10497
December	8203.7	12305.5	10254.6	410.2	1148.5	738.3	4922.2	6562.9	5742.6	16407	19688813	9844407	0	65629	12306
Total	50225.5	75338.2	62781.8	2511.3	7031.6	4520.3	30135.3	40180.4	35157.8	100451	120541109	60270554	0	401804	75338

Fraser River Basin

CONTAMINANT LOADINGS

NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
11655	81587	47983	102841	137122	119982	20568	27424	23996	6856	13712	10284	1371	3428	2400	6856	13712	10284	343	1028	686
9549	66842	36319	84255	112339	98297	16851	22488	19656	5617	11234	8425	1123	2808	1966	5617	11234	8425	281	843	562
8628	60394	35526	76127	101503	88815	15225	20301	17763	5075	10150	7613	1015	2538	1776	5075	10150	7613	254	761	508
5856	36589	23288	48903	66537	58220	9881	13307	11644	3327	6654	4990	665	1663	1164	3327	6654	4990	166	499	333
2930	20513	12087	25857	34476	30167	5171	6895	6033	1724	3448	2586	345	862	603	1724	3448	2586	86	259	172
2903	20324	11955	25618	34157	29888	5124	6831	5978	1708	3416	2562	342	854	598	1708	3416	2562	85	256	171
2207	15448	9087	19472	25963	22717	3894	5183	4543	1298	2586	1947	260	649	454	1298	2596	1947	65	185	130
2738	19170	11277	24164	32219	28191	4833	6444	5638	1611	3222	2416	322	805	564	1611	3222	2416	81	242	161
3612	25281	14871	31867	42489	37178	6373	8498	7436	2124	4249	3187	425	1062	744	2124	4249	3187	106	319	212
9862	67631	39783	85249	113685	99457	17050	22733	19891	5683	11366	8525	1137	2842	1989	5683	11366	8525	284	852	568
11897	83280	48988	104975	138967	122471	20895	27993	24484	6988	13987	10487	1400	3498	2449	6988	13987	10487	350	1050	700
13946	97624	57426	123055	164073	143584	24611	32815	28713	8204	16407	12306	1641	4102	2871	8204	16407	12306	410	1231	820
85383	597683	351578	753382	1004509	878946	150676	200902	175789	50225	100451	75338	10045	25113	17579	50225	100451	75338	2511	7534	5023

Fraser River Basin

CONTAMINANT LOADINGS

CADMIUM ($\mu\text{g/L}$)				NICKEL ($\mu\text{g/L}$)				ARSENIC ($\mu\text{g/L}$)				PHENOLS ($\mu\text{g/L}$)				OIL & GREASE (mg/L)				TOTAL HYDROCARBONS (mg/L)				POLYNUCLEAR AROMATIC HYDROCARB. ($\mu\text{g/L}$)			
MIN 5	MAX 10	TYP 8		MIN 20	MAX 30	TYP 25		MIN 10	MAX 15	TYP 13		MIN 1	MAX 115	TYP 13		MIN 3	MAX 31	TYP 5		MIN 1.80	MAX 9.20	TYP 4.00		MIN 0.30	MAX 12.00	TYP 1.00	
(kg)	(kg)	(kg)		(kg)	(kg)	(kg)		(kg)	(kg)	(kg)		(kg)	(kg)	(kg)		(kg)	(kg)	(kg)		(kg)	(kg)	(kg)		(kg)	(kg)	(kg)	
343	686	548		1371	2057	1714		686	1028	891		68	7885	891		205683	2125387	342804		123410	630760	274244		21	823	69	
281	562	449		1123	1665	1404		562	843	730		58	6460	730		168509	1741281	280848		101105	516761	224679		17	674	56	
254	508	406		1015	1523	1268		508	761	660		51	5836	660		152255	1573289	253758		91353	466915	203006		15	609	51	
166	333	268		665	998	832		333	498	432		33	3826	432		99805	1031319	166342		59883	306068	133073		10	399	33	
86	172	138		345	517	431		172	250	224		17	1882	224		51714	534381	86191		31029	158591	68852		5	207	17	
85	171	137		342	512	427		171	258	222		17	1864	222		51236	528437	85393		30741	157123	68314		5	205	17	
65	130	104		260	389	325		130	195	169		13	1493	169		38844	402419	64906		23366	118428	51925		4	156	13	
81	161	129		322	483	403		161	242	208		16	1853	208		48328	499381	80547		26997	148206	64438		5	193	16	
106	212	170		425	637	531		212	319	276		21	2443	276		63733	658576	106222		38240	195448	84977		6	255	21	
284	568	455		1137	1705	1421		568	852	739		57	6536	739		170487	1761803	284162		102298	522858	227329		17	682	57	
350	700	560		1400	2089	1750		700	1050	910		70	8048	910		209650	2168483	349917		125970	643848	279833		21	840	70	
410	820	656		1641	2461	2051		820	1231	1066		82	9434	1066		246110	2543138	410184		147666	754738	328147		25	984	82	
2511	5023	4018		10045	15068	12556		5023	7534	6529		502	57759	6529		1506764	15569893	2511273		904058	4620742	2009018		151	6027	502	

	Area (ha)
Industrial	13516
Commercial	2608
Residential	44874
Total urbanized area	60998
Total municipal area	247266

Fraser River Basin – Lower Region

MONTH	RUNOFF VOLUME (1000m³)
January	63872
February	49456
March	43372
April	29776
May	13665
June	11829
July	8464
August	10861
September	16801
October	49868
November	62912
December	75583
Total	436660

CONTAMINANT LOADINGS

(TSS) (mg/L)	(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)			AMMONIA (mg/L)						
	MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 80 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)	MIN 0.00 (kg)	MAX 0.80 (kg)	TYP 0.15 (kg)	
	63872	8580.9	7984.1	319.4	894.2	574.9	3832.3	5109.8	4471.1	12774	15329398	7664689	0	51098	8581	
January	63872	8580.9	7984.1	319.4	894.2	574.9	3832.3	5109.8	4471.1	12774	15329398	7664689	0	51098	8581	
February	49456	7418.4	6182.0	247.3	692.4	445.1	2967.4	3956.5	3461.9	9891	11869447	5934723	0	39565	7418	
March	43372	6505.9	5421.5	216.9	607.2	390.4	2602.3	3469.8	3036.1	8674	10409367	5204683	0	34698	6506	
April	29776	4466.5	3722.0	148.9	416.9	268.0	1786.6	2382.1	2084.3	5855	7146321	3573161	0	23821	4466	
May	13665	2048.7	1708.1	68.3	191.3	123.0	819.9	1093.2	956.5	2733	3279581	1636780	0	10932	2050	
June	11829	1789.3	1491.1	59.6	167.0	107.4	715.7	954.3	835.0	2386	2862674	1431437	0	9543	1789	
July	8464	1269.7	1058.0	42.3	118.5	76.2	507.9	677.1	592.5	1693	2031442	1015721	0	6771	1270	
August	10861	1628.1	1357.6	54.3	152.0	97.7	651.6	868.8	760.2	2172	2606545	1303273	0	8688	1629	
September	16801	2535.1	2112.6	84.5	236.6	152.1	1014.0	1352.0	1183.0	3380	4056123	2028082	0	13520	2535	
October	49868	7480.1	6233.5	249.3	698.1	448.8	2992.1	3969.4	3490.7	9974	11968230	5984115	0	39864	7480	
November	62912	9436.8	7884.0	314.6	680.8	566.2	3774.7	5033.0	4403.8	12582	15098910	7549455	0	50330	9437	
December	75583	11336.9	9449.1	378.0	1058.3	680.3	4535.6	6047.4	5291.5	15119	18142266	8071133	0	60474	11339	
Total	436660	43666.9	65500.3	54583.6	2183.3	6113.4	3930.0	26200.1	34933.5	30566.8	87334	104800504	52400252	0	349335	65500

	Area (ha)
Industrial	1744
Commercial	1371
Residential	8918
Total urbanized area	12031
Total municipal area	49225

Fraser River Basin – Thompson Region

MONTH	RUNOFF VOLUME (1000m³)
January	1961
February	1244
March	717
April	706
May	696
June	1021
July	818
August	1023
September	777
October	1023
November	1455
December	2075
Total	13515

CONTAMINANT LOADINGS

(TSS) (mg/L)	(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)			AMMONIA (mg/L)						
	MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)	MIN 0.00 (kg)	MAX 0.80 (kg)	TYP 0.15 (kg)	
	196.1	294.1	245.1	9.8	27.5	17.6	117.7	156.9	137.3	382	470626	235313	0	1569	294	
January	196.1	294.1	245.1	9.8	27.5	17.6	117.7	156.9	137.3	382	470626	235313	0	1569	294	
February	124.4	186.6	155.5	6.2	17.4	11.2	74.6	99.5	87.1	249	298571	149286	0	995	187	
March	71.7	107.5	89.6	3.8	10.0	6.5	43.0	57.3	50.2	143	172021	88010	0	573	108	
April	70.6	105.8	88.2	3.5	9.8	6.4	42.3	58.4	49.4	141	169336	84668	0	564	106	
May	69.6	104.4	87.0	3.5	9.7	6.3	41.8	55.7	48.7	139	167068	83534	0	557	104	
June	102.1	153.1	127.6	5.1	14.3	9.2	61.2	81.7	71.4	204	244958	122479	0	817	153	
July	81.8	122.6	102.2	4.1	11.4	7.4	49.1	65.4	57.2	164	196220	98110	0	654	123	
August	102.3	153.5	127.9	5.1	14.3	9.2	61.4	81.9	71.6	205	245551	122776	0	819	153	
September	77.7	116.6	97.1	3.9	10.9	7.0	46.8	62.2	54.4	155	186482	83241	0	622	117	
October	102.3	153.5	127.9	5.1	14.3	9.2	61.4	81.9	71.6	205	245569	122785	0	819	153	
November	145.5	218.3	181.9	7.3	20.4	13.1	87.3	116.4	101.9	281	349317	174859	0	1164	218	
December	207.5	311.2	258.3	10.4	29.0	18.7	124.5	166.0	145.2	415	497042	248971	0	1660	311	
Total	13515	1351.5	2027.3	1689.4	67.6	189.2	121.6	810.9	1081.2	946.1	2703	3243661	1621831	0	10812	2027

Fraser River Basin – Lower Region

CONTAMINANT LOADINGS

NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN 0.17 (kg)	MAX 1.19 (kg)	TYP 0.70 (kg)	MIN 1.50 (kg)	MAX 2.00 (kg)	TYP 1.75 (kg)	MIN 0.30 (kg)	MAX 0.40 (kg)	TYP 0.35 (kg)	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 20 (kg)	MAX 50 (kg)	TYP 35 (kg)	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 5 (kg)	MAX 15 (kg)	TYP 10 (kg)
10858	76008	44711	95808	127745	111777	18162	25549	22355	6387	12774	9581	1277	3194	2236	6387	12774	9581	319	958	639
8408	58853	34619	74184	98812	86548	14837	18782	17310	4946	9881	7418	889	2473	1731	4946	9881	7418	247	742	495
7373	51613	30361	65058	86745	75802	13012	17349	15180	4337	8674	6506	867	2169	1518	4337	8674	6506	217	651	434
5062	35434	20843	44665	56553	52108	6933	11911	10422	2978	5655	4466	596	1489	1042	2978	5955	4466	149	447	298
2323	16261	9565	20497	27330	23614	4099	5466	4783	1368	2733	2050	273	683	478	1366	2733	2050	68	205	137
2028	14195	8350	17883	23857	20875	3579	4771	4175	1193	2386	1789	239	596	418	1193	2386	1789	60	178	119
1438	10073	5825	12867	16929	14813	2539	3386	2963	846	1693	1270	169	423	296	846	1693	1270	42	127	85
1846	12924	7602	16291	21721	19006	3258	4344	3801	1086	2172	1629	217	543	380	1086	2172	1629	54	163	109
2873	20112	11830	25351	33801	29576	5070	6780	5915	1690	3380	2535	338	845	592	1690	3380	2535	85	254	169
8477	58342	34907	74801	99735	87288	14980	18947	17454	4987	9974	7480	997	2493	1745	4987	9974	7480	249	748	499
10685	74865	44038	94368	125824	110086	18874	25165	22019	6281	12582	9437	1258	3146	2202	6281	12582	9437	315	944	629
12851	88955	52915	113388	151186	132287	22678	30237	26457	7559	15119	11339	1512	3780	2646	7559	15119	11339	378	1134	756
74234	519636	305668	655003	873338	764170	131001	174668	152834	43667	87334	65500	8733	21833	15283	43667	87334	65500	2183	6550	4367

Fraser River Basin – Thompson Region

CONTAMINANT LOADINGS

NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN 0.17 (kg)	MAX 1.19 (kg)	TYP 0.70 (kg)	MIN 1.50 (kg)	MAX 2.00 (kg)	TYP 1.75 (kg)	MIN 0.30 (kg)	MAX 0.40 (kg)	TYP 0.35 (kg)	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 20 (kg)	MAX 50 (kg)	TYP 35 (kg)	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 5 (kg)	MAX 15 (kg)	TYP 10 (kg)
333	2334	1373	2941	3922	3432	588	784	686	196	392	294	39	98	69	196	392	294	10	29	20
211	1480	871	1868	2488	2177	373	498	435	124	249	187	25	62	44	124	249	187	6	19	12
122	853	502	1075	1434	1254	215	287	251	72	143	108	14	36	25	72	143	108	4	11	7
120	840	494	1058	1411	1235	212	282	247	71	141	106	14	35	25	71	141	106	4	11	7
118	828	487	1044	1382	1218	209	278	244	70	139	104	14	35	24	70	139	104	3	10	7
174	1215	714	1531	2041	1786	306	408	357	102	204	153	20	51	36	102	204	153	5	15	10
139	973	572	1228	1835	1431	245	327	296	82	164	123	16	41	29	82	164	123	4	12	8
174	1218	716	1535	2046	1780	307	409	358	102	205	153	20	51	36	102	205	153	5	15	10
132	925	544	1168	1554	1360	233	311	272	76	155	117	16	38	27	78	155	117	4	12	8
174	1218	716	1535	2048	1791	307	409	358	102	205	153	20	51	36	102	205	153	5	15	10
247	1732	1019	2183	2911	2547	437	582	508	148	291	218	29	73	51	148	291	218	7	22	15
353	2469	1452	3112	4150	3631	622	630	726	207	415	311	41	104	73	207	415	311	10	31	21
2298	16083	9461	20273	27031	23652	4055	5406	4730	1352	2703	2027	270	676	473	1352	2703	2027	68	203	135

Fraser River Basin – Lower Region

CONTAMINANT LOADINGS

CADMIUM ($\mu\text{g/L}$)			NICKEL ($\mu\text{g/L}$)			ARSENIC ($\mu\text{g/L}$)			PHENOLS ($\mu\text{g/L}$)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. ($\mu\text{g/L}$)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 9.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
318	638	511	1277	1916	1597	638	958	830	64	7345	830	181617	1980047	318362	114970	587627	255490	19	766	64
247	495	396	989	1484	1236	495	742	643	49	5687	643	148368	1533137	247280	89021	454995	197824	15	593	49
217	434	347	867	1301	1084	434	651	564	43	4868	564	130117	1344543	216862	78070	399026	173489	13	520	43
148	298	238	596	883	744	298	447	387	30	3424	387	88329	923067	148882	53597	273942	119105	9	357	30
68	137	108	273	410	342	137	205	178	14	1571	178	40995	423613	68825	24587	125717	54660	4	164	14
60	118	95	239	358	298	119	179	155	12	1372	155	35786	369788	58643	21472	109743	47715	4	143	12
42	85	68	168	254	212	85	127	110	8	973	110	25393	262395	42322	15236	77872	33857	3	102	8
54	108	87	217	326	272	108	163	141	11	1249	141	32582	336679	54303	19549	89918	43442	3	130	11
85	168	135	338	507	423	169	254	220	17	1944	220	50702	523916	84503	30421	155485	67802	5	203	17
249	499	399	997	1496	1247	499	748	648	50	5735	648	149603	1545896	249338	89762	458782	199471	15	598	50
315	629	503	1258	1887	1573	629	944	818	63	7235	818	188736	1950276	314581	113242	578792	251648	19	755	63
378	756	605	1512	2268	1890	756	1134	983	76	8683	983	226778	2343376	377964	136067	695454	302371	23	907	76
2183	4367	3493	8733	13100	10917	4367	6550	5677	437	50217	5677	1310006	13536732	2183344	786004	4017353	1746675	131	5240	437

Fraser River Basin – Thompson Region

CONTAMINANT LOADINGS

CADMIUM ($\mu\text{g/L}$)			NICKEL ($\mu\text{g/L}$)			ARSENIC ($\mu\text{g/L}$)			PHENOLS ($\mu\text{g/L}$)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. ($\mu\text{g/L}$)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 9.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
10	20	16	39	56	49	20	29	25	2	226	25	5883	60789	9805	3530	18041	7844	0.6	23.5	2.0
6	12	10	25	37	31	12	19	16	1	143	16	3732	38565	6220	2239	11445	4976	0.4	14.9	1.2
4	7	6	14	22	18	7	11	9	1	62	9	2150	22219	3584	1290	6594	2867	0.2	8.6	0.7
4	7	6	14	21	18	7	11	9	1	81	9	2117	21873	3528	1270	6491	2822	0.2	8.5	0.7
3	7	6	14	21	17	7	10	9	1	80	9	2086	21580	3481	1253	6404	2784	0.2	8.4	0.7
5	10	8	20	31	26	10	15	13	1	117	13	3062	31640	5103	1837	8390	4083	0.3	12.2	1.0
4	8	7	16	25	20	8	12	11	1	94	11	2453	25345	4088	1472	7522	3270	0.2	9.8	0.8
5	10	8	20	31	26	10	15	13	1	118	13	3069	31717	5116	1842	9413	4083	0.3	12.3	1.0
4	8	6	16	23	19	8	12	10	1	89	10	2331	24087	3885	1389	7148	3108	0.2	9.3	0.8
5	10	8	20	31	26	10	15	13	1	118	13	3070	31719	5116	1842	9413	4083	0.3	12.3	1.0
7	15	12	29	44	36	15	22	19	1	167	19	4386	45120	7277	2620	13380	5822	0.4	17.5	1.5
10	21	17	41	62	52	21	31	27	2	238	27	6224	64318	10374	3735	19088	8299	0.6	24.9	2.1
68	135	108	270	405	338	135	203	176	14	1554	176	40546	418973	67576	24327	124340	54061	4.1	162.2	13.5

	Area (ha)
Industrial	1621
Commercial	214
Residential	1440
Total urbanized area	3275
Total municipal area	4813

Fraser River Basin – Middle Region

MONTH	RUNOFF VOLUME (1000m³)
January	488
February	988
March	504
April	378
May	403
June	635
July	577
August	658
September	496
October	736
November	701
December	743
Total	7306

CONTAMINANT LOADINGS

	(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)			AMMONIA (mg/L)		
	MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)	MIN 0.00 (kg)	MAX 0.80 (kg)	TYP 0.15 (kg)
January	48.8	73.0	60.8	2.4	6.8	4.4	29.2	38.9	34.1	97	116751	58376	0	388	73
February	98.8	148.1	123.5	4.9	13.8	8.9	59.3	79.0	68.1	188	237037	118518	0	790	148
March	50.4	75.6	63.0	2.5	7.1	4.5	30.3	40.3	35.3	101	121002	60501	0	403	76
April	37.8	56.7	47.2	1.9	5.3	3.4	22.7	30.2	26.4	76	90681	45341	0	302	57
May	40.3	60.4	50.4	2.0	5.6	3.6	24.2	32.2	28.2	81	96690	48345	0	322	60
June	63.5	95.3	79.4	3.2	8.9	5.7	38.1	50.8	44.5	127	152423	76211	0	508	95
July	57.7	86.5	72.1	2.9	8.1	5.2	34.6	46.1	40.4	115	138361	69180	0	461	86
August	65.8	98.7	82.3	3.3	9.2	5.9	39.5	52.7	46.1	132	157968	78984	0	527	99
September	49.6	74.5	62.0	2.5	6.9	4.5	29.8	39.7	34.7	99	119120	59560	0	397	74
October	73.6	110.4	92.0	3.7	10.3	6.6	44.2	58.9	51.5	147	176661	88331	0	589	110
November	70.1	105.2	87.7	3.5	9.8	6.3	42.1	56.1	49.1	140	168340	84170	0	561	105
December	74.3	111.5	92.9	3.7	10.4	6.7	44.6	59.4	52.0	149	178327	89163	0	594	111
Total	730.6	1095.9	913.2	36.5	102.3	65.8	438.3	584.5	511.4	1461	1753360	876680	0	5845	1096

	Area (ha)
Industrial	3828
Commercial	200
Residential	14687
Total urbanized area	18715
Total municipal area	32249

Fraser River Basin – Upper Region

MONTH	RUNOFF VOLUME (1000m³)
January	2241
February	4482
March	6158
April	2409
May	2474
June	3494
July	3123
August	3567
September	3071
October	5205
November	4914
December	3626
Total	44765

CONTAMINANT LOADINGS

	(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)			AMMONIA (mg/L)		
	MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)	MIN 0.00 (kg)	MAX 0.80 (kg)	TYP 0.15 (kg)
January	224.1	338.1	280.1	11.2	31.4	20.2	134.5	179.3	156.9	448	537836	268818	0	1783	336
February	446.2	672.3	560.2	22.4	62.7	40.3	268.9	358.6	313.7	896	1075672	537836	0	3586	672
March	615.8	923.7	769.8	30.8	86.2	55.4	369.5	492.7	431.1	1232	1477990	738805	0	4827	924
April	240.8	361.3	301.1	12.0	33.7	21.7	144.5	192.7	168.6	482	578068	288034	0	1927	361
May	247.4	371.1	309.3	12.4	34.6	22.3	148.5	197.9	173.2	495	593807	298804	0	1979	371
June	349.4	524.1	436.8	17.5	48.8	31.4	209.7	279.5	244.6	699	838811	418306	0	2795	524
July	312.3	468.4	380.4	15.8	43.7	28.1	187.4	249.8	218.6	625	748478	374736	0	2496	468
August	356.7	535.1	445.9	17.8	49.9	32.1	214.0	285.4	249.7	713	856187	428094	0	2854	535
September	307.1	460.8	383.8	15.4	43.0	27.8	184.2	245.8	214.8	614	736824	368462	0	2458	461
October	520.5	780.8	650.7	26.0	72.9	46.8	312.3	418.4	364.4	1041	1249304	628652	0	4184	781
November	491.4	737.1	614.3	24.6	68.8	44.2	294.9	393.1	344.0	983	1178428	588714	0	3931	737
December	362.6	543.8	453.3	16.1	50.8	32.8	217.6	290.1	253.8	725	870278	435130	0	2901	544
Total	4476.5	6714.7	5595.6	223.8	626.7	402.9	2685.9	3581.2	3133.5	8953	10743584	5371792	0	35812	6715

Fraser River Basin – Middle Region

CONTAMINANT LOADINGS

NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
83	579	341	730	973	851	146	195	170	49	97	73	10	24	17	49	97	73	2	7	5
168	1175	691	1481	1975	1728	296	395	346	99	196	148	20	49	35	99	198	148	5	15	10
86	600	353	756	1008	882	151	202	176	50	101	76	10	25	18	50	101	76	3	8	5
64	450	264	587	756	681	113	151	132	38	76	57	8	19	13	38	76	57	2	6	4
68	479	282	604	808	705	121	161	141	40	81	60	8	20	14	40	81	60	2	6	4
108	758	445	953	1270	1111	191	254	222	64	127	95	13	32	22	64	127	95	3	10	6
98	686	404	865	1153	1009	173	231	202	58	115	86	12	29	20	58	115	86	3	9	6
112	783	461	987	1316	1152	197	263	230	68	132	98	13	33	23	66	132	99	3	10	7
84	591	347	745	993	869	149	199	174	50	99	74	10	25	17	50	99	74	2	7	5
125	876	515	1104	1472	1288	221	294	258	74	147	110	15	37	26	74	147	110	4	11	7
118	835	491	1052	1403	1227	210	281	245	70	140	105	14	35	25	70	140	105	4	11	7
126	884	520	1115	1486	1300	223	297	260	74	149	111	15	37	26	74	149	111	4	11	7
1242	8694	5114	10859	14611	12785	2192	2922	2557	731	1461	1096	146	365	256	731	1461	1096	37	110	73

Fraser River Basin – Upper Region

CONTAMINANT LOADINGS

NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
381	2667	1569	3361	4482	3822	672	896	784	224	448	336	45	112	78	224	448	336	11	34	22
762	5334	3137	6723	8964	7843	1345	1793	1569	448	896	672	90	224	157	448	896	672	22	67	45
1047	7328	4311	9237	12317	10777	1847	2463	2155	618	1232	924	123	308	216	616	1232	924	31	92	62
408	2866	1686	3613	4817	4215	723	963	843	241	482	381	48	120	84	241	482	361	12	36	24
421	2944	1732	3711	4948	4330	742	990	866	247	495	371	49	124	87	247	495	371	12	37	25
594	4158	2446	5241	6988	6115	1048	1398	1223	349	699	524	70	175	122	349	699	524	17	52	35
531	3716	2186	4684	6246	5465	937	1249	1083	312	625	468	62	156	108	312	625	468	16	47	31
606	4245	2497	5351	7135	6243	1070	1427	1249	357	713	535	71	178	125	357	713	535	18	54	36
522	3654	2149	4606	6141	5373	921	1228	1075	307	614	461	61	154	107	307	614	461	15	46	31
885	6194	3644	7808	10411	8110	1582	2082	1822	521	1041	781	104	260	182	521	1041	781	28	78	52
835	5848	3440	7371	9829	8600	1474	1988	1720	491	983	737	88	246	172	491	983	737	25	74	49
616	4315	2538	5438	7252	6346	1088	1450	1269	363	725	544	73	181	127	363	725	544	18	54	36
7610	53270	31335	67147	89530	78339	13429	17906	15668	4476	8953	6715	895	2238	1567	4476	8953	6715	224	671	448

Fraser River Basin – Middle Region

CONTAMINANT LOADINGS

CADMIUM (ug/L)			NICKEL (ug/L)			ARSENIC (ug/L)			PHENOLS (ug/L)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. (ug/L)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 9.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
2	5	4	10	15	12	5	7	6	0	56	6	1459	15080	2432	876	4475	1946	0.1	5.8	0.5
5	10	8	20	30	25	10	15	13	1	114	13	2963	30617	4938	1778	9086	3951	0.3	11.9	1.0
3	5	4	10	15	13	5	8	7	1	58	7	1513	15629	2521	908	4638	2017	0.2	6.1	0.5
2	4	3	8	11	9	4	6	5	0	43	5	1134	11713	1888	680	3476	1511	0.1	4.5	0.4
2	4	3	8	12	10	4	6	5	0	46	5	1209	12489	2014	725	3706	1611	0.1	4.8	0.4
3	6	5	13	19	16	6	10	8	1	73	8	1905	19688	3175	1143	5843	2540	0.2	7.6	0.6
3	6	5	12	17	14	6	9	7	1	66	7	1730	17872	2883	1038	5304	2306	0.2	6.8	0.6
3	7	5	13	20	16	7	10	9	1	76	9	1975	20404	3291	1185	6055	2633	0.2	7.9	0.7
2	5	4	10	15	12	5	7	6	0	57	6	1489	15388	2482	893	4566	1985	0.1	6.0	0.5
4	7	6	15	22	18	7	11	10	1	85	10	2208	22818	3680	1325	6772	2944	0.2	8.8	0.7
4	7	6	14	21	18	7	11	9	1	81	9	2104	21744	3507	1263	6453	2806	0.2	8.4	0.7
4	7	6	15	22	19	7	11	10	1	85	10	2229	23034	3715	1337	6836	2972	0.2	8.9	0.7
37	73	58	146	219	183	73	110	95	7	840	95	21917	226476	36528	13150	67212	29223	2.2	87.7	7.3

Fraser River Basin – Upper Region

CONTAMINANT LOADINGS

CADMIUM (ug/L)			NICKEL (ug/L)			ARSENIC (ug/L)			PHENOLS (ug/L)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. (ug/L)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 9.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
11	22	18	45	67	56	22	34	29	2	258	29	6723	69470	11205	4034	20617	8964	0.7	26.9	2.2
22	45	36	90	134	112	45	67	58	4	515	58	13446	138941	22410	8068	41234	17928	1.3	53.8	4.5
31	62	49	123	185	154	62	92	80	6	708	80	18475	180807	30791	11085	56656	24633	1.8	73.9	6.2
12	24	19	48	72	60	24	36	31	2	277	31	7226	74667	12043	4336	22159	9634	0.7	28.9	2.4
12	25	20	49	74	62	25	37	32	2	285	32	7423	76700	12371	4454	22763	9887	0.7	29.7	2.5
17	35	28	70	105	87	35	52	45	3	402	45	10483	108321	17471	6290	32147	13877	1.0	41.9	3.5
16	31	25	62	94	78	31	47	41	3	358	41	9368	96808	15614	5621	28730	12491	0.9	37.5	3.1
18	36	28	71	107	89	36	54	46	4	410	46	10702	110581	17837	6421	32821	14270	1.1	42.8	3.6
15	31	25	61	92	77	31	46	40	3	353	40	8212	85186	15353	5527	28248	12282	0.9	36.8	3.1
26	52	42	104	156	130	52	78	68	5	599	68	15818	161368	26027	9370	47890	20822	1.6	62.5	5.2
25	49	39	98	147	123	49	74	64	5	565	64	14743	152343	24571	8848	45211	19857	1.5	58.0	4.8
18	36	29	73	106	91	36	54	47	4	417	47	10878	112411	18131	6527	33361	14505	1.1	43.5	3.6
224	448	358	895	1343	1119	448	671	582	45	5148	582	134295	1387713	223825	80577	411837	179060	13.4	537.2	44.8

BURRARD INLET AND HYDROGRAPHIC REGIONS

RUNOFF AND CONTAMINANT LOADING DATA

	Area (ha)
Industrial	2064
Commercial	674
Residential	12192
Total urbanized area	14930
Total municipal area	68605

Burrard Inlet Basin

CONTAMINANT LOADINGS

MONTH	RUNOFF VOLUME (1000m³)
January	19214
February	15655
March	13602
April	8660
May	3912
June	3373
July	2503
August	3030
September	4924
October	15821
November	19395
December	22997
Total	133086

	(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)			AMMONIA (mg/L)		
	MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)	MIN 0.00 (kg)	MAX 0.80 (kg)	TYP 0.15 (kg)
January	1921.4	2882.0	2401.7	96.1	269.0	172.8	1152.8	1537.1	1344.9	3843	4611251	2305625	0	15371	2882
February	1565.5	2348.3	1956.9	78.3	219.2	140.9	939.3	1252.4	1095.9	3131	3757205	1878602	0	12524	2348
March	1360.2	2040.3	1700.2	68.0	190.4	122.4	816.1	1088.1	952.1	2720	3264409	1632204	0	10881	2040
April	866.0	1299.1	1082.6	43.3	121.2	77.9	519.6	692.8	606.2	1732	2078515	1039258	0	6928	1299
May	391.2	586.7	489.0	19.6	54.8	35.2	234.7	312.9	273.8	782	938788	469394	0	3129	587
June	337.3	506.0	421.6	16.8	47.2	30.4	202.4	269.8	236.1	675	808561	404781	0	2699	508
July	250.3	375.4	312.9	12.5	35.0	22.5	150.2	200.2	175.2	501	600687	300344	0	2002	375
August	303.0	454.5	378.7	15.1	42.4	27.3	181.8	242.4	212.1	606	727168	363584	0	2424	454
September	492.4	738.6	615.5	24.6	68.9	44.3	295.4	393.9	344.7	985	1181752	590876	0	3939	739
October	1582.1	2373.2	1977.7	79.1	221.5	142.4	949.3	1265.7	1107.5	3164	3797135	1898567	0	12657	2373
November	1939.5	2909.2	2424.3	97.0	271.5	174.6	1163.7	1551.6	1357.6	3879	4654719	2327359	0	15516	2909
December	2299.7	3449.6	2874.7	115.0	322.0	207.0	1379.8	1839.8	1609.8	4599	5518334	2759667	0	18398	3450
Total	133086.6	19962.8	16635.7	665.4	1863.2	1197.8	7985.1	10646.8	9316.0	26617	31940524	15970262	0	106468	19963

Burrard Inlet Basin

CONTAMINANT LOADINGS

NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN 0.17 (kg)	MAX 1.18 (kg)	TYP 0.70 (kg)	MIN 1.50 (kg)	MAX 2.00 (kg)	TYP 1.75 (kg)	MIN 0.30 (kg)	MAX 0.40 (kg)	TYP 0.35 (kg)	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 20 (kg)	MAX 50 (kg)	TYP 35 (kg)	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 5 (kg)	MAX 15 (kg)	TYP 10 (kg)
3266	22864	13448	28820	38427	33624	5764	7685	6725	1921	3843	2882	384	961	672	1921	3843	2882	96	288	182
2661	18629	10959	23483	31310	27398	4697	6262	5478	1566	3131	2348	313	783	548	1566	3131	2348	78	235	157
2312	16188	9521	20403	27203	23803	4081	5441	4761	1360	2720	2040	272	680	476	1360	2720	2040	88	204	136
1472	10306	6062	12991	17321	15158	2598	3464	3031	868	1732	1299	173	433	303	868	1732	1299	43	130	87
665	4655	2738	5867	7823	6845	1173	1565	1369	391	782	587	78	196	137	391	782	587	20	59	39
573	4014	2361	5060	6746	5903	1012	1349	1181	337	675	506	67	168	118	337	675	506	17	51	34
425	2978	1752	3754	5006	4380	751	1001	876	250	501	375	50	125	88	250	501	375	13	38	25
515	3606	2121	4545	6060	5302	909	1212	1060	303	606	454	61	151	106	303	606	454	15	45	30
837	5860	3447	7386	9848	8617	1477	1970	1723	492	985	739	98	246	172	492	985	739	25	74	49
2690	18827	11075	23732	31643	27687	4746	6329	5537	1582	3164	2373	316	791	554	1582	3164	2373	79	237	158
3297	23080	13576	29092	38789	33941	5818	7758	6788	1939	3879	2909	388	970	679	1939	3879	2909	97	291	194
3910	27367	16088	34496	45894	40245	6899	9199	8049	2300	4599	3450	460	1150	805	2300	4599	3450	115	345	230
22625	158372	93160	199628	266171	232900	39926	53234	46580	13309	26617	19963	2662	6654	4658	13309	26617	19963	665	1996	1331

Burrard Inlet Basin

CONTAMINANT LOADINGS

CADMIUM ($\mu\text{g/L}$)			NICKEL ($\mu\text{g/L}$)			ARSENIC ($\mu\text{g/L}$)			PHENOLS ($\mu\text{g/L}$)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. ($\mu\text{g/L}$)		
MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP
5	10	8	20	30	25	10	15	13	1	115	13	3	31	5	1.80	9.20	4.00	0.30	12.00	1.00
86	192	154	384	576	480	192	288	250	19	2210	250	57641	595620	96068	34584	176765	76854	6	231	19
78	157	125	313	470	381	157	235	204	16	1800	204	46965	485306	78275	28179	144026	62620	5	188	16
68	136	109	272	408	340	136	204	177	14	1564	177	40805	421653	68009	24483	125136	54407	4	163	14
43	87	69	173	260	217	87	130	113	9	996	113	25981	268475	43302	15589	78676	34642	3	104	9
20	39	31	78	117	98	39	59	51	4	450	51	11735	121260	19558	7041	35987	15646	1	47	4
17	34	27	67	101	84	34	51	44	3	388	44	10120	104568	16886	6072	31033	13493	1	40	3
13	25	20	50	75	63	25	38	33	3	288	33	7509	77589	12514	4505	23026	10011	1	30	3
15	30	24	61	81	76	30	45	39	3	348	39	9090	93926	15149	5454	27875	12119	1	36	3
25	49	39	98	148	123	49	74	64	5	566	64	14772	152643	24620	8863	45300	19696	1	59	5
79	158	127	316	475	396	158	237	206	16	1819	206	47464	490463	79107	28479	145557	63286	5	190	16
87	194	155	388	582	485	194	291	252	19	2230	252	58184	601235	96973	34910	178431	77579	6	233	19
115	230	184	460	690	575	230	345	299	23	2645	299	68982	712914	114986	41385	211574	91989	7	276	23
665	1331	1065	2662	3993	3327	1331	1996	1730	133	15305	1730	399257	4125651	665428	239554	1224387	532342	40	1597	133

	Area (ha)
Industrial	450
Commercial	248
Residential	4994
Total urbanized area	5692
Total municipal area	14774

Burrard Inlet Basin – Outer Harbour

MONTH	RUNOFF VOLUME (1000m³)
January	6782
February	5334
March	4637
April	2882
May	1243
June	1109
July	826
August	1073
September	1643
October	5487
November	6740
December	8191
Total	45924

CONTAMINANT LOADINGS

	(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)			AMMONIA (mg/L)		
	MIN 100	MAX 150	TYP 125	MIN 5	MAX 14	TYP 9	MIN 60	MAX 80	TYP 70	MIN 20	MAX 24000	TYP 12000	MIN 0.00	MAX 0.80	TYP 0.15
	(tonne)	(tonne)	(tonne)	(tonne)	(tonne)	(tonne)	(tonne)	(tonne)	(tonne)	(billion)	(billion)	(billion)	(kg)	(kg)	(kg)
January	676.2	1014.2	845.2	33.8	94.7	60.9	405.7	540.9	473.3	1352	1622792	811396	0	5409	1014
February	533.4	800.0	668.7	26.7	74.7	48.0	320.0	428.7	373.3	1067	1280052	640026	0	4267	800
March	463.7	695.5	579.8	23.2	64.9	41.7	278.2	370.9	324.6	927	1112798	556399	0	3708	695
April	288.2	432.2	360.2	14.4	40.3	25.9	172.9	230.5	201.7	578	691578	345789	0	2305	432
May	124.3	186.4	155.3	6.2	17.4	11.2	74.6	99.4	87.0	249	298253	149128	0	994	186
June	110.9	166.3	138.6	5.5	15.5	10.0	66.5	88.7	77.6	222	266155	133077	0	887	186
July	82.6	123.9	103.3	4.1	11.6	7.4	49.6	66.1	57.8	165	198277	99139	0	681	124
August	107.3	160.9	134.1	5.4	15.0	9.7	64.4	85.8	75.1	215	257460	128730	0	858	181
September	164.3	246.4	205.3	8.2	23.0	14.8	98.6	131.4	115.0	329	394240	197120	0	1314	248
October	548.7	823.0	685.9	27.4	76.8	49.4	329.2	438.0	384.1	1097	1316854	658427	0	4390	823
November	674.0	1010.9	842.4	33.7	94.4	60.7	404.4	539.2	471.8	1348	1617497	808749	0	5392	1011
December	819.1	1228.7	1023.9	41.0	114.7	73.7	491.5	655.3	573.4	1638	1965857	982828	0	6553	1229
Total	4592.4	6888.6	5740.5	229.6	642.9	413.3	2755.5	3673.9	3214.7	9185	11021813	5510906	0	36739	6889

	Area (ha)
Industrial	953
Commercial	331
Residential	4790
Total urbanized area	6074
Total municipal area	20448

Burrard Inlet Basin – Inner Harbour

MONTH	RUNOFF VOLUME (1000m³)
January	7883
February	6606
March	5808
April	3566
May	1716
June	1447
July	1077
August	1269
September	2144
October	6630
November	8188
December	9417
Total	55749

CONTAMINANT LOADINGS

	(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)			AMMONIA (mg/L)		
	MIN 100	MAX 150	TYP 125	MIN 5	MAX 14	TYP 9	MIN 60	MAX 80	TYP 70	MIN 20	MAX 24000	TYP 12000	MIN 0.00	MAX 0.80	TYP 0.15
	(tonne)	(tonne)	(tonne)	(tonne)	(tonne)	(tonne)	(tonne)	(tonne)	(tonne)	(billion)	(billion)	(billion)	(kg)	(kg)	(kg)
January	788.3	1182.5	985.4	39.4	110.4	70.9	473.0	630.6	551.8	1577	1891920	845960	0	8308	1182
February	660.6	990.9	825.7	33.0	92.5	59.5	396.4	528.5	462.4	1321	1585410	792705	0	5285	991
March	580.8	871.2	726.0	29.0	81.3	52.3	348.5	464.7	406.8	1162	1393664	696982	0	4647	871
April	356.6	535.0	445.8	17.8	49.8	32.1	214.0	285.3	249.6	713	855925	427962	0	2853	535
May	171.6	257.3	214.4	8.8	24.0	15.4	102.9	137.2	120.1	343	411722	205861	0	1372	257
June	144.7	217.0	180.8	7.2	20.3	13.0	86.8	115.7	101.3	289	347196	173598	0	1157	217
July	107.7	161.6	134.7	5.4	15.1	9.7	64.6	86.2	75.4	215	258533	129267	0	862	162
August	126.9	190.4	158.7	6.3	17.8	11.4	76.2	101.5	88.9	254	304633	152317	0	1015	190
September	214.4	321.6	268.0	10.7	30.0	19.3	128.6	171.5	150.1	429	514595	257297	0	1715	322
October	663.0	994.4	828.7	33.1	82.8	59.7	397.8	530.4	464.1	1326	1581088	795544	0	5304	994
November	818.6	1228.0	1023.3	40.8	114.6	73.7	491.2	654.9	573.0	1637	1984730	982365	0	6549	1228
December	941.7	1412.6	1177.1	47.1	131.8	84.8	565.0	753.4	659.2	1883	2260082	1130041	0	7534	1413
Total	5574.9	8362.4	6968.6	278.7	780.5	501.7	3344.9	4459.9	3902.4	11150	13379798	6689899	0	44599	8362

Burrard Inlet Basin – Outer Harbour

CONTAMINANT LOADINGS

NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP
0.17 (kg)	1.19 (kg)	0.70 (kg)	1.50 (kg)	2.00 (kg)	1.75 (kg)	0.30 (kg)	0.40 (kg)	0.35 (kg)	100 (kg)	200 (kg)	150 (kg)	20 (kg)	50 (kg)	35 (kg)	100 (kg)	200 (kg)	150 (kg)	5 (kg)	15 (kg)	10 (kg)
1149	8046	4733	10142	13523	11833	2028	2705	2367	676	1352	1014	135	338	237	676	1352	1014	34	101	68
907	6347	3733	8000	10667	9334	1800	2133	1867	533	1067	800	107	267	187	533	1067	800	27	80	53
788	5518	3248	6855	9273	8114	1391	1855	1623	464	927	695	93	232	182	464	927	695	23	70	46
490	3429	2017	4322	5763	5043	884	1153	1009	268	576	432	58	144	101	288	576	432	14	43	29
211	1479	870	1864	2485	2175	373	497	435	124	249	186	25	62	43	124	249	186	6	19	12
189	1320	776	1663	2218	1841	333	444	388	111	222	166	22	55	38	111	222	166	6	17	11
140	983	578	1239	1852	1446	248	330	289	83	165	124	17	41	29	83	165	124	4	12	8
182	1277	751	1609	2145	1877	322	429	375	107	215	161	21	54	38	107	215	161	5	16	11
279	1655	1150	2464	3285	2875	493	657	575	164	329	246	33	82	57	164	329	246	8	25	16
933	6529	3841	8230	10974	9602	1646	2195	1920	549	1097	823	110	274	192	549	1097	823	27	82	55
1146	8020	4718	10109	13479	11794	2022	2698	2359	674	1348	1011	135	337	238	674	1348	1011	34	101	67
1382	9747	5734	12287	16382	14334	2457	3276	2867	819	1638	1229	164	410	287	819	1638	1229	41	123	62
7807	54650	32147	68886	91848	80367	13777	18370	16073	4592	9185	6889	918	2296	1607	4592	9185	6889	230	689	459

Burrard Inlet Basin – Inner Harbour

CONTAMINANT LOADINGS

NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP
0.17 (kg)	1.19 (kg)	0.70 (kg)	1.50 (kg)	2.00 (kg)	1.75 (kg)	0.30 (kg)	0.40 (kg)	0.35 (kg)	100 (kg)	200 (kg)	150 (kg)	20 (kg)	50 (kg)	35 (kg)	100 (kg)	200 (kg)	150 (kg)	5 (kg)	15 (kg)	10 (kg)
1340	9381	5518	11825	15766	13795	2365	3153	2759	788	1577	1182	158	394	276	788	1577	1182	38	118	79
1123	7861	4624	9909	13212	11580	1982	2642	2312	661	1321	991	132	330	231	661	1321	991	33	99	66
987	6812	4066	8712	11616	10164	1742	2323	2033	581	1162	871	116	280	203	581	1162	871	29	87	58
606	4244	2496	5350	7133	6241	1070	1427	1248	357	713	535	71	178	125	357	713	535	18	53	36
292	2041	1201	2573	3431	3002	515	686	600	172	343	257	34	66	60	172	343	257	9	26	17
246	1722	1013	2170	2893	2532	434	579	506	145	289	217	29	72	51	145	289	217	7	22	14
183	1282	754	1618	2154	1885	323	431	377	108	215	162	22	54	38	108	215	162	5	16	11
216	1510	889	1904	2539	2221	381	508	444	127	254	190	25	63	44	127	254	190	6	19	13
365	2552	1501	3216	4268	3752	643	858	750	214	429	322	43	107	75	214	429	322	11	32	21
1127	7889	4641	9944	13259	11602	1989	2652	2320	663	1328	994	133	331	232	663	1326	994	33	99	66
1392	9742	5730	12280	16373	14326	2456	3275	2865	819	1637	1228	164	409	287	819	1637	1228	41	123	62
1601	11206	6592	14126	18834	16480	2825	3767	3296	942	1883	1413	188	471	330	942	1663	1413	47	141	94
9477	66342	39024	83624	111498	97561	16725	22300	19512	5575	11150	8362	1115	2787	1951	5575	11150	8362	279	836	557

Burrard Inlet Basin – Outer Harbour

CONTAMINANT LOADINGS

CADMIUM (ug/L)			NICKEL (ug/L)			ARSENIC (ug/L)			PHENOLS (ug/L)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. (ug/L)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 8.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
34	68	54	135	203	169	68	101	88	7	778	88	20285	209611	33808	12171	62207	27047	2.0	81.1	6.8
27	53	43	107	160	133	53	80	69	5	613	69	16001	165340	26688	9800	49069	21334	1.6	64.0	5.3
23	46	37	93	139	116	46	70	60	5	533	60	13910	143736	23183	8348	42657	18547	1.4	55.8	4.6
14	29	23	58	86	72	29	43	37	3	331	37	8645	89329	14408	5187	26510	11526	0.8	34.6	2.9
6	12	10	25	37	31	12	19	18	1	143	18	3728	38524	8214	2237	11433	4971	0.4	14.9	1.2
6	11	9	22	33	28	11	17	14	1	128	14	3327	34378	5545	1986	10203	4436	0.3	13.3	1.1
4	8	7	17	25	21	8	12	11	1	95	11	2478	25611	4131	1487	7601	3305	0.2	9.9	0.8
5	11	9	21	32	27	11	16	14	1	123	14	3218	33255	5364	1931	9869	4291	0.3	12.9	1.1
8	16	13	33	49	41	16	25	21	2	189	21	4928	50923	8213	2957	15113	6571	0.5	19.7	1.6
27	55	44	110	165	137	55	82	71	5	631	71	16461	170094	27434	9876	50479	21948	1.6	65.8	5.5
34	67	54	135	202	168	67	101	88	7	775	88	20218	208927	33698	12131	62004	26958	2.0	80.9	6.7
41	82	66	164	246	205	82	123	106	8	942	108	24573	253923	40855	14744	75358	32784	2.5	98.3	8.2
230	459	367	918	1378	1148	459	689	597	46	5281	597	137773	1423651	229621	82664	422503	183697	13.8	551.1	45.9

Burrard Inlet Basin – Inner Harbour

CONTAMINANT LOADINGS

CADMIUM (ug/L)			NICKEL (ug/L)			ARSENIC (ug/L)			PHENOLS (ug/L)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. (ug/L)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 8.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
39	79	63	158	236	197	79	118	102	8	907	102	23649	244373	39415	14188	72524	31532	2.4	94.6	7.9
33	66	53	132	198	165	66	99	86	7	760	86	19818	204782	33028	11891	60774	26423	2.0	78.3	6.6
29	58	46	116	174	145	58	87	76	6	668	76	17425	180054	29041	10455	53435	23233	1.7	69.7	5.8
18	36	29	71	107	89	36	53	46	4	410	46	10699	110557	17832	8419	32810	14265	1.1	42.8	3.6
9	17	14	34	51	43	17	26	22	2	197	22	5147	53181	8578	3088	15783	6862	0.5	20.6	1.7
7	14	12	29	43	36	14	22	19	1	166	19	4340	44848	7233	2604	13309	5787	0.4	17.4	1.4
5	11	9	22	32	27	11	18	14	1	124	14	3232	33394	5386	1939	9910	4309	0.3	12.9	1.1
6	13	10	25	38	32	13	19	17	1	146	17	3808	39348	6347	2285	11678	5077	0.4	15.2	1.3
11	21	17	43	64	54	21	32	28	2	247	28	6432	66468	10721	3859	19726	8577	0.6	25.7	2.1
33	66	53	133	198	166	66	99	86	7	762	86	19889	205516	33148	11933	60992	26518	2.0	79.6	6.6
41	82	65	164	246	205	82	123	106	8	941	106	24559	253778	40832	14735	75315	32746	2.5	88.2	6.2
47	94	75	188	283	235	94	141	122	9	1083	122	28251	291927	47085	16851	86636	37668	2.8	113.0	9.4
279	557	446	1115	1672	1394	557	836	725	56	6411	725	167247	1728224	278746	100348	512892	222997	16.7	669.0	55.7

	Area (ha)
Industrial	374
Commercial	39
Residential	1156
Total urbanized area	1569
Total municipal area	15129

Burrard Inlet Basin – Central Harbour

MONTH	RUNOFF VOLUME (1000m³)
January	2314
February	1829
March	1661
April	1091
May	507
June	419
July	316
August	369
September	625
October	1952
November	2369
December	2746
Total	16300

CONTAMINANT LOADINGS

	(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)			AMMONIA (mg/L)		
	MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 80 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)	MIN 0.00 (kg)	MAX 0.80 (kg)	TYP 0.15 (kg)
January	231.4	347.0	289.2	11.6	32.4	20.8	136.8	185.1	162.0	483	555263	277632	0	1851	347
February	192.9	289.4	241.2	9.6	27.0	17.4	115.8	154.3	135.0	386	463015	231507	0	1543	289
March	166.1	249.2	207.7	8.3	23.3	15.0	99.7	132.9	116.3	332	398760	199380	0	1329	249
April	109.1	163.7	136.4	5.5	15.3	9.8	65.5	87.3	78.4	218	261953	130976	0	873	164
May	50.7	78.1	63.4	2.5	7.1	4.8	30.4	40.6	35.5	101	121726	60863	0	406	76
June	41.9	62.9	52.4	2.1	5.9	3.8	25.2	33.6	29.4	84	100677	50338	0	336	63
July	31.6	47.4	39.5	1.6	4.4	2.8	18.9	25.3	22.1	63	75798	37899	0	253	47
August	36.9	55.3	46.1	1.8	5.2	3.3	22.1	29.5	25.8	74	88549	44275	0	295	55
September	62.5	93.7	78.1	3.1	8.7	5.6	37.5	50.0	43.7	125	149928	74964	0	500	94
October	195.2	292.8	244.0	9.8	27.3	17.6	117.1	156.2	136.6	390	488458	234229	0	1562	293
November	236.9	355.4	296.2	11.8	33.2	21.3	142.2	189.6	165.9	474	568662	284331	0	1896	355
December	274.6	412.0	343.3	13.7	38.4	24.7	164.8	219.7	192.2	549	658138	329569	0	2197	412
Total	1630.0	2445.0	2037.5	81.5	228.2	146.7	978.0	1304.0	1141.0	3260	3911927	1955964	0	13040	2445

	Area (ha)
Industrial	287
Commercial	57
Residential	1252
Total urbanized area	1596
Total municipal area	18255

Burrard Inlet Basin – Eastern Harbour

MONTH	RUNOFF VOLUME (1000m³)
January	2255
February	1786
March	1495
April	1121
May	446
June	398
July	284
August	319
September	512
October	1753
November	2099
December	2643
Total	15112

CONTAMINANT LOADINGS

	(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)			AMMONIA (mg/L)		
	MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 80 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)	MIN 0.00 (kg)	MAX 0.80 (kg)	TYP 0.15 (kg)
January	225.5	338.3	281.9	11.3	31.6	20.3	135.3	180.4	157.9	451	541275	270637	0	1804	338
February	178.8	268.0	223.3	8.9	25.0	16.1	107.2	142.9	125.0	357	428728	214364	0	1429	268
March	149.5	224.3	186.9	7.5	20.9	13.5	89.7	119.6	104.7	299	358886	179443	0	1198	224
April	112.1	168.2	140.1	5.6	15.7	10.1	67.3	89.7	78.5	224	269060	134530	0	897	168
May	44.8	66.8	55.8	2.2	6.2	4.0	26.8	35.7	31.2	89	107087	53544	0	357	67
June	39.8	58.7	49.8	2.0	5.6	3.6	23.9	31.8	27.9	80	95534	47767	0	318	60
July	28.4	42.5	35.5	1.4	4.0	2.6	17.0	22.7	19.9	57	68079	34039	0	227	43
August	31.9	47.8	39.9	1.6	4.5	2.9	19.1	25.5	22.3	64	76526	38263	0	255	48
September	51.2	76.8	64.1	2.6	7.2	4.6	30.7	41.0	35.9	102	122989	61494	0	410	77
October	175.3	263.0	219.1	8.8	24.5	15.8	105.2	140.2	122.7	351	420734	210367	0	1402	263
November	209.8	314.8	262.4	10.5	29.4	18.9	126.0	167.9	147.0	420	503829	251915	0	1678	315
December	264.3	396.4	330.3	13.2	37.0	23.8	158.6	211.4	185.0	529	634257	317129	0	2114	396
Total	1511.2	2266.9	1889.1	75.6	211.6	136.0	906.7	1209.0	1057.9	3022	3626985	1813493	0	12090	2267

Burrard Inlet Basin – Central Harbour

CONTAMINANT LOADINGS

NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN 0.17 (kg)	MAX 1.19 (kg)	TYP 0.70 (kg)	MIN 1.50 (kg)	MAX 2.00 (kg)	TYP 1.75 (kg)	MIN 0.30 (kg)	MAX 0.40 (kg)	TYP 0.35 (kg)	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 20 (kg)	MAX 50 (kg)	TYP 35 (kg)	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 5 (kg)	MAX 15 (kg)	TYP 10 (kg)
383	2753	1620	3470	4627	4049	694	925	810	231	463	347	46	116	81	231	463	347	12	35	23
328	2296	1350	2894	3858	3376	579	772	675	193	386	289	39	96	68	193	386	289	10	29	19
282	1977	1163	2492	3323	2908	498	665	582	166	332	249	33	83	58	166	332	249	8	25	17
186	1299	764	1637	2183	1910	327	437	382	109	218	164	22	55	38	109	218	164	5	16	11
86	604	355	761	1014	888	152	203	178	51	101	78	10	25	16	51	101	78	3	6	5
71	499	294	629	839	734	126	168	147	42	84	63	8	21	15	42	84	63	2	6	4
54	376	221	474	632	553	95	126	111	32	83	47	6	16	11	32	63	47	2	5	3
63	439	258	553	738	646	111	148	129	37	74	55	7	16	13	37	74	55	2	6	4
106	743	437	937	1249	1093	187	250	219	62	125	94	12	31	22	62	125	94	3	9	6
332	2323	1366	2928	3904	3416	586	781	683	195	390	293	39	98	68	185	390	293	10	29	20
403	2820	1659	3554	4739	4146	711	948	829	237	474	355	47	116	83	237	474	355	12	36	24
487	3268	1922	4120	5493	4806	824	1099	961	275	549	412	55	137	96	275	549	412	14	41	27
2771	19397	11410	24450	32599	28524	4890	6520	5705	1630	3260	2445	326	815	570	1630	3260	2445	81	244	163

Burrard Inlet Basin – Eastern Harbour

CONTAMINANT LOADINGS

NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN 0.17 (kg)	MAX 1.19 (kg)	TYP 0.70 (kg)	MIN 1.50 (kg)	MAX 2.00 (kg)	TYP 1.75 (kg)	MIN 0.30 (kg)	MAX 0.40 (kg)	TYP 0.35 (kg)	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 20 (kg)	MAX 50 (kg)	TYP 35 (kg)	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 5 (kg)	MAX 15 (kg)	TYP 10 (kg)
383	2684	1579	3383	4511	3947	677	902	789	226	451	336	45	113	79	226	451	336	11	34	23
304	2126	1250	2680	3573	3126	536	715	625	179	357	266	36	89	63	179	357	266	9	27	18
254	1779	1047	2243	2991	2617	449	598	523	150	299	224	30	75	52	150	299	224	7	22	15
191	1334	785	1682	2242	1962	336	448	392	112	224	168	22	56	39	112	224	168	6	17	11
76	531	312	669	882	781	134	178	156	45	89	67	9	22	16	45	89	67	2	7	4
68	474	279	597	796	697	119	159	139	40	80	60	8	20	14	40	80	60	2	6	4
48	338	199	425	567	496	85	113	99	28	57	43	6	14	10	28	57	43	1	4	3
54	379	223	478	638	558	96	128	112	32	64	48	6	16	11	32	64	48	2	5	3
87	610	359	768	1025	897	154	205	179	51	102	77	10	26	18	51	102	77	3	6	5
298	2086	1227	2630	3506	3068	528	701	614	175	351	263	35	88	61	175	351	263	9	26	18
357	2498	1470	3149	4189	3674	630	840	735	210	420	315	42	105	73	210	420	315	10	31	21
449	3145	1850	3964	5285	4625	793	1057	925	264	529	396	53	132	92	264	529	396	13	40	26
2569	17984	10579	22669	30225	26447	4534	6045	5289	1511	3022	2267	302	756	529	1511	3022	2267	76	227	151

Burrard Inlet Basin – Central Harbour

CONTAMINANT LOADINGS

CADMIUM (ug/L)			NICKEL (ug/L)			ARSENIC (ug/L)			PHENOLS (ug/L)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. (ug/L)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 8.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
12	23	19	46	69	58	23	35	30	2	266	30	6941	71722	11568	4164	21265	9254	0.7	27.8	2.3
10	18	15	39	58	48	19	28	25	2	222	25	5788	59808	9648	3473	17749	7717	0.6	23.2	1.9
8	17	13	33	50	42	17	25	22	2	191	22	4984	51508	8307	2991	15288	6646	0.5	19.9	1.7
5	11	9	22	33	27	11	16	14	1	126	14	3274	33838	5457	1965	10042	4366	0.3	13.1	1.1
3	5	4	10	15	13	5	8	7	1	58	7	1522	15723	2538	913	46866	2029	0.2	6.1	0.5
2	4	3	8	13	10	4	6	5	0	48	5	1258	13004	2097	755	3858	1678	0.1	5.0	0.4
2	3	3	6	9	8	3	5	4	0	36	4	947	9791	1579	568	2908	1263	0.1	3.8	0.3
2	4	3	7	11	9	4	6	5	0	42	5	1107	11438	1845	664	3384	1478	0.1	4.4	0.4
3	6	5	12	19	16	6	9	8	1	72	6	1874	19366	3124	1124	5747	2499	0.2	7.5	0.6
10	20	16	39	59	49	20	29	25	2	224	25	5856	60509	9760	3513	17958	7808	0.6	23.4	2.0
12	24	19	47	71	59	24	36	31	2	272	31	7108	73452	11847	4265	21789	9478	0.7	28.4	2.4
14	27	22	55	62	68	27	41	36	3	316	36	8239	85139	13732	4944	25267	10986	0.8	33.0	2.7
81	163	130	326	489	407	163	244	212	16	1874	212	48899	505291	81498	29339	149957	65199	4.9	195.6	16.3

Burrard Inlet Basin – Eastern Harbour

CONTAMINANT LOADINGS

CADMIUM (ug/L)			NICKEL (ug/L)			ARSENIC (ug/L)			PHENOLS (ug/L)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. (ug/L)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 8.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
11	23	18	45	68	56	23	34	29	2	259	29	6766	69915	11277	4080	20749	9021	0.7	27.1	2.3
9	18	14	36	54	45	18	27	23	2	205	23	5358	55377	6832	3215	16435	7145	0.5	21.4	1.8
7	15	12	30	45	37	15	22	19	1	172	19	4486	46358	7477	2692	13757	5981	0.4	17.9	1.5
6	11	9	22	34	28	11	17	15	1	129	15	3363	34754	5605	2018	10314	4484	0.3	13.5	1.1
2	4	4	9	13	11	4	7	6	0	51	6	1339	13832	2231	803	4105	1785	0.1	5.4	0.4
2	4	3	8	12	10	4	6	5	0	46	5	1194	12340	1990	717	3662	1582	0.1	4.8	0.4
1	3	2	8	9	7	3	4	4	0	33	4	851	8783	1418	511	2610	1135	0.1	3.4	0.3
2	3	3	6	10	8	3	5	4	0	37	4	857	9885	1594	574	2634	1275	0.1	3.8	0.3
3	5	4	10	15	13	5	8	7	1	58	7	1537	15886	2562	922	4715	2050	0.2	6.1	0.5
9	18	14	35	53	44	18	28	23	2	202	23	5259	54345	8765	3158	16128	7012	0.5	21.0	1.8
10	21	17	42	63	52	21	31	27	2	241	27	6298	65078	10496	3779	19313	8387	0.6	25.2	2.1
13	26	21	53	79	66	26	40	34	3	304	34	7928	81925	13214	4757	24313	10571	0.8	31.7	2.6
76	151	121	302	453	378	151	227	196	15	1738	196	45337	468486	75562	27202	139034	60450	4.5	181.3	15.1

MUNICIPALITIES IN FRASER BASIN

RUNOFF AND CONTAMINANT LOADING DATA

Weather Stations:

- Sumas Canal
- Abbotsford A

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	375	0.68	0.55
Commercial	70	0.74	0.68
Residential	1995	0.47	0.24
Total urbanized area	2440	0.51	0.30
Total municipal area	13930		
Snowmelt Factor = 3 mm/Degree-day			

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	192.0	30.6	91.6	30.6	222.6	113.5	2770
February	163.3	10.1	138.8	10.1	173.4	86.4	2158
March	149.7	8.6	192.6	8.6	158.3	80.7	1969
April	116.6	0.2	279.9	0.2	116.8	59.5	1453
May	88.1	0.0	393.5	0.0	88.1	26.4	645
June	69.1	0.0	463.3	0.0	69.1	20.7	506
July	47.0	0.0	548.6	0.0	47.0	14.1	344
August	63.0	0.0	544.0	0.0	63.0	18.9	462
September	98.3	0.0	458.0	0.0	98.3	29.5	720
October	166.4	0.1	336.2	0.1	166.4	84.9	2071
November	205.8	5.8	188.1	5.8	211.6	107.9	2633
December	230.8	23.4	128.7	23.4	254.2	129.8	3163
Total	1589.9	78.6	3762.9		1668.5	774.3	18894

Weather Stations:

- Burnaby Brandford
- Burnaby capitol Hill
- Burnaby Mnt Terminal
- Burnaby Simon Fraser U

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	934	0.72	0.57
Commercial	650	0.77	0.72
Residential	7290	0.50	0.25
Total urbanized area	8874	0.54	0.32
Total municipal area	10674		
Snowmelt Factor = 3 mm/Degree-day			

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	214.0	32.6	86.3	32.6	246.6	133.9	11881
February	182.0	11.0	130.0	11.0	193.0	104.8	9296
March	161.7	6.2	170.4	6.2	167.9	91.2	8089
April	115.0	0.7	255.9	0.7	115.7	62.8	5574
May	86.4	0.0	360.4	0.0	86.4	27.5	2439
June	71.6	0.0	434.7	0.0	71.6	22.8	2022
July	53.9	0.0	532.0	0.0	53.9	17.2	1522
August	65.0	0.0	534.0	0.0	65.0	20.7	1836
September	105.6	0.0	439.3	0.0	105.6	33.7	2988
October	200.8	0.1	321.4	0.1	200.9	109.1	9678
November	238.3	6.2	176.7	6.2	244.5	132.7	11779
December	266.1	24.9	123.2	24.9	290.9	157.9	14016
Total	1760.6	81.6	3564.0		1842.2	914.1	81120

Fraser River Basin – District of Abbotsford

CONTAMINANT LOADINGS

(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
277.0	415.4	346.2	13.8	38.8	24.9	166.2	221.6	193.9	554	664686	332343
215.8	323.7	269.7	10.8	30.2	19.4	129.5	172.6	151.1	432	517890	258945
196.9	295.4	246.2	9.8	27.6	17.7	118.2	157.5	137.9	394	472642	236321
145.3	217.9	181.6	7.3	20.3	13.1	87.2	116.2	101.7	291	348685	174347
64.5	96.8	80.6	3.2	9.0	5.8	38.7	51.8	45.2	129	154824	77412
50.6	75.9	63.2	2.5	7.1	4.6	30.4	40.5	35.4	101	121415	60707
34.4	51.7	43.0	1.7	4.8	3.1	20.7	27.5	24.1	69	82643	41321
46.2	69.2	57.7	2.3	6.5	4.2	27.7	36.8	32.3	92	110777	55386
72.0	108.0	90.0	3.6	10.1	6.5	43.2	57.6	50.4	144	172847	86423
207.1	310.6	258.8	10.4	29.0	18.6	124.2	165.7	145.0	414	496984	248492
263.3	395.0	329.2	13.2	36.9	23.7	158.0	210.7	184.3	527	631981	315981
316.3	474.4	395.3	15.8	44.3	28.5	189.8	253.0	221.4	633	759065	378532
1889.4	2834.0	2361.7	94.5	264.5	170.0	1133.6	1511.5	1322.5	3779	4534447	2267224

Fraser River Basin – City of Burnaby

CONTAMINANT LOADINGS

(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
1188.1	1782.2	1485.1	59.4	166.3	106.9	712.9	950.5	831.7	2376	2851473	1425737
829.6	1394.4	1162.0	46.5	130.1	83.7	557.8	743.7	650.7	1859	2231110	1115555
808.9	1213.4	1011.2	40.4	113.3	72.8	485.4	647.2	568.3	1618	1941453	970727
557.4	836.2	696.8	27.9	78.0	50.2	334.5	446.0	390.2	1115	1337857	668928
243.9	365.8	304.9	12.2	34.1	22.0	146.3	195.1	170.7	488	585352	292676
202.2	303.3	252.7	10.1	26.3	18.2	121.3	181.8	141.5	404	485253	242627
152.2	228.3	190.3	7.8	21.3	13.7	91.3	121.8	106.6	304	365337	182689
183.6	275.3	229.4	9.2	25.7	16.5	110.1	146.8	128.5	367	440539	220269
298.8	446.2	373.5	14.9	41.8	26.9	179.3	239.0	209.2	598	717124	356562
967.8	1451.7	1209.8	48.4	135.5	87.1	580.7	774.2	677.5	1936	2322748	1161374
1177.9	1766.8	1472.3	58.9	164.9	106.0	706.7	942.3	824.5	2356	2826902	1413451
1401.6	2102.3	1751.9	70.1	186.2	126.1	840.9	1121.2	981.1	2803	3363721	1681860
8112.0	12168.0	10140.0	405.6	1135.7	730.1	4867.2	6489.6	5678.4	16224	19468870	9734435

Fraser River Basin – District of Abbotsford

CONTAMINANT LOADINGS

AMMONIA (mg/L)			NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP
			(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
0	2216	415	471	3296	1939	4154	5539	4847	831	1108	969	277	554	415	55	138	97	277	554	415	14	42	28
0	1726	324	367	2568	1511	3237	4316	3776	647	863	755	216	432	324	43	108	76	216	432	324	11	32	22
0	1575	295	335	2344	1379	2954	3939	3446	591	788	689	197	394	295	38	88	69	197	394	295	10	30	20
0	1162	218	247	1729	1017	2179	2906	2543	436	581	509	145	291	218	29	73	51	145	291	218	7	22	15
0	516	87	110	768	452	968	1290	1129	194	258	226	65	129	97	13	32	23	65	129	97	3	10	6
0	405	76	86	602	354	758	1012	885	152	202	177	51	101	76	10	25	18	51	101	76	3	8	5
0	275	52	59	410	241	517	689	603	103	138	121	34	69	52	7	17	12	34	69	52	2	5	3
0	369	69	78	549	323	692	623	608	138	185	162	48	92	69	9	23	18	46	92	69	2	7	5
0	576	108	122	857	504	1080	1440	1260	216	288	252	72	144	108	14	36	25	72	144	108	4	11	7
0	1657	311	352	2464	1450	3108	4142	3624	621	828	725	207	414	311	41	104	72	207	414	311	10	31	21
0	2107	395	448	3134	1843	3950	5267	4608	700	1053	922	283	527	395	53	132	92	263	527	395	13	39	26
0	2530	474	538	3764	2214	4744	6326	5535	949	1265	1107	318	633	474	63	158	111	316	633	474	16	47	32
0	15115	2834	3212	22483	13225	28340	37787	33064	5668	7557	6613	1889	3779	2834	378	945	661	1889	3779	2834	94	283	189

Fraser River Basin – City of Burnaby

CONTAMINANT LOADINGS

AMMONIA (mg/L)			NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP
			(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
0	9505	1782	2020	14139	8317	17822	23762	20792	3564	4752	4158	1188	2376	1782	238	594	416	1188	2376	1782	59	178	118
0	7437	1394	1580	11063	6507	13944	18593	16260	2789	3719	3254	930	1859	1394	188	465	325	930	1859	1394	46	139	93
0	6472	1213	1375	9626	5663	12134	16179	14156	2427	3236	2831	808	1618	1213	162	404	283	808	1618	1213	40	121	81
0	4460	836	948	6634	3902	8362	11149	9755	1672	2230	1951	557	1115	836	111	279	195	557	1115	836	28	84	56
0	1951	366	415	2902	1707	3658	4878	4268	732	976	854	244	488	366	49	122	85	244	488	366	12	37	24
0	1618	303	344	2406	1415	3033	4044	3538	607	808	708	202	404	303	40	101	71	202	404	303	10	30	20
0	1218	228	259	1811	1068	2283	3044	2664	457	609	533	152	304	228	30	76	53	152	304	228	8	23	15
0	1468	275	312	2184	1285	2753	3671	3212	551	734	642	184	367	275	37	92	64	184	367	275	9	28	18
0	2390	448	508	3556	2082	4482	5976	5228	896	1185	1046	299	598	448	60	149	105	299	598	448	15	45	30
0	7742	1452	1645	11517	6775	14517	19356	16937	2903	3871	3387	968	1936	1452	194	484	339	968	1936	1452	46	145	97
0	9423	1767	2002	14017	8245	17668	23558	20613	3534	4712	4123	1178	2356	1767	236	588	412	1178	2356	1767	58	177	118
0	11212	2102	2383	16678	9811	21023	28031	24527	4205	5608	4905	1402	2803	2102	280	701	491	1402	2803	2102	70	210	140
0	64896	12168	13790	96533	56784	121680	162241	141961	24336	32448	28392	8112	16224	12168	1622	4056	2839	8112	16224	12168	406	1217	811

Fraser River Basin – District of Abbotsford

CONTAMINANT LOADINGS

CADMIUM ($\mu\text{g/L}$)			NICKEL ($\mu\text{g/L}$)			ARSENIC ($\mu\text{g/L}$)			PHENOLS ($\mu\text{g/L}$)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. ($\mu\text{g/L}$)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 8.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
14	28	22	55	83	69	28	42	36	3	318	36	8309	85855	13848	4985	25480	11078	1	33	3
11	22	17	43	65	54	22	32	28	2	248	28	6474	66894	10789	3684	19852	8632	1	26	2
10	20	16	38	59	49	20	30	26	2	226	26	5908	61050	9847	3545	18118	7877	1	24	2
7	15	12	29	44	36	15	22	18	1	167	19	4358	45040	7264	2615	13367	5812	0	17	1
3	6	5	13	19	16	6	10	8	1	74	8	1935	19988	3225	1161	5935	2580	0	8	1
3	5	4	10	15	13	5	8	7	1	58	7	1518	15883	2529	911	4654	2024	0	6	1
2	3	3	7	10	9	3	5	4	0	40	4	1033	10675	1722	620	3168	1377	0	4	0
2	5	4	9	14	12	5	7	6	0	53	6	1385	14309	2308	831	4246	1846	0	6	0
4	7	6	14	22	18	7	11	9	1	83	9	2161	22328	3601	1296	6626	2881	0	9	1
10	21	17	41	62	52	21	31	27	2	238	27	6212	64194	10354	3727	19051	8283	1	25	2
13	26	21	53	79	66	26	39	34	3	303	34	7900	81631	13166	4740	24226	10533	1	32	3
16	32	25	63	95	79	32	47	41	3	364	41	9488	98046	15814	5693	29087	12651	1	38	3
94	189	151	378	567	472	189	283	246	19	2173	246	56681	585699	94468	34008	173820	75574	6	227	19

Fraser River Basin – City of Burnaby

CONTAMINANT LOADINGS

CADMIUM ($\mu\text{g/L}$)			NICKEL ($\mu\text{g/L}$)			ARSENIC ($\mu\text{g/L}$)			PHENOLS ($\mu\text{g/L}$)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. ($\mu\text{g/L}$)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 8.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
59	119	95	238	356	297	118	178	154	12	1368	154	35643	368315	59406	21386	109308	47525	4	143	12
46	93	74	186	279	232	93	139	121	9	1069	121	27889	288185	46481	16733	85526	37185	3	112	9
40	81	65	162	243	202	81	121	105	8	830	105	24268	250771	40447	14561	74422	32358	2	97	8
28	56	45	111	167	139	56	84	72	6	641	72	16723	172806	27872	10034	51285	22298	2	67	6
12	24	20	49	73	61	24	37	32	2	280	32	7317	75808	12195	4390	22439	9756	1	29	2
10	20	16	40	61	51	20	30	26	2	233	26	6066	62679	10108	3639	18801	8088	1	24	2
8	15	12	30	46	38	15	23	20	2	175	20	4567	47189	7611	2740	14005	6089	0	18	2
9	18	15	37	55	46	18	28	24	2	211	24	5507	56903	9178	3304	16887	7342	1	22	2
15	30	24	60	90	75	30	45	39	3	344	39	8964	82629	14940	5378	27490	11952	1	36	3
48	97	77	194	290	242	97	145	126	10	1113	126	29034	30022	48391	17421	89038	38712	3	116	10
59	118	94	236	353	294	118	177	153	12	1355	153	35336	365141	58894	21202	108365	47115	4	141	12
70	140	112	280	420	350	140	210	182	14	1612	182	42047	434481	70078	25228	128943	56062	4	168	14
406	811	649	1622	2434	2028	811	1217	1055	81	9329	1055	243361	2514729	405601	146017	746307	324481	24	973	81

Weather Stations:

- Chilliwack
- Chilliwack Gibson Rd
- Chilliwack R Centre Crk
- Chilliwack R Foley Creek
- Chilliwack R Mt Thur
- Rosedale
- Sardis

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	303	0.62	0.49
Commercial	56	0.67	0.62
Residential	1613	0.43	0.22
Total urbanized area	1972	0.47	0.27
Total municipal area	26533		

Snowmelt Factor = 3 mm/Degree-day

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	166.8	48.2	76.5	48.2	215.0	100.2	1976
February	138.0	18.6	131.7	18.6	156.6	73.0	1439
March	120.8	13.2	187.8	13.2	134.0	62.5	1232
April	98.6	2.1	280.2	2.1	100.7	48.9	926
May	82.4	0.1	398.9	0.1	82.4	22.5	443
June	69.0	0.0	472.5	0.0	69.0	18.8	371
July	45.9	0.0	559.0	0.0	45.9	12.5	247
August	59.4	0.0	549.7	0.0	59.4	16.2	320
September	96.6	0.0	458.9	0.0	96.6	26.4	520
October	155.0	0.1	329.2	0.1	155.1	72.3	1426
November	190.3	8.2	173.6	8.2	188.5	82.5	1824
December	213.3	33.6	110.5	33.6	246.9	115.1	2269
Total	1436.1	124.1	3728.6		1560.2	658.8	12992

Weather Stations:

- Port Moody Gulf Rwy
- Port Port Coquitlam City Hall
- New Westminster

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	732	0.72	0.57
Commercial	244	0.77	0.72
Residential	2554	0.50	0.25
Total urbanized area	3530	0.56	0.35
Total municipal area	15275		

Snowmelt Factor = 3 mm/Degree-day

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	210.6	28.4	87.7	28.4	239.0	134.9	4761
February	178.1	6.8	132.9	6.8	164.8	104.3	3683
March	157.2	6.5	184.2	6.5	163.7	92.4	3261
April	119.2	0.4	275.6	0.4	119.6	67.5	2382
May	83.9	0.0	387.7	0.0	83.9	29.3	1033
June	74.4	0.0	456.1	0.0	74.4	26.0	917
July	50.3	0.0	554.2	0.0	50.3	17.5	619
August	62.5	0.0	550.3	0.0	62.5	21.8	770
September	97.7	0.0	450.2	0.0	97.7	34.1	1204
October	193.2	0.0	326.3	0.0	193.2	108.0	3849
November	230.5	2.0	179.2	2.0	232.5	131.2	4631
December	268.2	15.6	126.3	15.6	283.7	160.1	5652
Total	1725.9	59.7	3710.7		1785.5	928.1	32761

Fraser River Basin – District of Chilliwack

CONTAMINANT LOADINGS

(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
197.6	296.4	247.0	9.9	27.7	17.6	118.6	158.1	138.3	395	474220	237110
143.9	215.9	179.0	7.2	20.2	13.0	86.4	115.1	100.8	268	345449	172724
123.2	184.7	153.9	6.2	17.2	11.1	73.9	98.5	86.2	246	295572	147786
92.6	138.8	115.7	4.6	13.0	8.3	55.5	74.1	64.8	185	222160	111080
44.3	66.5	55.4	2.2	6.2	4.0	26.6	35.5	31.0	89	106423	53212
37.1	55.7	46.4	1.9	5.2	3.3	22.3	29.7	26.0	74	89138	44569
24.7	37.0	30.9	1.2	3.5	2.2	14.8	19.7	17.3	49	59235	29617
32.0	48.0	40.0	1.6	4.5	2.9	19.2	25.6	22.4	64	76723	38361
52.0	78.0	65.0	2.6	7.3	4.7	31.2	41.6	36.4	104	124723	62362
142.6	213.9	178.2	7.1	20.0	12.8	85.5	114.1	99.8	285	342172	171086
182.4	273.6	228.0	9.1	25.5	18.4	108.4	145.9	127.7	365	437703	218851
226.9	340.3	283.6	11.3	31.8	20.4	136.1	181.5	158.8	454	544513	272257
1299.2	1948.8	1624.0	65.0	181.9	116.9	779.5	1039.3	909.4	2598	3118031	1559015

Fraser River Basin – City of Coquitlam

CONTAMINANT LOADINGS

(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
476.1	714.2	595.2	23.8	66.7	42.9	285.7	380.9	333.3	952	1142725	571362
368.3	552.5	460.4	18.4	51.6	33.1	221.0	294.6	257.8	737	883934	441967
326.1	489.1	407.6	16.3	45.7	29.3	195.6	260.9	228.3	652	782586	391283
238.2	357.4	297.8	11.9	33.4	21.4	142.9	190.6	166.8	476	571761	285880
103.3	154.9	129.1	5.2	14.5	9.3	62.0	82.6	72.3	207	247860	123930
91.7	137.5	114.6	4.6	12.8	8.2	55.0	73.3	64.2	183	219981	109690
61.9	92.8	77.4	3.1	8.7	5.8	37.2	49.8	43.4	124	148657	74329
77.0	115.4	96.2	3.8	10.8	6.9	46.2	61.6	53.9	154	184713	82357
120.4	180.5	150.4	6.0	16.8	10.8	72.2	96.3	84.2	241	288842	144421
384.9	577.4	481.1	19.2	53.9	34.8	230.9	307.9	268.4	770	923773	461866
463.1	694.7	576.9	23.2	64.8	41.7	277.9	370.5	324.2	926	1111491	555746
565.2	847.8	706.5	28.3	79.1	50.9	339.1	452.1	395.6	1130	1356418	678209
3276.1	4914.2	4095.2	163.8	458.7	294.9	1965.7	2620.9	2293.3	6552	7862740	3931370

Fraser River Basin – District of Chilliwack

CONTAMINANT LOADINGS

AMMONIA (mg/L)			NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
0	1581	296	336	2351	1383	2964	3952	3458	593	790	692	188	395	296	40	89	69	188	395	296	10	30	20
0	1151	216	245	1713	1008	2159	2879	2519	432	576	504	144	288	216	29	72	50	144	288	216	7	22	14
0	885	185	209	1466	862	1847	2483	2155	369	493	431	123	246	185	25	62	43	123	246	185	6	18	12
0	741	139	157	1102	648	1388	1851	1620	278	370	324	83	185	139	19	46	32	83	185	139	5	14	9
0	355	67	75	528	310	665	887	776	133	177	155	44	89	67	9	22	16	44	89	67	2	7	4
0	297	56	63	442	260	557	743	650	111	149	130	37	74	56	7	19	13	37	74	56	2	6	4
0	197	37	42	294	173	370	494	432	74	99	86	25	49	37	5	12	9	25	49	37	1	4	2
0	256	48	54	380	224	480	639	559	96	128	112	32	64	48	6	16	11	32	64	48	2	5	3
0	416	78	88	618	364	780	1039	909	156	208	182	52	104	78	10	28	18	52	104	78	3	8	5
0	1141	214	242	1697	998	2139	2851	2495	428	570	498	143	285	214	29	71	50	143	285	214	7	21	14
0	1459	274	310	2170	1277	2736	3648	3192	547	730	638	182	365	274	36	91	64	182	365	274	9	27	18
0	1815	340	386	2700	1588	3403	4538	3970	681	908	794	227	454	340	45	113	79	227	454	340	11	34	23
0	10393	1949	2209	15460	9094	19488	25984	22736	3898	5197	4547	1299	2598	1949	260	650	455	1299	2598	1949	65	195	130

Fraser River Basin – City of Coquitlam

CONTAMINANT LOADINGS

AMMONIA (mg/L)			NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
0	3809	714	809	5666	3333	7142	8523	8332	1428	1905	1666	476	852	714	95	238	167	476	852	714	24	71	48
0	2946	552	626	4383	2578	5525	7366	6445	1105	1473	1289	368	737	552	74	184	129	368	737	552	18	55	37
0	2609	489	554	3880	2283	4891	6522	5708	978	1304	1141	326	652	489	65	163	114	326	652	489	16	49	33
0	1906	357	405	2835	1668	3574	4765	4189	715	953	834	238	476	357	48	119	83	238	476	357	12	36	24
0	826	155	176	1229	723	1549	2066	1807	310	413	361	103	207	155	21	52	36	103	207	155	5	15	10
0	733	137	156	1091	642	1375	1833	1604	275	367	321	92	183	137	18	46	32	92	183	137	5	14	9
0	496	93	105	737	434	829	1239	1084	188	248	217	82	124	93	12	31	22	62	124	93	3	9	6
0	616	115	131	916	539	1154	1539	1347	231	308	269	77	154	115	15	38	27	77	154	115	4	12	8
0	963	181	205	1432	842	1805	2407	2108	361	481	421	120	241	181	24	60	42	120	241	181	6	18	12
0	3079	577	654	4580	2694	5774	7698	6736	1155	1540	1347	385	770	577	77	192	135	385	770	577	19	58	38
0	3705	695	787	5511	3242	6947	8105	1389	1852	1621	483	926	695	93	232	162	463	926	695	23	69	46	
0	4521	848	961	6726	3956	8478	11303	9891	1696	2261	1978	565	1130	848	113	283	198	565	1130	848	26	85	57
0	26209	4914	5569	38986	22933	49142	65523	57332	9828	13105	11466	3276	6552	4914	655	1638	1147	3276	6552	4914	164	491	328

Fraser River Basin – District of Chilliwack

CONTAMINANT LOADINGS

CADMIUM (ug/L)			NICKEL (ug/L)			ARSENIC (ug/L)			PHENOLS (ug/L)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. (ug/L)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 9.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)		(kg)	(kg)		(kg)	(kg)		(kg)	(kg)		(kg)	(kg)		(kg)	(kg)		(kg)	(kg)	
10	20	16	40	59	49	20	30	26	2	227	26	5928	61253	9880	3557	18178	7904	1	24	2
7	14	12	29	43	36	14	22	19	1	166	19	4318	44620	7197	2591	13242	5757	0	17	1
6	12	10	25	37	31	12	18	16	1	142	16	3695	38178	6158	2217	11330	4926	0	15	1
5	9	7	19	28	23	9	14	12	1	106	12	2777	28696	4628	1666	8516	3703	0	11	1
2	4	4	9	13	11	4	7	6	0	51	6	1330	13748	2217	798	4080	1774	0	5	0
2	4	3	7	11	9	4	6	5	0	43	5	1114	11514	1857	669	3417	1486	0	4	0
1	2	2	5	7	6	2	4	3	0	28	3	740	7651	1234	444	2271	987	0	3	0
2	3	3	6	10	8	3	5	4	0	37	4	859	9910	1598	575	2941	1279	0	4	0
3	5	4	10	16	13	5	8	7	1	60	7	1559	16110	2598	935	4781	2079	0	6	1
7	14	11	29	43	36	14	21	19	1	164	19	4277	44197	7129	2566	13117	5703	0	17	1
9	18	15	36	55	46	18	27	24	2	210	24	5471	56537	8118	3263	16779	7295	1	22	2
11	23	18	45	68	57	23	34	29	2	261	29	6808	70333	11344	4084	20873	9075	1	27	2
65	130	104	260	390	325	130	195	169	13	1494	169	38975	402746	64959	23385	119525	51967	4	156	13

Fraser River Basin – City of Coquitlam

CONTAMINANT LOADINGS

CADMIUM (ug/L)			NICKEL (ug/L)			ARSENIC (ug/L)			PHENOLS (ug/L)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. (ug/L)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 9.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)		(kg)	(kg)		(kg)	(kg)		(kg)	(kg)		(kg)	(kg)		(kg)	(kg)		(kg)	(kg)	
24	48	38	95	143	119	48	71	62	5	548	62	14284	147602	23807	8570	43804	19045	1	57	5
18	37	29	74	110	92	37	55	48	4	424	48	11049	114175	18415	6630	33884	14732	1	44	4
16	33	26	65	98	82	33	49	42	3	375	42	9782	101084	16304	5869	29999	13043	1	39	3
12	24	19	48	71	60	24	36	31	2	274	31	7147	73852	11912	4288	21917	9529	1	29	2
5	10	8	21	31	26	10	15	13	1	119	13	3098	32015	5164	1859	9501	4131	0	12	1
5	9	7	18	27	23	9	14	12	1	105	12	2750	28414	4583	1650	8433	3668	0	11	1
3	6	5	12	19	15	6	9	8	1	71	8	1858	19202	3097	1115	5699	2478	0	7	1
4	8	6	15	23	19	8	12	10	1	89	10	2309	23859	3848	1385	7081	3079	0	9	1
6	12	10	24	36	30	12	18	16	1	138	16	3611	37309	6018	2166	11072	4814	0	14	1
18	38	31	77	115	96	38	58	50	4	443	50	11547	119321	24245	6928	35411	15366	1	46	4
23	48	37	93	139	116	46	69	60	5	533	60	13894	143568	23156	8336	42807	18525	1	56	5
28	57	45	113	170	141	57	85	73	6	650	73	16955	175204	28259	10173	51996	22607	2	68	6
164	328	262	655	983	819	328	491	426	33	3768	426	98284	1015604	163807	58971	301405	131046	10	393	33

Weather Stations:

- Delta Ladner South
- Delta Pebble Hill
- Delta Tsawwassen
- Delta Tsawwassen Beach

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	2950	0.59	0.47
Commercial	450	0.63	0.59
Residential	2500	0.41	0.21
Total urbanized area	5900	0.52	0.37
Total municipal area	36433		
Snowmelt Factor = 3 mm/Degree-day			

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS) (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	110.6	14.9	100.4	14.9	125.5	64.9	3826
February	85.9	6.2	131.5	6.2	92.1	47.6	2807
March	70.3	3.3	185.5	3.3	73.6	38.0	2243
April	47.0	0.1	265.7	0.1	47.1	24.3	1435
May	38.2	0.0	384.0	0.0	38.2	14.1	831
June	39.3	0.0	453.6	0.0	39.3	14.5	854
July	25.9	0.0	531.3	0.0	25.9	9.6	564
August	35.8	0.0	522.1	0.0	35.8	13.2	779
September	51.6	0.0	421.6	0.0	51.6	19.0	1123
October	88.5	0.0	304.0	0.0	88.5	45.7	2699
November	123.2	2.0	177.5	2.0	125.2	64.7	3816
December	133.1	9.9	126.8	8.9	143.0	73.9	4359
Total	849.3	36.3	3604.0		885.6	429.4	25338

Weather Stations:

- Kamloops
- Kamloops A
- Kamloops CDA
- Kamloops Valleyview

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	1316	0.55	0.44
Commercial	1077	0.60	0.55
Residential	7331	0.38	0.2
Total urbanized area	9724	0.43	0.27
Total municipal area	31142		
Snowmelt Factor = 3 mm/Degree-day			

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS) (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	4.5	29.0	20.8	29.0	33.5	14.3	1392
February	5.1	11.7	46.4	11.7	16.7	7.1	694
March	5.1	3.7	135.6	3.7	8.8	3.8	366
April	10.1	0.2	279.4	0.2	10.3	4.4	428
May	17.6	0.0	447.1	0.0	17.6	4.8	464
June	27.4	0.0	551.6	0.0	27.4	7.4	723
July	22.5	0.0	664.0	0.0	22.5	6.1	593
August	27.8	0.0	626.2	0.0	27.8	7.5	733
September	20.1	0.0	457.1	0.0	20.1	5.5	530
October	13.8	0.3	269.7	0.3	14.1	6.0	587
November	11.7	9.8	90.8	9.8	21.5	9.2	892
December	7.2	24.9	34.9	24.9	32.2	13.7	1336
Total	172.8	79.6	3623.8		252.4	89.9	8738

Fraser River Basin – District of Delta

CONTAMINANT LOADINGS

(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 8 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
382.6	574.0	478.3	19.1	53.6	34.4	229.6	306.1	267.9	765	918359	459179
280.7	421.1	350.8	14.0	39.3	25.3	168.4	224.6	196.5	561	673768	336884
224.3	336.4	280.3	11.2	31.4	20.2	134.6	179.4	157.0	449	538209	288105
143.5	215.3	179.4	7.2	20.1	12.9	86.1	114.8	100.5	287	344476	172238
83.1	124.7	103.9	4.2	11.6	7.5	49.8	66.5	58.2	166	199457	89728
85.4	128.2	106.8	4.3	12.0	7.7	51.3	68.4	59.8	171	205073	102537
56.4	84.6	70.5	2.8	7.9	5.1	33.8	45.1	39.5	113	135322	67661
77.9	116.8	97.4	3.9	10.9	7.0	46.7	62.3	54.5	156	188917	83459
112.3	168.5	140.4	5.8	15.7	10.1	67.4	89.8	78.6	225	269600	134800
269.9	404.9	337.4	13.5	37.8	24.3	161.9	215.9	188.9	540	647791	323895
381.6	572.4	477.0	19.1	53.4	34.3	228.9	305.3	267.1	763	915798	457899
435.9	653.9	544.9	21.8	61.0	39.2	261.6	348.7	305.2	872	1046234	523117
2533.8	3800.6	3167.2	126.7	354.7	228.0	1520.3	2027.0	1773.6	5068	6081004	3040502

Fraser River Basin – City of Kamloops

CONTAMINANT LOADINGS

(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 8 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
139.2	208.8	174.0	7.0	19.5	12.5	83.5	111.4	97.5	278	334125	167062
69.4	104.1	86.8	3.5	9.7	6.2	41.6	55.5	48.6	139	166564	83282
36.6	54.9	45.7	1.8	5.1	3.3	21.9	29.3	25.8	73	87770	43885
42.8	64.2	53.5	2.1	6.0	3.9	25.7	34.2	30.0	86	102731	51365
48.4	69.6	58.0	2.3	6.5	4.2	27.9	37.1	32.5	93	111412	55706
72.3	108.4	90.3	3.6	10.1	6.5	43.4	57.8	50.8	145	173448	88724
59.3	88.9	74.1	3.0	6.3	5.3	35.6	47.4	41.5	119	142272	71138
73.3	109.9	91.6	3.7	10.3	6.6	44.0	58.6	51.3	147	175822	87911
53.0	79.5	66.3	2.7	7.4	4.8	31.8	42.4	37.1	106	127237	63619
58.7	88.1	73.4	2.9	8.2	5.3	35.2	47.0	41.1	117	140881	70440
88.2	133.9	111.6	4.5	12.5	8.0	53.5	71.4	62.5	178	214189	107094
133.6	200.4	187.0	6.7	18.7	12.0	80.2	106.9	93.5	267	320660	160330
873.8	1310.7	1092.2	43.7	122.3	78.6	524.3	699.0	611.7	1748	2097110	1048555

Fraser River Basin – District of Delta

CONTAMINANT LOADINGS

AMMONIA (mg/L)			NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
0	3061	574	651	4554	2679	5740	7653	6696	1148	1531	1339	383	765	574	77	191	134	383	765	574	19	57	38
0	2246	421	477	3341	1965	4211	5615	4913	842	1123	983	281	561	421	56	140	96	281	561	421	14	42	28
0	1794	336	381	2669	1570	3384	4485	3924	673	887	785	224	449	336	45	112	78	224	449	336	11	34	22
0	1148	215	244	1708	1005	2153	2871	2512	431	574	502	144	287	215	29	72	50	144	287	215	7	22	14
0	665	125	141	988	582	1247	1882	1454	249	332	291	83	168	125	17	42	29	83	168	125	4	12	8
0	684	128	145	1017	598	1282	1709	1495	258	342	299	85	171	128	17	43	30	85	171	128	4	13	9
0	451	85	96	671	395	846	1128	987	169	226	197	58	113	85	11	28	20	58	113	85	3	8	6
0	623	117	132	927	545	1168	1558	1363	234	312	273	78	156	117	16	39	27	78	156	117	4	12	8
0	899	168	191	1337	786	1685	2247	1966	337	449	393	112	225	168	22	56	39	112	225	168	6	17	11
0	2159	405	459	3212	1889	4049	5368	4723	810	1080	945	270	540	405	54	135	84	270	540	405	13	40	27
0	3053	572	649	4541	2671	5724	7632	6878	1145	1526	1336	382	763	572	76	191	134	382	763	572	19	57	38
0	3487	654	741	5188	3052	6538	8719	7629	1308	1744	1526	436	872	654	87	218	153	436	872	654	22	65	44
0	20270	3801	4307	30152	17736	38006	50675	44341	7601	10135	8868	2534	5068	3801	507	1267	887	2534	5068	3801	127	380	253

Fraser River Basin – City of Kamloops

CONTAMINANT LOADINGS

AMMONIA (mg/L)			NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
0	1114	209	237	1657	975	2088	2784	2436	418	557	487	139	278	209	28	70	49	139	278	209	7	21	14
0	555	104	118	826	486	1041	1388	1215	208	278	243	69	138	104	14	35	24	69	138	104	3	10	7
0	293	55	62	435	256	549	731	640	110	146	128	37	73	55	7	18	13	37	73	55	2	5	4
0	342	64	73	509	300	642	856	749	128	171	150	43	86	64	9	21	15	43	86	64	2	6	4
0	371	70	79	552	325	696	928	812	139	186	162	46	83	70	9	23	16	46	93	70	2	7	5
0	578	106	123	860	506	1084	1445	1265	217	289	253	72	145	108	14	36	25	72	145	108	4	11	7
0	474	89	101	705	415	889	1188	1037	178	237	207	59	119	89	12	30	21	59	119	89	3	9	6
0	586	110	125	672	513	1099	1485	1282	220	283	256	73	147	110	15	37	28	73	147	110	4	11	7
0	424	80	90	631	371	795	1060	928	159	212	186	53	106	80	11	27	19	53	106	80	3	8	5
0	470	88	100	699	411	881	1174	1027	178	235	205	59	117	88	12	29	21	59	117	88	3	9	6
0	714	134	152	1062	625	1339	1785	1562	268	357	312	89	178	134	18	45	31	89	178	134	4	13	9
0	1069	200	227	1590	935	2004	2672	2338	401	534	468	134	267	200	27	67	47	134	267	200	7	20	13
0	6990	1311	1485	10398	6117	13107	17476	15291	2621	3495	3058	874	1748	1311	175	437	306	874	1748	1311	44	131	87

Fraser River Basin – District of Delta

CONTAMINANT LOADINGS

CADMIUM ($\mu\text{g/L}$)			NICKEL ($\mu\text{g/L}$)			ARSENIC ($\mu\text{g/L}$)			PHENOLS ($\mu\text{g/L}$)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. ($\mu\text{g/L}$)		
MIN 5 (kg)	MAX 10 (kg)	TYP 8	MIN 20 (kg)	MAX 30 (kg)	TYP 25	MIN 10 (kg)	MAX 15 (kg)	TYP 13	MIN 1 (kg)	MAX 115 (kg)	TYP 13	MIN 3 (kg)	MAX 31 (kg)	TYP 5	MIN 1.80 (kg)	MAX 9.20 (kg)	TYP 4.00 (kg)	MIN 0.30 (kg)	MAX 12.00 (kg)	TYP 1.00 (kg)
19	38	31	77	115	96	38	57	50	4	440	50	11478	118821	18132	6888	35204	15306	1	46	4
14	28	22	56	84	70	28	42	36	3	323	36	8422	87028	14037	5053	25828	11229	1	34	3
11	22	18	45	67	56	22	34	29	2	258	29	6728	68519	11213	4037	20631	8970	1	27	2
7	14	11	29	43	36	14	22	19	1	165	18	4306	44495	7177	2584	13205	5741	0	17	1
4	8	7	17	25	21	8	12	11	1	96	11	2493	25763	4155	1498	7646	3324	0	10	1
4	9	7	17	26	21	9	13	11	1	98	11	2563	26489	4272	1538	7861	3418	0	10	1
3	6	5	11	17	14	6	8	7	1	65	7	1692	17479	2819	1015	5187	2255	0	7	1
4	8	6	16	23	19	8	12	10	1	90	10	2338	24143	3894	1402	7165	3115	0	9	1
6	11	9	22	34	28	11	17	15	1	129	15	3370	34823	5617	2022	10335	4493	0	13	1
13	27	22	54	81	67	27	40	35	3	310	35	8097	83673	13496	4858	24832	10797	1	32	3
19	38	31	76	114	95	38	57	50	4	439	50	11447	118281	19079	6886	35108	15263	1	46	4
22	44	35	87	131	109	44	65	57	4	501	57	13078	135139	21797	7847	40108	17437	1	52	4
127	253	203	507	760	633	253	380	329	25	2914	329	76013	785463	126688	45608	233105	101350	8	304	25

Fraser River Basin – City of Kamloops

CONTAMINANT LOADINGS

CADMIUM ($\mu\text{g/L}$)			NICKEL ($\mu\text{g/L}$)			ARSENIC ($\mu\text{g/L}$)			PHENOLS ($\mu\text{g/L}$)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. ($\mu\text{g/L}$)		
MIN 5 (kg)	MAX 10 (kg)	TYP 8	MIN 20 (kg)	MAX 30 (kg)	TYP 25	MIN 10 (kg)	MAX 15 (kg)	TYP 13	MIN 1 (kg)	MAX 115 (kg)	TYP 13	MIN 3 (kg)	MAX 31 (kg)	TYP 5	MIN 1.80 (kg)	MAX 9.20 (kg)	TYP 4.00 (kg)	MIN 0.30 (kg)	MAX 12.00 (kg)	TYP 1.00 (kg)
7	14	11	28	42	35	14	21	18	1	160	18	4177	43158	6961	2508	12808	5569	0	17	1
3	7	6	14	21	17	7	10	9	1	80	9	2082	21514	3470	1249	6385	2776	0	8	1
2	4	3	7	11	8	4	5	5	0	42	5	1097	11337	1829	658	3365	1463	0	4	0
2	4	3	9	13	11	4	6	6	0	49	6	1284	13269	2140	770	3938	1712	0	5	0
2	5	4	9	14	12	5	7	6	0	53	6	1393	14391	2321	836	4271	1857	0	6	0
4	7	6	14	22	18	7	11	9	1	83	9	2168	22404	3613	1301	6649	2891	0	9	1
3	8	5	12	18	15	6	9	8	1	68	8	1778	18377	2964	1067	5454	2371	0	7	1
4	7	6	15	22	18	7	11	10	1	84	10	2198	22710	3683	1319	6740	2930	0	9	1
3	5	4	11	16	13	5	8	7	1	61	7	1590	16435	2651	954	4877	2121	0	6	1
3	6	5	12	18	15	6	9	8	1	68	8	1761	18197	2935	1057	5400	2348	0	7	1
4	9	7	18	27	22	9	13	12	1	103	12	2677	27666	4462	1606	8211	3570	0	11	1
7	13	11	27	40	33	13	20	17	1	154	17	4008	41419	6680	2405	12292	5344	0	16	1
44	87	70	175	262	218	87	131	114	9	1005	114	26214	270877	43690	15728	80389	34952	3	105	9

Weather Stations:

- Aldergrove
- Haney Corr Instn
- Milner AIC

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	1029	0.72	0.57
Commercial	178	0.77	0.72
Residential	2905	0.50	0.25
Total urbanized area	4112	0.57	0.35
Total municipal area	31765		

Snowmelt Factor = 3 mm/Degree-day

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	192.4	21.9	81.7	21.9	214.3	121.4	4994
February	169.0	6.6	128.4	6.6	175.5	99.5	4091
March	151.8	4.7	173.8	4.7	156.6	88.7	3648
April	114.6	0.4	248.3	0.4	114.9	65.1	2678
May	84.8	0.0	360.3	0.0	84.8	29.7	1222
June	74.2	0.0	435.9	0.0	74.2	26.0	1069
July	52.0	0.0	520.5	0.0	52.0	18.2	749
August	69.2	0.0	519.0	0.0	69.2	24.2	997
September	102.4	0.0	426.8	0.0	102.4	35.9	1476
October	174.5	0.0	308.6	0.0	174.5	98.8	4067
November	212.5	3.7	165.2	3.7	216.2	122.5	5039
December	243.9	22.3	112.1	22.3	266.2	150.9	6205
Total	1641.3	59.6	3481.4		1700.9	881.2	36235

Weather Stations:

- Whonnock Thorn Hill
- Whonnock 269 Str
- Haney

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	353	0.72	0.57
Commercial	101	0.77	0.72
Residential	2820	0.50	0.25
Total urbanized area	3274	0.53	0.30
Total municipal area	27710		

Snowmelt Factor = 3 mm/Degree-day

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	219.8	28.5	79.6	28.5	248.3	132.1	4325
February	184.2	8.2	127.5	8.2	182.3	102.3	3350
March	167.9	7.4	178.6	7.4	175.3	93.3	3053
April	122.3	0.2	255.4	0.2	122.5	65.2	2133
May	96.5	0.4	371.2	0.4	97.0	29.0	949
June	85.9	0.0	444.8	0.0	85.9	25.7	841
July	60.4	0.0	531.4	0.0	60.4	18.1	591
August	73.0	0.0	527.6	0.0	73.0	21.8	714
September	114.6	0.0	433.8	0.0	114.6	34.3	1122
October	187.0	0.1	313.2	0.1	187.0	99.5	3258
November	237.4	5.0	166.9	5.0	242.4	128.9	4222
December	264.3	23.0	112.7	23.0	287.3	152.8	5004
Total	1813.3	72.6	3540.5		1885.9	903.0	29563

Fraser River Basin – District of Langley

CONTAMINANT LOADINGS

(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
499.4	749.1	624.2	25.0	69.9	44.9	290.8	399.5	349.6	899	1196545	599273
409.1	813.6	511.4	20.5	57.3	36.8	245.5	327.3	286.4	818	981814	490907
364.9	547.4	456.2	18.2	51.1	32.8	219.0	291.9	255.4	730	875826	437813
267.8	401.7	334.8	13.4	37.5	24.1	160.7	214.2	187.5	536	642735	321368
122.2	183.3	152.8	6.1	17.1	11.0	73.3	97.8	85.6	244	293347	146673
106.9	160.3	133.6	5.3	15.0	9.6	64.1	85.5	74.8	214	256487	128244
74.9	112.4	83.7	3.7	10.5	6.7	45.0	58.9	52.5	150	178829	89915
99.7	149.6	124.6	5.0	14.0	9.0	58.8	79.8	69.8	199	239311	119656
147.6	221.3	184.4	7.4	20.7	13.3	88.5	118.0	103.3	285	354125	177063
406.7	610.0	508.3	20.3	56.9	36.8	244.0	325.3	284.7	813	875888	487994
503.9	755.8	628.9	25.2	70.5	45.3	302.3	403.1	352.7	1008	1209265	604633
620.5	830.7	775.6	31.0	86.9	55.8	372.3	496.4	434.3	1241	1489118	744558
3623.5	5435.2	4529.4	181.2	507.3	326.1	2174.1	2898.8	2536.4	7247	8696391	4348195

Fraser River Basin – District of Maple Ridge

CONTAMINANT LOADINGS

(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
432.5	648.8	540.7	21.6	60.6	38.9	259.5	348.0	302.8	865	1038051	519025
335.0	502.5	418.8	18.8	46.9	30.2	201.0	268.0	234.5	670	804040	402020
305.3	458.0	381.6	15.3	42.7	27.5	183.2	244.3	213.7	611	732780	366380
213.3	320.0	266.7	10.7	29.9	19.2	128.0	170.7	149.3	427	512023	256011
94.9	142.4	118.6	4.7	13.3	8.5	56.9	75.8	66.4	190	227777	113688
84.1	128.2	105.1	4.2	11.8	7.8	50.5	67.3	58.8	168	201875	100937
59.1	88.7	73.9	3.0	8.3	5.3	35.5	47.3	41.4	118	141847	70823
71.4	107.2	69.3	3.6	10.0	6.4	42.9	57.1	50.0	143	171450	85725
112.2	168.3	140.3	5.6	15.7	10.1	67.3	89.8	78.5	224	268304	134682
325.8	488.7	407.2	16.3	45.6	29.3	195.5	260.6	228.0	652	781883	390941
422.2	633.2	527.7	21.1	59.1	38.0	253.3	337.7	295.5	844	1013176	506588
500.4	750.8	625.5	25.0	70.1	45.0	300.2	400.3	350.3	1001	1200887	600443
2956.3	4434.4	3695.4	147.8	413.9	266.1	1773.8	2365.0	2069.4	5913	7095072	3547536

Fraser River Basin – District of Langley

CONTAMINANT LOADINGS

AMMONIA (mg/L)	NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)				
	MIN 0.00 (kg)	MAX 0.80 (kg)	TYP 0.15 (kg)	MIN 0.17 (kg)	MAX 1.19 (kg)	TYP 0.70 (kg)	MIN 1.50 (kg)	MAX 2.00 (kg)	TYP 1.75 (kg)	MIN 0.30 (kg)	MAX 0.40 (kg)	TYP 0.35 (kg)	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 20 (kg)	MAX 50 (kg)	TYP 35 (kg)	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 5 (kg)	MAX 15 (kg)
0	3995	749	849	5943	3496	7491	9988	8739	1498	1998	1748	499	999	749	100	250	175	499	999	749	25	75	50
0	3273	614	695	4868	2864	6136	8182	7159	1227	1636	1432	409	818	614	82	205	143	409	818	614	20	61	41
0	2919	547	620	4343	2554	5474	7299	6388	1095	1460	1277	365	730	547	73	182	128	365	730	547	18	55	36
0	2142	402	455	3187	1875	4017	5356	4687	803	1071	937	268	536	402	54	134	94	268	536	402	13	40	27
0	878	183	208	1455	856	1833	2445	2139	367	489	428	122	244	183	24	61	43	122	244	183	6	18	12
0	855	160	182	1272	748	1603	2137	1870	321	427	374	107	214	160	21	53	37	107	214	160	5	18	11
0	599	112	127	892	525	1124	1499	1311	225	300	262	75	150	112	15	37	26	75	150	112	4	11	7
0	798	150	170	1187	698	1498	1994	1745	299	399	349	100	199	150	20	50	35	100	199	150	5	15	10
0	1180	221	251	1756	1033	2213	2951	2582	443	590	516	148	295	221	30	74	52	148	295	221	7	22	15
0	3253	610	681	4839	2847	6100	8133	7117	1220	1627	1423	407	813	610	81	203	142	407	813	610	20	81	41
0	4031	756	857	5996	3527	7558	10077	8818	1512	2015	1784	504	1008	756	101	252	178	504	1008	756	25	76	50
0	4964	931	1055	7384	4343	9307	12409	10658	1861	2482	2172	620	1241	931	124	310	217	620	1241	931	31	83	62
0	28988	5435	6160	43120	25364	54352	72470	63411	10870	14494	12682	3623	7247	5435	725	1812	1268	3623	7247	5435	181	544	362

Fraser River Basin – District of Maple Ridge

CONTAMINANT LOADINGS

AMMONIA (mg/L)	NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)				
	MIN 0.00 (kg)	MAX 0.80 (kg)	TYP 0.15 (kg)	MIN 0.17 (kg)	MAX 1.19 (kg)	TYP 0.70 (kg)	MIN 1.50 (kg)	MAX 2.00 (kg)	TYP 1.75 (kg)	MIN 0.30 (kg)	MAX 0.40 (kg)	TYP 0.35 (kg)	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 20 (kg)	MAX 50 (kg)	TYP 35 (kg)	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 5 (kg)	MAX 15 (kg)
0	3460	649	735	5147	3028	6488	8650	7569	1298	1730	1514	433	865	649	87	216	151	433	865	649	22	65	43
0	2680	503	570	3987	2345	5025	6700	5863	1005	1340	1173	335	670	503	67	168	117	335	670	503	17	50	34
0	2443	458	519	3633	2137	4580	6106	5343	916	1221	1069	305	611	458	61	153	107	305	611	458	15	46	31
0	1707	320	363	2539	1493	3200	4267	3734	640	853	747	213	427	320	43	107	75	213	427	320	11	32	21
0	759	142	161	1129	664	1424	1898	1661	285	380	332	95	190	142	19	47	33	95	190	142	5	14	9
0	673	126	143	1001	589	1262	1682	1472	252	336	294	84	168	126	17	42	29	84	168	126	4	13	8
0	473	89	100	703	414	887	1182	1034	177	236	207	59	118	89	12	30	21	56	118	89	3	9	6
0	571	107	121	850	500	1072	1429	1250	214	286	250	71	143	107	14	36	25	71	143	107	4	11	7
0	898	168	191	1335	785	1683	2244	1964	337	449	393	112	224	168	22	56	39	112	224	168	6	17	11
0	2606	489	554	3877	2280	4887	6518	5701	977	1303	1140	326	652	489	65	163	114	326	652	489	16	49	33
0	3377	633	718	5024	2955	6332	8443	7388	1266	1689	1478	422	844	633	84	211	148	422	844	633	21	63	42
0	4003	751	851	5954	3503	7506	10007	8758	1501	2001	1751	500	1001	751	100	250	175	500	1001	751	25	75	50
0	23650	4434	5026	35180	20694	44344	59126	51735	8869	11825	10347	2956	5913	4434	591	1478	1035	2956	5913	4434	148	443	296

Fraser River Basin – District of Langley

CONTAMINANT LOADINGS

CADMIUM (ug/L)			NICKEL (ug/L)			ARSENIC (ug/L)			PHENOLS (ug/L)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. (ug/L)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 9.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
25	50	40	100	150	125	50	75	65	5	574	65	14982	154812	24970	8889	45844	19876	1	60	5
20	41	33	82	123	102	41	61	53	4	470	53	12273	126818	20454	7364	37636	16364	1	49	4
18	38	29	73	109	91	36	55	47	4	420	47	10948	113128	18246	6569	33573	14587	1	44	4
13	27	21	54	80	67	27	40	35	3	306	35	8034	83020	13390	4821	24638	10712	1	32	3
6	12	10	24	37	31	12	18	16	1	141	16	3667	37881	8111	2200	11245	4889	0	15	1
5	11	9	21	32	27	11	16	14	1	123	14	3206	33130	5343	1924	9832	4275	0	13	1
4	7	6	15	22	19	7	11	10	1	86	10	2248	23228	3746	1349	6883	2997	0	9	1
5	10	8	20	30	25	10	15	13	1	115	13	2991	30911	4986	1795	9174	3989	0	12	1
7	15	12	30	44	37	15	22	19	1	170	19	4427	45741	7378	2656	13575	5902	0	18	1
20	41	33	81	122	102	41	61	53	4	468	53	12200	126065	20333	7320	37413	16266	1	49	4
25	50	40	101	151	126	50	76	66	5	579	66	15116	156197	25193	9069	46355	20154	2	60	5
31	62	50	124	186	155	62	93	81	6	714	81	16614	192344	31023	11168	57083	24819	2	74	6
181	362	290	725	1087	906	362	544	471	36	4167	471	108705	1123284	181175	65223	333362	144940	11	435	36

Fraser River Basin – District of Maple Ridge

CONTAMINANT LOADINGS

CADMIUM (ug/L)			NICKEL (ug/L)			ARSENIC (ug/L)			PHENOLS (ug/L)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. (ug/L)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 9.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
22	43	35	87	130	108	43	65	58	4	497	56	12976	134082	21626	7785	38792	17301	1	52	4
17	34	27	67	101	84	34	50	44	3	385	44	10051	103655	16751	6030	30822	13401	1	40	3
15	31	24	61	92	76	31	46	40	3	351	40	9180	94648	15266	5496	28089	12213	1	37	3
11	21	17	43	64	53	21	32	28	2	245	28	6400	66136	10687	3840	19628	8534	1	28	2
5	9	8	19	28	24	9	14	12	1	109	12	2847	29421	4745	1708	8731	3798	0	11	1
4	8	7	17	25	21	8	13	11	1	97	11	2523	26078	4208	1514	7739	3365	0	10	1
3	6	5	12	18	15	6	8	8	1	68	8	1773	18322	2955	1064	5437	2364	0	7	1
4	7	6	14	21	18	7	11	9	1	82	9	2143	22146	3572	1288	6572	2857	0	9	1
6	11	9	22	34	28	11	17	15	1	129	15	3366	34785	5610	2020	10323	4488	0	13	1
16	33	26	65	98	81	33	49	42	3	375	42	9774	100993	16289	5864	29972	13031	1	39	3
21	42	34	84	127	106	42	63	55	4	485	55	12665	130869	21108	7599	38838	16886	1	51	4
25	50	40	100	150	125	50	75	65	5	575	65	15011	155115	25018	9007	46034	20015	2	60	5
148	296	237	591	887	739	296	443	384	30	3400	384	88688	916447	147814	53213	271978	118251	9	355	30

Weather Stations:

- Abbotsford A
- Mission

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	165	0.68	0.55
Commercial	145	0.74	0.68
Residential	1970	0.47	0.24
Total urbanized area	2280	0.50	0.29
Total municipal area	21921		
Snowmelt Factor = 3 mm/Degree-day			

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	178.0	28.9	88.8	28.9	206.9	103.9	2369
February	152.5	10.3	133.9	10.3	162.8	81.8	1864
March	134.0	8.7	184.9	8.7	142.7	71.7	1634
April	106.6	0.4	265.7	0.4	106.9	53.7	1224
May	81.6	0.0	380.6	0.0	81.6	23.7	540
June	69.5	0.0	449.4	0.0	69.5	20.2	460
July	45.1	0.0	536.6	0.0	45.1	13.1	298
August	61.1	0.0	532.3	0.0	61.1	17.7	405
September	95.0	0.0	443.3	0.0	95.0	27.6	629
October	160.2	0.1	324.1	0.1	160.2	80.5	1835
November	196.3	4.9	180.1	4.9	201.1	101.0	2303
December	218.9	19.9	122.7	19.9	238.7	119.9	2734
Total	1498.5	72.9	3642.0		1571.4	714.8	16297

Weather Stations:

- Merritt Craigmont Mines
- Merritt STP

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	140	0.62	0.49
Commercial	86	0.67	0.62
Residential	261	0.43	0.22
Total urbanized area	487	0.53	0.37
Total municipal area	871		
Snowmelt Factor = 3 mm/Degree-day			

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	10.4	35.0	18.8	35.0	45.3	23.9	116
February	7.9	16.5	35.7	16.5	24.4	12.8	62
March	8.7	9.9	93.0	9.9	18.6	9.8	48
April	9.9	2.3	196.5	2.3	12.2	6.4	31
May	21.6	0.5	342.7	0.5	22.1	8.1	40
June	23.3	0.0	440.2	0.0	23.3	8.6	42
July	17.4	0.0	551.5	0.0	17.4	6.4	31
August	22.4	0.0	526.8	0.0	22.4	8.2	40
September	18.1	0.6	391.0	0.6	18.7	6.9	34
October	20.0	2.0	233.8	2.0	22.0	11.6	58
November	18.4	14.4	63.9	14.4	32.7	17.2	84
December	13.2	30.6	33.9	30.6	43.8	23.1	112
Total	191.1	111.6	2927.4		302.7	143.0	697

Fraser River Basin – District of Matsqui

CONTAMINANT LOADINGS

(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
236.9	355.4	296.2	11.8	33.2	21.3	142.2	189.5	165.8	474	568622	284311
186.4	279.6	233.0	9.3	26.1	16.8	111.8	149.1	130.5	373	447393	223687
163.4	245.1	204.2	8.2	22.6	14.7	98.0	130.7	114.4	327	382139	198070
122.4	183.7	153.1	6.1	17.1	11.0	73.5	98.0	85.7	245	293864	146932
54.0	81.0	67.5	2.7	7.8	4.9	32.4	43.2	37.8	108	129675	64838
46.0	69.0	57.5	2.3	6.4	4.1	27.6	36.8	32.2	92	110447	55223
29.8	44.7	37.3	1.5	4.2	2.7	17.9	23.9	20.9	60	71592	35786
40.5	60.7	50.6	2.0	5.7	3.6	24.3	32.4	28.3	81	87098	48548
62.9	94.4	78.6	3.1	8.8	5.7	37.7	50.3	44.0	126	150970	75485
183.5	275.2	229.4	9.2	25.7	16.5	110.1	146.8	128.4	367	440383	220192
230.3	345.5	287.9	11.5	32.2	20.7	138.2	184.3	161.2	461	552816	276408
273.4	410.1	341.8	13.7	36.3	24.6	164.0	218.7	191.4	547	656177	328088
1629.7	2444.5	2037.1	81.5	228.2	146.7	977.8	1303.7	1140.8	3259	3911176	1955588

Fraser River Basin – City of Merritt

CONTAMINANT LOADINGS

(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
11.8	17.4	14.5	0.6	1.8	1.0	7.0	9.3	8.1	23	27903	13951
6.2	9.4	7.8	0.3	0.9	0.6	3.7	5.0	4.4	12	14999	7499
4.8	7.1	6.0	0.2	0.7	0.4	2.9	3.8	3.3	10	11426	5713
3.1	4.7	3.9	0.2	0.4	0.3	1.9	2.5	2.2	6	7515	3757
4.0	5.9	5.0	0.2	0.6	0.4	2.4	3.2	2.8	8	8512	4756
4.2	6.3	5.2	0.2	0.6	0.4	2.5	3.3	2.9	8	10007	5004
3.1	4.7	3.9	0.2	0.4	0.3	1.9	2.5	2.2	6	7468	3734
4.0	6.0	5.0	0.2	0.6	0.4	2.4	3.2	2.8	8	8641	4821
3.4	5.0	4.2	0.2	0.5	0.3	2.0	2.7	2.3	7	8049	4024
5.6	8.5	7.1	0.3	0.8	0.5	3.4	4.5	4.0	11	13551	6776
8.4	12.6	10.5	0.4	1.2	0.8	5.0	6.7	5.9	17	20142	10071
11.2	16.8	14.0	0.6	1.6	1.0	6.7	9.0	7.9	22	26848	13474
69.7	104.5	87.1	3.5	9.8	6.3	41.8	55.7	48.8	139	167161	83580

Fraser River Basin – District of Matsqui

CONTAMINANT LOADINGS

AMMONIA (mg/L)			NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
0	1895	355	403	2818	1658	3554	4739	4146	711	948	828	237	474	355	47	118	83	237	474	355	12	36	24
0	1491	280	317	2218	1305	2798	3728	3262	558	746	652	186	373	280	37	93	65	186	373	280	9	28	19
0	1307	245	278	1944	1144	2451	3268	2859	490	654	572	163	327	245	33	82	57	163	327	245	8	25	16
0	980	184	208	1457	857	1837	2449	2143	367	490	429	122	245	184	24	61	43	122	245	184	6	18	12
0	432	81	92	643	376	810	1081	946	162	216	189	54	108	81	11	27	19	54	108	81	3	8	5
0	368	69	78	548	322	680	920	805	138	184	161	46	92	68	9	23	16	46	92	68	2	7	5
0	239	45	51	355	209	447	597	522	89	119	104	30	60	45	6	15	10	30	60	45	1	4	3
0	324	61	69	481	283	607	808	708	121	162	142	40	81	61	8	20	14	40	81	61	2	6	4
0	503	94	107	749	440	944	1258	1101	189	252	220	63	126	94	13	31	22	63	126	94	3	9	6
0	1468	275	312	2184	1284	2752	3870	3211	550	734	642	183	367	275	37	92	84	183	367	275	9	28	18
0	1843	346	392	2741	1612	3455	4607	4031	691	921	808	230	461	346	48	115	81	230	461	346	12	35	23
0	2187	410	465	3254	1914	4101	5468	4785	820	1094	957	273	547	410	55	137	96	273	547	410	14	41	27
0	13037	2444	2770	19393	11408	24445	32593	28519	4889	6519	5704	1630	3259	2444	326	815	570	1630	3259	2444	81	244	163

Fraser River Basin – City of Merritt

CONTAMINANT LOADINGS

AMMONIA (mg/L)			NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
0	93	17	20	138	81	174	233	203	35	47	41	12	23	17	2	6	4	12	23	17	1	2	1
0	50	9	11	74	44	94	125	109	19	25	22	6	12	9	1	3	2	6	12	9	0	1	1
0	38	7	8	57	33	71	95	83	14	19	17	5	10	7	1	2	2	5	10	7	0	1	0
0	25	5	5	37	22	47	63	55	9	13	11	3	6	5	1	2	1	3	6	5	0	0	0
0	32	6	7	47	28	59	79	69	12	16	14	4	8	6	1	2	1	4	8	6	0	1	0
0	33	6	7	50	29	63	83	73	13	17	15	4	8	6	1	2	1	4	8	6	0	1	0
0	25	5	5	37	22	47	62	54	9	12	11	3	6	5	1	2	1	3	6	5	0	0	0
0	32	6	7	48	28	60	80	70	12	16	14	4	8	6	1	2	1	4	8	6	0	1	0
0	27	5	6	40	23	50	67	59	10	13	12	3	7	5	1	2	1	3	7	5	0	1	0
0	45	8	10	67	40	85	113	99	17	23	20	6	11	8	1	3	2	6	11	8	0	1	1
0	67	13	14	100	59	126	168	147	25	34	29	8	17	13	2	4	3	8	17	13	0	1	1
0	90	17	19	134	79	168	225	198	34	45	39	11	22	17	2	6	4	11	22	17	1	2	1
0	557	104	118	829	488	1045	1393	1219	209	279	244	70	139	104	14	35	24	70	139	104	3	10	7

Fraser River Basin – District of Matsqui

CONTAMINANT LOADINGS

CADMIUM ($\mu\text{g/L}$)			NICKEL ($\mu\text{g/L}$)			ARSENIC ($\mu\text{g/L}$)			PHENOLS ($\mu\text{g/L}$)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARBS. ($\mu\text{g/L}$)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 9.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
12	24	18	47	71	59	24	36	31	2	272	31	7108	73447	11846	4265	21797	9477	1	28	2
9	19	15	37	56	47	19	28	24	2	214	24	5592	57788	8321	3355	17150	7457	1	22	2
8	16	13	33	49	41	18	25	21	2	168	21	4902	50651	8170	2941	15032	6538	0	20	2
6	12	10	24	37	31	12	18	16	1	141	16	3673	37957	6122	2204	11265	4898	0	15	1
3	5	4	11	16	14	5	8	7	1	62	7	1621	16750	2702	973	4971	2161	0	6	1
2	5	4	9	14	12	5	7	6	0	53	6	1381	14266	2301	828	4234	1841	0	6	0
1	3	2	6	9	7	3	4	4	0	34	4	885	9247	1491	537	2744	1193	0	4	0
2	4	3	8	12	10	4	6	5	0	47	5	1214	12542	2023	728	3722	1618	0	5	0
3	6	5	13	18	16	6	9	8	1	72	8	1887	18500	3145	1132	5787	2516	0	8	1
9	18	15	37	55	46	18	28	24	2	211	24	5505	56883	9175	3303	16881	7340	1	22	2
12	23	18	46	69	58	23	35	30	2	265	30	6910	71405	11517	4146	21191	9214	1	26	2
14	27	22	55	82	68	27	41	36	3	314	36	8202	84756	13670	4921	25153	10938	1	33	3
81	163	130	326	489	407	163	244	212	16	1874	212	46890	505194	81483	29334	149928	65186	5	196	16

Fraser River Basin – City of Merritt

CONTAMINANT LOADINGS

CADMIUM ($\mu\text{g/L}$)			NICKEL ($\mu\text{g/L}$)			ARSENIC ($\mu\text{g/L}$)			PHENOLS ($\mu\text{g/L}$)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARBS. ($\mu\text{g/L}$)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 9.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
1	1	1	2	3	3	1	2	2	0	13	2	349	3604	581	209	1070	465	0	1	0
0	1	0	1	2	2	1	1	1	0	7	1	187	1937	312	112	575	250	0	1	0
0	0	0	1	1	1	0	1	1	0	5	1	143	1476	238	86	438	180	0	1	0
0	0	0	1	1	1	0	0	0	0	4	0	94	971	157	56	288	125	0	0	0
0	0	0	1	1	1	0	1	1	0	5	1	119	1229	198	71	365	159	0	0	0
0	0	0	0	1	1	1	0	1	0	5	1	125	1293	208	75	384	167	0	1	0
0	0	0	1	1	1	0	0	0	0	4	0	93	965	156	56	286	124	0	0	0
0	0	0	1	1	1	0	1	1	0	5	1	121	1245	201	72	370	181	0	0	0
0	0	0	0	1	1	1	0	1	0	4	0	101	1040	168	60	309	134	0	0	0
0	1	0	1	2	1	1	1	1	0	6	1	169	1750	282	102	519	226	0	1	0
0	1	1	2	3	2	1	1	1	0	10	1	252	2602	420	151	772	338	0	1	0
1	1	1	2	3	3	1	2	1	0	13	1	337	3481	561	202	1033	449	0	1	0
3	7	6	14	21	17	7	10	9	1	80	9	2090	21592	3483	1254	6408	2786	0	8	1

Weather Stations:

- Mission
- Mission West Abbey

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	246	0.72	0.57
Commercial	79	0.77	0.72
Residential	1990	0.50	0.25
Total urbanized area	2315	0.53	0.30
Total municipal area	25300		

Snowmelt Factor = 3 mm/Degree-day

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS) (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	174.4	32.4	104.1	32.4	208.8	110.1	2549
February	165.5	11.2	139.0	11.2	176.7	94.1	2179
March	151.2	7.3	186.6	7.3	158.5	84.4	1954
April	122.5	0.9	257.6	0.9	123.4	65.7	1521
May	101.9	0.3	364.2	0.3	102.2	30.6	710
June	91.8	0.0	427.0	0.0	91.8	27.5	638
July	52.7	0.0	507.1	0.0	52.7	15.8	368
August	74.7	0.0	504.3	0.0	74.7	22.4	519
September	111.9	0.0	452.5	0.0	111.9	33.6	777
October	180.6	0.1	322.0	0.1	180.7	96.2	2227
November	213.8	4.8	189.3	4.8	218.6	116.4	2695
December	225.3	24.5	135.0	24.5	249.8	133.0	3080
Total	1666.3	81.3	3588.4		1747.6	830.0	19215

Weather Stations:

- New Westminster
- New Westminster BC Pen
- New Westminster West

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	234	0.62	0.49
Commercial	134	0.67	0.62
Residential	1832	0.43	0.22
Total urbanized area	2200	0.46	0.27
Total municipal area	2200		

Snowmelt Factor = 3 mm/Degree-day

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS) (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	182.2	25.2	94.2	25.2	207.4	96.4	2121
February	149.1	7.9	136.4	7.9	157.0	73.0	1606
March	131.3	6.4	188.8	6.4	137.7	64.0	1408
April	90.8	0.5	274.0	0.5	91.3	42.4	834
May	72.8	0.0	392.5	0.0	72.8	19.8	437
June	63.7	0.0	458.9	0.0	63.7	17.4	383
July	42.1	0.0	551.6	0.0	42.1	11.5	253
August	57.0	0.0	548.8	0.0	57.0	15.6	342
September	89.3	0.0	456.2	0.0	89.3	24.4	537
October	170.1	0.0	329.1	0.0	170.1	79.1	1739
November	197.0	3.2	183.5	3.2	200.2	93.0	2047
December	226.6	17.5	123.6	17.5	244.1	113.4	2496
Total	1472.0	60.7	3737.4		1532.7	650.1	14303

Fraser River Basin – District of Mission

CONTAMINANT LOADINGS

(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100ml)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
254.9	382.4	318.6	12.7	35.7	22.9	152.9	203.9	178.4	510	611790	305895
217.9	326.8	272.3	10.9	30.5	19.6	130.7	174.3	152.5	436	522869	261435
195.4	293.0	244.2	9.8	27.4	17.6	117.2	156.3	136.8	391	468866	234433
152.1	228.2	190.2	7.6	21.3	13.7	91.3	121.7	106.5	304	365150	182575
71.0	106.4	88.7	3.5	9.9	6.4	42.6	58.8	49.7	142	170288	85144
63.8	95.6	79.7	3.2	8.9	5.7	38.3	51.0	44.6	128	153034	76517
36.8	54.9	45.8	1.8	5.1	3.3	22.0	29.3	25.6	73	87853	43927
51.9	77.8	64.9	2.6	7.3	4.7	31.1	41.5	36.3	104	124526	62264
77.7	116.8	97.2	3.9	10.9	7.0	46.6	62.2	54.4	155	186542	93271
222.7	334.1	278.4	11.1	31.2	20.0	133.8	178.2	155.8	445	534558	267279
269.5	404.3	336.9	13.5	37.7	24.3	161.7	215.6	188.7	539	646855	323427
308.0	462.0	385.0	15.4	43.1	27.7	184.8	246.4	215.6	616	739178	369589
1921.5	2882.2	2401.8	96.1	269.0	172.9	1152.9	1537.2	1345.0	3843	4611512	2305756

Fraser River Basin – City of New Westminster

CONTAMINANT LOADINGS

(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100ml)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
212.1	318.1	265.1	10.6	29.7	19.1	127.3	169.7	148.5	424	509019	254510
160.8	240.8	200.7	8.0	22.5	14.4	96.3	128.4	112.4	321	385323	192662
140.8	211.3	176.1	7.0	16.7	12.7	84.5	112.7	98.6	282	338037	189019
93.4	140.0	116.7	4.7	13.1	8.4	56.0	74.7	65.4	187	224076	112038
43.7	65.6	54.7	2.2	6.1	3.9	26.2	35.0	30.6	87	104968	52484
38.3	57.4	47.8	1.9	5.4	3.4	23.0	30.6	26.8	77	81847	45624
25.3	38.0	31.6	1.3	3.5	2.3	15.2	20.3	17.7	51	60751	30375
34.2	51.3	42.8	1.7	4.8	3.1	20.5	27.4	24.0	68	62139	41069
53.7	80.5	67.1	2.7	7.5	4.8	32.2	42.9	37.6	107	128807	64404
173.9	260.9	217.4	8.7	24.4	15.7	104.4	138.2	121.8	348	417474	208737
204.7	307.0	255.9	10.2	28.7	18.4	122.8	163.8	143.3	409	491267	245633
249.6	374.4	312.0	12.5	34.9	22.5	149.8	199.7	174.7	499	599010	299505
1430.3	2145.4	1787.9	71.5	200.2	128.7	858.2	1144.2	1001.2	2861	3432720	1716360

Fraser River Basin – District of Mission

CONTAMINANT LOADINGS

AMMONIA (mg/L)			NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN 0.00	MAX 0.80	TYP 0.15	MIN 0.17	MAX 1.19	TYP 0.70	MIN 1.50	MAX 2.00	TYP 1.75	MIN 0.30	MAX 0.40	TYP 0.35	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 20 (kg)	MAX 50 (kg)	TYP 35 (kg)	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 5 (kg)	MAX 15 (kg)	TYP 10 (kg)
0	2039	382	433	3033	1784	3824	5098	4461	765	1020	892	255	510	382	51	127	89	255	510	382	13	38	25
0	1743	327	370	2593	1525	3268	4357	3813	654	871	763	218	436	327	44	109	78	218	436	327	11	33	22
0	1563	293	332	2325	1368	2930	3907	3419	586	781	684	195	391	293	39	98	68	195	391	293	10	29	20
0	1217	228	259	1811	1065	2282	3043	2663	456	609	533	152	304	228	30	76	53	152	304	228	8	23	15
0	568	106	121	844	497	1064	1418	1242	213	284	248	71	142	106	14	35	25	71	142	106	4	11	7
0	510	96	108	759	446	956	1275	1116	191	255	223	64	128	96	13	32	22	64	128	96	3	10	6
0	293	55	62	436	256	549	732	641	110	146	128	37	73	55	7	18	13	37	73	55	2	5	4
0	415	78	88	617	363	778	1038	908	156	208	182	52	104	78	10	26	18	52	104	78	3	8	5
0	622	117	132	925	544	1168	1555	1360	233	311	272	78	155	117	16	39	27	78	155	117	4	12	8
0	1782	334	379	2651	1559	3341	4455	3898	668	891	780	223	445	334	45	111	78	223	445	334	11	33	22
0	2156	404	458	3207	1887	4043	5390	4717	808	1078	943	270	539	404	54	135	94	270	539	404	13	40	27
0	2464	462	524	3665	2156	4620	6160	5390	924	1232	1078	308	616	462	62	154	108	308	616	462	15	46	31
0	15372	2882	3266	22865	13450	28822	38429	33626	5764	7686	6725	1921	3843	2882	384	961	673	1921	3843	2882	96	288	192

Fraser River Basin – City of New Westminster

CONTAMINANT LOADINGS

AMMONIA (mg/L)			NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN 0.00	MAX 0.80	TYP 0.15	MIN 0.17	MAX 1.19	TYP 0.70	MIN 1.50	MAX 2.00	TYP 1.75	MIN 0.30	MAX 0.40	TYP 0.35	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 20 (kg)	MAX 50 (kg)	TYP 35 (kg)	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 5 (kg)	MAX 15 (kg)	TYP 10 (kg)
0	1697	318	361	2524	1485	3181	4242	3712	636	848	742	212	424	318	42	106	74	212	424	318	11	32	21
0	1284	241	273	1911	1124	2408	3211	2810	482	642	562	161	321	241	32	80	56	161	321	241	8	24	16
0	1127	211	239	1676	986	2113	2817	2465	423	563	493	141	282	211	28	70	49	141	282	211	7	21	14
0	747	140	159	1111	654	1400	1867	1634	280	373	327	93	187	140	19	47	33	93	187	140	5	14	9
0	350	66	74	520	306	656	875	765	131	175	153	44	87	66	9	22	15	44	87	66	2	7	4
0	306	57	65	455	268	574	765	670	115	153	134	38	77	57	8	18	13	38	77	57	2	6	4
0	203	38	43	301	177	380	506	443	76	101	89	25	51	38	5	13	9	25	51	38	1	4	3
0	274	51	58	407	240	513	684	599	103	137	120	34	68	51	7	17	12	34	68	51	2	5	3
0	429	81	91	638	376	805	1073	939	161	215	188	54	107	81	11	27	19	54	107	81	3	8	5
0	1392	261	296	2070	1218	2609	3479	3044	522	696	609	174	348	261	35	87	61	174	348	261	9	26	17
0	1638	307	348	2436	1433	3070	4094	3582	614	819	716	205	409	307	41	102	72	205	409	307	10	31	20
0	1997	374	424	2970	1747	3744	4992	4368	749	998	874	250	498	374	50	125	87	250	498	374	12	37	25
0	11442	2145	2432	17021	10012	21454	28606	25030	4291	5721	5006	1430	2861	2145	286	715	501	1430	2861	2145	72	215	143

Fraser River Basin – District of Mission

CONTAMINANT LOADINGS

CADMIUM (ug/L)			NICKEL (ug/L)			ARSENIC (ug/L)			PHENOLS (ug/L)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. (ug/L)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 9.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
13	25	20	51	76	64	25	38	33	3	283	33	7647	79023	12746	4588	23452	10196	1	31	3
11	22	17	44	65	54	22	33	28	2	251	28	6536	67537	10893	3922	20043	8714	1	26	2
10	20	16	38	59	48	20	29	25	2	225	25	5861	60562	9768	3516	17973	7814	1	23	2
8	15	12	30	46	38	15	23	20	2	175	20	4564	47165	7607	2739	13997	6086	0	18	2
4	7	6	14	21	18	7	11	9	1	82	9	2129	21996	3548	1277	6528	2838	0	9	1
3	6	5	13	19	16	6	10	8	1	73	8	1913	19767	3188	1148	5866	2551	0	8	1
2	4	3	7	11	9	4	5	5	0	42	5	1088	11348	1830	659	3368	1464	0	4	0
3	5	4	10	16	13	5	8	7	1	60	7	1557	16085	2594	934	4774	2075	0	8	1
4	8	6	16	23	19	8	12	10	1	89	10	2332	24085	3886	1399	7151	3108	0	9	1
11	22	18	45	67	56	22	33	29	2	256	29	6682	69047	11137	4008	20491	8809	1	27	2
13	27	22	54	81	67	27	40	35	3	310	35	8086	83552	13476	4851	24798	10781	1	32	3
15	31	25	62	92	77	31	46	40	3	354	40	8240	95477	15400	5544	28335	12320	1	37	3
96	192	154	384	576	480	192	288	250	19	2210	250	57644	595654	96073	34586	176775	76859	6	231	19

Fraser River Basin – City of New Westminster

CONTAMINANT LOADINGS

CADMIUM (ug/L)			NICKEL (ug/L)			ARSENIC (ug/L)			PHENOLS (ug/L)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. (ug/L)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 9.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
11	21	17	42	64	53	21	32	28	2	244	28	6363	65748	10605	3818	19512	8484	1	25	2
8	16	13	32	48	40	16	24	21	2	185	21	4817	49771	8028	2890	14771	6422	0	19	2
7	14	11	28	42	35	14	21	18	1	162	18	4225	43663	7042	2535	12858	5634	0	17	1
5	9	7	19	26	23	9	14	12	1	107	12	2801	28943	4668	1681	8580	3735	0	11	1
2	4	3	9	13	11	4	7	6	0	50	6	1312	13558	2187	787	4024	1749	0	5	0
2	4	3	8	11	10	4	6	5	0	44	5	1148	11864	1913	689	3521	1531	0	5	0
1	3	2	5	8	6	3	4	3	0	29	3	759	7847	1286	456	2329	1013	0	3	0
2	3	3	7	10	9	3	5	4	0	39	4	1027	10610	1711	616	3149	1369	0	4	0
3	5	4	11	16	13	5	8	7	1	62	7	1610	16638	2683	966	4938	2147	0	6	1
9	17	14	35	52	43	17	26	23	2	200	23	5218	53924	8697	3131	16003	6958	1	21	2
10	20	16	41	61	51	20	31	27	2	235	27	8141	83455	10235	3684	18832	8188	1	25	2
12	25	20	50	75	62	25	37	32	2	287	32	7488	77372	12478	4493	22962	9983	1	30	2
72	143	114	286	429	358	143	215	186	14	1645	186	42909	443393	71515	25745	131588	57212	4	172	14

Weather Stations:

- Pitt Meadows Lougheed

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	139	0.72	0.57
Commercial	30	0.77	0.72
Residential	482	0.50	0.25
Total urbanized area	651	0.56	0.34
Total municipal area	5006		
Snowmelt Factor = 3 mm/Degree-day			

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	229.4	24.5	87.1	24.5	253.9	142.0	925
February	181.4	8.4	136.4	8.4	189.8	106.2	691
March	154.6	7.5	190.3	7.5	162.1	90.7	590
April	105.5	0.6	282.6	0.6	106.1	58.4	386
May	81	0	401.8	0.0	81.0	27.5	179
June	62.4	0	469.8	0.0	62.4	21.2	138
July	51.9	0	572.5	0.0	51.9	17.6	115
August	65.9	0	560.4	0.0	65.9	22.4	146
September	111.5	0	454.2	0.0	111.5	37.9	247
October	178	0	328.1	0.0	178.0	99.6	648
November	237	3.6	184.5	3.6	240.6	134.6	876
December	273.2	16.4	136	16.4	289.6	162.0	1055
Total	1731.8	61.0	3803.5		1792.8	921.1	5997

Weather Stations:

- Port Moody Gulf Oil Rwy

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	0	0.72	0.57
Commercial	0	0.77	0.72
Residential	58	0.50	0.25
Total urbanized area	58	0.50	0.25
Total municipal area	2980		
Snowmelt Factor = 3 mm/Degree-day			

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	228.1	29.2	83.5	29.2	257.3	128.7	75
February	197.0	6.8	127.0	6.8	203.8	101.9	59
March	167.1	3.5	174.0	3.5	170.6	85.3	49
April	127.9	0.0	267.0	0.0	127.9	64.0	37
May	86.2	0.0	363.0	0.0	86.2	21.6	12
June	76.9	0.0	437.0	0.0	76.9	19.2	11
July	54.8	0.0	535.0	0.0	54.8	13.7	8
August	61.6	0.0	543.0	0.0	61.6	15.4	9
September	99.0	0.0	439.0	0.0	99.0	24.8	14
October	199.9	0.1	326.0	0.1	200.0	100.0	58
November	238.3	1.2	173.0	1.2	239.5	119.8	69
December	282.8	18.7	129.0	18.7	301.5	150.8	87
Total	1819.6	59.5	3596.5		1879.1	844.9	490

Fraser River Basin – District of Pitt Meadows

CONTAMINANT LOADINGS

(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
82.5	138.7	115.6	4.6	12.9	8.3	55.5	74.0	64.7	185	221917	110958
69.1	103.7	86.4	3.5	8.7	6.2	41.5	55.3	48.4	138	165891	82946
59.0	88.6	73.8	3.0	8.3	5.3	35.4	47.2	41.3	118	141681	70840
38.6	58.0	48.3	1.9	5.4	3.5	23.2	30.9	27.0	77	92735	46367
17.9	26.9	22.4	0.9	2.5	1.6	10.8	14.3	12.5	36	43027	21513
13.8	20.7	17.3	0.7	1.9	1.2	8.3	11.0	9.7	28	33146	16573
11.5	17.2	14.4	0.6	1.6	1.0	6.9	9.2	8.0	23	27569	13784
14.6	21.9	18.2	0.7	2.0	1.3	8.8	11.7	10.2	29	35006	17503
24.7	37.0	30.8	1.2	3.5	2.2	14.8	19.7	17.3	49	59228	29614
64.8	97.2	81.0	3.2	9.1	5.8	38.9	51.9	45.4	130	155578	77789
87.6	131.4	109.5	4.4	12.3	7.9	52.6	70.1	61.3	175	210292	105146
105.5	158.2	131.8	5.3	14.8	9.5	63.3	84.4	73.8	211	253120	126560
599.7	899.5	749.6	30.0	84.0	54.0	359.8	479.7	419.8	1199	1439188	719594

Fraser River Basin – City of Port Moody

CONTAMINANT LOADINGS

(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
7.5	11.2	9.3	0.4	1.0	0.7	4.5	6.0	5.2	15	17908	8954
5.9	8.9	7.4	0.3	0.8	0.5	3.5	4.7	4.1	12	14184	7092
4.9	7.4	6.2	0.2	0.7	0.4	3.0	4.0	3.5	10	11874	5937
3.7	5.6	4.8	0.2	0.5	0.3	2.2	3.0	2.6	7	8902	4451
1.2	1.9	1.6	0.1	0.2	0.1	0.7	1.0	0.9	2	3000	1500
1.1	1.7	1.4	0.1	0.2	0.1	0.7	0.9	0.8	2	2676	1338
0.8	1.2	1.0	0.0	0.1	0.1	0.5	0.6	0.6	2	1907	954
0.9	1.3	1.1	0.0	0.1	0.1	0.5	0.7	0.6	2	2144	1072
1.4	2.2	1.8	0.1	0.2	0.1	0.9	1.1	1.0	3	3445	1723
5.8	8.7	7.3	0.3	0.8	0.5	3.5	4.6	4.1	12	13920	6960
6.9	10.4	8.7	0.3	1.0	0.6	4.2	5.6	4.9	14	16669	8335
8.7	13.1	10.9	0.4	1.2	0.8	5.2	7.0	6.1	17	20984	10492
49.0	73.5	61.3	2.5	6.9	4.4	29.4	39.2	34.3	98	117614	58807

Fraser River Basin – District of Pitt Meadows

CONTAMINANT LOADINGS

AMMONIA (mg/L)			NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)			
MIN 0.00	MAX 0.80	TYP 0.15	MIN 0.17	MAX 1.19	TYP 0.70	MIN 1.50	MAX 2.00	TYP 1.75	MIN 0.30	MAX 0.40	TYP 0.35	MIN 100	MAX 200	TYP 150	MIN 20	MAX 50	TYP 35	MIN 100	MAX 200	TYP 150	MIN 5	MAX 15	TYP 10	
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
0	740	139	157	1100	647	1387	1849	1618	277	370	324	92	185	139	18	48	32	82	185	139	5	14	9	
0	553	104	118	823	484	1037	1382	1210	207	276	242	69	138	104	14	35	24	69	138	104	3	10	7	
0	472	89	100	702	413	886	1181	1033	177	236	207	59	118	89	12	30	21	59	118	89	3	9	6	
0	309	58	66	460	270	580	773	676	116	155	135	39	77	58	8	19	14	39	77	58	2	6	4	
0	143	27	30	213	125	269	359	314	54	72	63	18	36	27	4	9	6	18	36	27	1	3	2	
0	110	21	23	164	97	207	276	242	41	55	48	14	28	21	3	7	5	14	28	21	1	2	1	
0	92	17	20	137	80	172	230	201	34	46	40	11	23	17	2	6	4	11	23	17	1	2	1	
0	117	22	25	174	102	219	292	255	44	58	51	15	29	22	3	7	5	15	29	22	1	2	1	
0	197	37	42	294	173	370	494	432	74	99	86	25	49	37	5	12	9	25	49	37	1	4	2	
0	519	87	110	771	454	872	1296	1134	194	259	227	65	130	97	13	32	23	65	130	97	3	10	6	
0	701	131	149	1043	613	1314	1752	1533	263	350	307	88	175	131	18	44	31	88	175	131	4	13	9	
0	844	158	179	1255	738	1582	2109	1846	316	422	369	105	211	158	21	53	37	105	211	158	5	16	11	
0	4797	899	1019	7136	4198	8995	11993	10494	1799	2399	2099	600	1199	899	120	300	210	600	1199	899	30	90	60	

Fraser River Basin – City of Port Moody

CONTAMINANT LOADINGS

AMMONIA (mg/L)			NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)			
MIN 0.00	MAX 0.80	TYP 0.15	MIN 0.17	MAX 1.19	TYP 0.70	MIN 1.50	MAX 2.00	TYP 1.75	MIN 0.30	MAX 0.40	TYP 0.35	MIN 100	MAX 200	TYP 150	MIN 20	MAX 50	TYP 35	MIN 100	MAX 200	TYP 150	MIN 5	MAX 15	TYP 10	
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
0	60	11	13	89	52	112	149	131	22	30	26	7	15	11	1	4	3	7	15	11	0	1	1	
0	47	9	10	70	41	88	118	103	18	24	21	6	12	9	1	3	2	6	12	9	0	1	1	
0	40	7	8	59	35	74	99	87	15	20	17	5	10	7	1	2	2	5	10	7	0	1	0	
0	30	6	6	44	26	56	74	65	11	15	13	4	7	6	1	2	1	4	7	6	0	1	0	
0	10	2	2	15	9	19	25	22	4	5	4	1	2	2	0	1	0	1	2	2	0	0	0	
0	9	2	2	13	8	17	22	20	3	4	4	1	2	2	0	1	0	1	2	2	0	0	0	
0	6	1	1	9	6	12	16	14	2	3	3	1	2	1	0	0	0	1	2	1	0	0	0	
0	7	1	2	11	6	13	18	16	3	4	3	1	2	1	0	0	0	1	2	1	0	0	0	
0	11	2	2	17	10	22	29	25	4	6	5	1	3	2	0	1	1	1	3	2	0	0	0	
0	46	9	10	69	41	87	116	102	17	23	20	6	12	9	1	3	2	6	12	9	-0	1	1	
0	56	10	12	83	49	104	139	122	21	28	24	7	14	10	1	3	2	7	14	10	0	1	1	
0	70	13	15	104	61	131	175	153	26	35	31	9	17	13	2	4	3	9	17	13	0	1	1	
0	392	74	83	583	343	735	980	858	147	196	172	49	98	74	10	25	17	49	98	74	2	7	5	

Fraser River Basin – District of Pitt Meadows

CONTAMINANT LOADINGS

CADMIUM (ug/L)			NICKEL (ug/L)			ARSENIC (ug/L)			PHENOLS (ug/L)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. (ug/L)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80 (kg)	MAX 8.20 (kg)	TYP 4.00 (kg)	MIN 0.30 (kg)	MAX 12.00 (kg)	TYP 1.00 (kg)
5	9	7	18	28	23	9	14	12	1	106	12	2774	28664	4623	1664	8507	3699	0	11	1
3	7	6	14	21	17	7	10	9	1	79	9	2074	21428	3456	1244	6359	2765	0	8	1
3	6	5	12	18	15	6	9	8	1	68	8	1771	18300	2952	1063	5431	2361	0	7	1
2	4	3	8	12	10	4	6	5	0	44	5	1159	11978	1832	696	3555	1546	0	5	0
1	2	1	4	5	4	2	3	2	0	21	2	538	5558	896	323	1649	717	0	2	0
1	1	1	3	4	3	1	2	2	0	16	2	414	4281	691	249	1271	552	0	2	0
1	1	1	2	3	3	1	2	1	0	13	1	345	3561	574	207	1057	459	0	1	0
1	1	1	3	4	4	1	2	2	0	17	2	438	4522	729	263	1342	583	0	2	0
1	2	2	5	7	6	2	4	3	0	28	3	740	7650	1234	444	2270	987	0	3	0
3	6	5	13	19	16	6	10	8	1	75	8	1945	20095	3241	1167	5964	2593	0	8	1
4	9	7	18	26	22	9	13	11	1	101	11	2629	27163	4361	1577	8061	3505	0	11	1
5	11	8	21	32	26	11	16	14	1	121	14	3164	32695	5273	1898	9703	4219	0	13	1
30	60	48	120	180	150	60	90	78	6	690	78	17990	185895	29983	10794	55169	23986	2	72	6

Fraser River Basin – City of Port Moody

CONTAMINANT LOADINGS

CADMIUM (ug/L)			NICKEL (ug/L)			ARSENIC (ug/L)			PHENOLS (ug/L)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. (ug/L)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80 (kg)	MAX 8.20 (kg)	TYP 4.00 (kg)	MIN 0.30 (kg)	MAX 12.00 (kg)	TYP 1.00 (kg)
0	1	1	1	2	2	1	1	1	0	9	1	224	2313	373	134	686	298	0	1	0
0	1	0	1	2	1	1	1	1	0	7	1	177	1832	296	106	544	236	0	1	0
0	0	0	1	1	1	0	1	1	0	6	1	148	1534	247	89	455	198	0	1	0
0	0	0	1	1	1	0	1	0	0	4	0	111	1150	185	67	341	148	0	0	0
0	0	0	0	0	0	0	0	0	0	1	0	37	387	62	22	115	50	0	0	0
0	0	0	0	0	0	0	0	0	0	1	0	33	346	56	20	103	45	0	0	0
0	0	0	0	0	0	0	0	0	0	1	0	24	246	40	14	73	32	0	0	0
0	0	0	0	0	0	0	0	0	0	1	0	27	277	45	16	82	36	0	0	0
0	0	0	0	0	0	0	0	0	0	2	0	43	445	72	28	132	57	0	0	0
0	1	0	1	2	1	1	1	1	0	7	1	174	1798	290	104	534	232	0	1	0
0	1	1	1	2	2	1	1	1	0	8	1	208	2153	347	125	639	278	0	1	0
0	1	1	2	3	2	1	1	1	0	10	1	262	2710	437	157	804	350	0	1	0
2	5	4	10	15	12	5	7	6	0	56	6	1470	15192	2450	882	4509	1960	0	6	0

Weather Stations:

- Pitt Meadows Lougheed
- Port Coquitlam City Yard

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	183	0.72	0.57
Commercial	74	0.77	0.72
Residential	1853	0.50	0.23
Total urbanized area	1920	0.53	0.28
Total municipal area	2509		

Snowmelt Factor = 3 mm/Degree-day

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS) (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	226.3	26.1	87.1	26.1	252.3	134.4	2580
February	186.9	7.9	136.4	7.9	194.7	103.7	1991
March	161.6	7.1	190.3	7.1	168.7	89.8	1724
April	120.5	0.3	282.6	0.3	120.8	64.3	1235
May	83.6	0.2	401.8	0.2	83.8	23.7	455
June	71.8	0.0	468.6	0.0	71.8	20.3	390
July	53.9	0.0	572.5	0.0	53.9	15.2	293
August	67.3	0.0	560.4	0.0	67.3	18.1	366
September	107.1	0.0	454.2	0.0	107.1	30.3	582
October	194.1	0.0	328.1	0.0	194.1	103.4	1985
November	244.9	2.7	184.5	2.7	247.5	131.8	2531
December	282.7	15.6	129.9	15.6	298.3	158.9	3050
Total	1800.5	59.7	3797.4		1860.1	894.8	17180

Fraser River Basin – City of Port Coquitlam

CONTAMINANT LOADINGS

(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
258.0	386.8	322.5	12.8	36.1	23.2	154.8	206.4	180.6	516	619108	309554
186.1	298.8	248.8	10.0	27.9	17.9	119.4	158.3	139.3	388	477766	238883
172.4	258.7	215.5	8.6	24.1	15.5	103.5	137.8	120.7	345	413843	206921
123.5	185.3	154.4	6.2	17.3	11.1	74.1	98.8	86.5	247	296426	148213
45.5	68.3	56.9	2.3	6.4	4.1	27.3	38.4	31.9	91	108239	54620
39.0	58.5	48.8	2.0	5.5	3.5	23.4	31.2	27.3	78	93652	48826
29.3	43.9	36.8	1.5	4.1	2.6	17.8	23.4	20.5	59	70239	35120
36.6	54.9	45.7	1.8	5.1	3.3	21.9	29.3	25.6	73	87783	43891
58.2	87.3	72.7	2.9	8.1	5.2	34.9	48.5	40.7	116	139631	69815
188.5	297.7	248.1	8.9	27.8	17.9	119.1	158.8	138.8	397	476293	238147
253.1	378.6	316.3	12.7	35.4	22.8	151.8	202.4	177.1	508	607329	303665
305.0	457.5	381.2	15.2	42.7	27.4	183.0	244.0	213.5	610	731985	365993
1718.0	2577.1	2147.5	85.9	240.5	154.6	1030.8	1374.4	1202.6	3436	4123295	2061648

Weather Station:

- Prince George A

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	3828	0.62	0.49
Commercial	200	0.67	0.62
Residential	14687	0.43	0.22
Total urbanized area	18715	0.47	0.28
Total municipal area	32249		

Snowmelt Factor = 3 mm/Degree-day

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS) (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	4.1	61.1	7.1	21.3	25.4	12.0	2241
February	6.1	35.7	14.9	44.7	50.8	23.9	4482
March	9.1	29.8	40.8	60.7	69.8	32.8	6158
April	17.4	9.9	136.9	9.9	27.3	12.9	2406
May	45.1	2.2	269.2	2.2	47.3	13.2	2474
June	66.8	0	386.3	0.0	66.8	18.7	3494
July	59.7	0	467.6	0.0	59.7	16.7	3123
August	68.2	0	435.8	0.0	68.2	19.1	3587
September	57.4	1.3	292.8	1.3	58.7	16.4	3071
October	49.9	9.1	157.3	9.1	59.0	27.8	5205
November	16.1	39.8	33.3	39.6	55.7	26.3	4914
December	9.9	52.8	10.4	31.2	41.1	19.4	3626
Total	409.8	241.7	2272.3		629.8	239.2	44765

Fraser River Basin – City of Prince George

CONTAMINANT LOADINGS

(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
224.1	336.1	280.1	11.2	31.4	20.2	134.5	179.3	156.9	448	537836	268818
448.2	672.3	560.2	22.4	62.7	40.3	268.9	356.6	313.7	898	1075672	537838
615.8	923.7	769.8	30.8	86.2	55.4	369.5	492.7	431.1	1232	1477980	738995
240.8	361.3	301.1	12.0	33.7	21.7	144.5	182.7	168.6	482	578068	289034
247.4	371.1	309.3	12.4	34.6	22.3	148.5	197.9	173.2	495	593807	296904
349.4	524.1	436.8	17.5	48.8	31.4	209.7	279.5	244.6	699	838611	419306
312.3	468.4	390.4	15.8	43.7	28.1	187.4	249.8	218.6	625	748478	374739
356.7	535.1	445.9	17.8	49.9	32.1	214.0	285.4	249.7	713	856187	428094
307.1	460.6	383.8	15.4	43.0	27.6	184.2	245.8	214.9	614	736924	368462
520.5	780.8	650.7	26.0	72.9	46.8	312.3	416.4	384.4	1041	1249304	624652
481.4	737.1	614.3	24.8	68.8	44.2	294.9	383.1	344.0	983	1179428	589714
362.8	543.9	453.3	18.1	50.8	32.8	217.8	290.1	253.8	725	870278	435139
4476.5	6714.7	5595.6	223.8	626.7	402.9	2685.9	3581.2	3133.5	8953	10743584	5371792

Fraser River Basin – City of Port Coquitlam

CONTAMINANT LOADINGS

AMMONIA (mg/L)			NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN 0.00	MAX 0.80	TYP 0.15	MIN 0.17	MAX 1.19	TYP 0.70	MIN 1.50	MAX 2.00	TYP 1.75	MIN 0.30	MAX 0.40	TYP 0.35	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 20 (kg)	MAX 50 (kg)	TYP 35 (kg)	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 5 (kg)	MAX 15 (kg)	TYP 10 (kg)
0	2064	387	439	3070	1806	3888	5159	4514	774	1032	803	258	516	387	52	129	90	258	516	387	13	39	26
0	1593	299	336	2369	1393	2986	3981	3484	597	798	697	199	398	299	40	100	70	199	398	299	10	30	20
0	1378	259	283	2052	1207	2587	3449	3018	517	690	604	172	345	259	34	86	60	172	345	259	9	26	17
0	988	185	210	1470	865	1853	2470	2161	371	494	432	124	247	185	25	62	43	124	247	185	6	19	12
0	364	68	77	542	319	683	910	797	137	182	159	46	91	68	9	23	16	46	91	68	2	7	5
0	312	59	66	464	273	585	780	683	117	156	137	39	78	59	8	20	14	39	78	59	2	6	4
0	234	44	50	348	205	439	585	512	88	117	102	29	59	44	6	15	10	29	59	44	1	4	3
0	293	55	62	435	258	549	732	640	110	146	128	37	73	55	7	18	13	37	73	55	2	5	4
0	465	87	89	692	407	873	1184	1018	175	233	204	58	116	87	12	29	20	58	116	87	3	9	6
0	1588	298	337	2362	1389	2977	3969	3473	595	794	695	198	397	298	40	99	69	198	397	298	10	30	20
0	2024	380	430	3011	1771	3796	5061	4428	759	1012	886	253	506	380	51	127	89	253	506	380	13	38	25
0	2440	457	518	3629	2135	4575	6100	5337	915	1220	1067	305	610	457	61	152	107	305	610	457	15	46	30
0	13744	2577	2921	20445	12026	25771	34361	30066	5154	6872	6013	1718	3436	2577	344	859	601	1718	3436	2577	86	258	172

Fraser River Basin – City of Prince George

CONTAMINANT LOADINGS

AMMONIA (mg/L)			NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN 0.00	MAX 0.80	TYP 0.15	MIN 0.17	MAX 1.19	TYP 0.70	MIN 1.50	MAX 2.00	TYP 1.75	MIN 0.30	MAX 0.40	TYP 0.35	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 20 (kg)	MAX 50 (kg)	TYP 35 (kg)	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 5 (kg)	MAX 15 (kg)	TYP 10 (kg)
0	1793	336	381	2667	1569	3361	4482	3922	672	896	784	224	448	336	45	112	78	224	448	336	11	34	22
0	3588	672	782	5334	3137	6723	8964	7843	1345	1793	1569	448	896	672	90	224	157	448	896	672	22	67	45
0	4927	924	1047	7328	4311	9237	12317	10777	1847	2463	2155	616	1232	924	123	308	216	616	1232	924	31	82	24
0	1927	361	409	2866	1686	3613	4817	4215	723	963	843	241	482	361	48	120	84	241	482	361	12	36	24
0	1979	371	421	2944	1732	3711	4948	4330	742	990	866	247	495	371	49	124	87	247	495	371	12	37	25
0	2785	524	584	4158	2446	5241	6988	6115	1048	1388	1223	349	698	524	70	175	122	349	698	524	17	52	35
0	2498	468	531	3718	2186	4684	6246	5465	937	1249	1093	312	625	468	62	156	109	312	625	468	16	47	31
0	2854	535	606	4245	2497	5351	7135	6243	1070	1427	1249	357	713	535	71	178	125	357	713	535	18	54	36
0	2456	461	522	3654	2149	4606	6141	5373	921	1228	1075	307	614	461	61	154	107	307	614	461	15	48	31
0	4164	781	885	6194	3644	7808	10411	9110	1562	2082	1822	521	1041	781	104	260	182	521	1041	781	26	78	52
0	3831	737	835	5848	3440	7371	9828	8600	1474	1966	1720	481	983	737	98	246	172	491	983	737	25	74	49
0	2901	544	616	4315	2538	5438	7252	6346	1088	1450	1268	363	725	544	73	181	127	363	725	544	18	54	36
0	35812	6715	7610	53270	31335	67147	89530	78339	13429	17906	15668	4476	8953	6715	895	2238	1567	4476	8953	6715	224	671	448

Fraser River Basin – City of Port Coquitlam

CONTAMINANT LOADINGS

CADMIUM ($\mu\text{g/L}$)			NICKEL ($\mu\text{g/L}$)			ARSENIC ($\mu\text{g/L}$)			PHENOLS ($\mu\text{g/L}$)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. ($\mu\text{g/L}$)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 8.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
13	28	21	52	77	64	26	39	34	3	297	34	7738	79968	12898	4643	23732	10318	1	31	3
10	20	16	40	60	50	20	30	26	2	229	26	5972	61711	9953	3583	18314	7963	1	24	2
9	17	14	34	52	43	17	26	22	2	198	22	5173	53455	8622	3104	15864	6887	1	21	2
6	12	10	25	37	31	12	19	16	1	142	16	3705	38288	6178	2223	11363	4940	0	15	1
2	5	4	9	14	11	5	7	6	0	52	6	1365	14110	2276	819	4188	1821	0	5	0
2	4	3	8	12	10	4	6	5	0	45	5	1171	12087	1951	702	3590	1561	0	5	0
1	3	2	6	9	7	3	4	4	0	34	4	878	9073	1463	527	2693	1171	0	4	0
2	4	3	7	11	9	4	5	5	0	42	5	1087	11339	1829	658	3365	1463	0	4	0
3	6	5	12	17	15	6	9	8	1	67	8	1745	18036	2909	1047	5353	2327	0	7	1
10	20	16	40	60	50	20	30	26	2	228	26	5954	61521	9923	3572	18258	7938	1	24	2
13	25	20	51	76	63	25	38	33	3	281	33	7582	78447	12653	4555	23281	10122	1	30	3
15	30	24	61	91	76	30	46	40	3	351	40	9150	94548	15250	5490	28059	12200	1	37	3
86	172	137	344	515	430	172	258	223	17	1976	223	51541	532592	85902	30925	158060	68722	5	206	17

Fraser River Basin – City of Prince George

CONTAMINANT LOADINGS

CADMIUM ($\mu\text{g/L}$)			NICKEL ($\mu\text{g/L}$)			ARSENIC ($\mu\text{g/L}$)			PHENOLS ($\mu\text{g/L}$)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. ($\mu\text{g/L}$)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 8.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
11	22	18	45	67	56	22	34	29	2	258	29	6723	69470	11205	4034	20817	8964	1	27	2
22	45	36	90	134	112	45	67	58	4	515	58	13446	138941	22410	8068	41234	17928	1	54	4
31	62	49	123	185	154	62	92	80	6	708	80	18475	190907	30781	11065	56656	24633	2	74	6
12	24	19	48	72	60	24	36	31	2	277	31	7226	74667	12043	4336	22158	9634	1	29	2
12	25	20	49	74	62	25	37	32	2	285	32	7423	76700	12371	4454	22763	8897	1	30	2
17	35	28	70	105	87	35	52	45	3	402	45	10483	108321	17471	6280	32147	13977	1	42	3
16	31	25	62	94	78	31	47	41	3	359	41	9368	96808	15614	5621	28730	12491	1	37	3
18	36	29	71	107	89	36	54	46	4	410	46	10702	110591	17837	6421	32821	14270	1	43	4
15	31	25	61	92	77	31	46	40	3	353	40	9212	95186	15353	5527	28249	12282	1	37	3
26	52	42	104	156	130	52	78	68	5	599	68	15618	161368	26027	9370	47890	20822	2	62	5
25	49	39	98	147	123	49	74	64	5	565	64	14743	152343	24571	8848	45211	19857	1	59	5
18	38	29	73	109	91	36	54	47	4	417	47	10878	112411	18131	6527	33361	14505	1	44	4
224	448	358	895	1343	1119	448	671	582	45	5148	582	134295	1387713	223825	80577	411837	179060	13	537	45

Weather Stations:

- Quesnel
- Quesnel A
- Quesnel Moose Heights

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	1023	0.62	0.49
Commercial	75	0.67	0.62
Residential	913	0.43	0.22
Total urbanized area	2011	0.54	0.37
Total municipal area	2480		

Snowmelt Factor = 3 mm/Degree-day

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	3.2	62.4	7.6	22.7	25.8	13.9	279
February	4.8	28.7	20.3	60.9	65.7	35.2	708
March	9.2	16.8	56.9	24.5	33.7	18.0	363
April	16.8	4.4	164.5	4.4	21.2	11.4	228
May	34.2	0.5	324.9	0.5	34.8	12.9	260
June	55.7	0.0	418.7	0.0	55.7	20.7	417
July	48.7	0.0	509.4	0.0	48.7	18.1	365
August	57.0	0.0	482.2	0.0	57.0	21.2	427
September	44.9	0.4	334.8	0.4	45.3	16.9	339
October	44.6	5.5	181.1	5.5	50.1	26.9	540
November	16.7	28.1	43.0	28.1	44.8	24.0	482
December	7.1	50.0	11.3	33.9	41.0	22.0	442
Total	342.9	197.0	2557.6		523.8	241.1	4849

Weather Stations:

- Vancouver Int'l
- Vancouver South Fraser

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	4240	0.62	0.49
Commercial	280	0.67	0.62
Residential	6540	0.43	0.22
Total urbanized area	11060	0.51	0.33
Total municipal area	16819		

Snowmelt Factor = 3 mm/Degree-day

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	142.4	26.2	100.2	26.2	168.6	85.8	9487
February	118.1	8.5	132.1	8.5	128.5	64.4	7120
March	105.6	6.8	180.6	6.8	112.3	57.2	6321
April	68.9	0.3	262.8	0.3	69.2	35.2	3885
May	54.4	0.0	378.4	0.0	54.4	18.1	2008
June	49.1	0.0	452.3	0.0	49.1	16.4	1810
July	35.5	0.0	536.5	0.0	35.5	11.8	1308
August	45.6	0.0	528.8	0.0	45.6	15.2	1683
September	73.4	0.0	426.2	0.0	73.4	24.5	2707
October	129.4	0.1	310.0	0.1	129.4	65.9	7283
November	162.8	3.1	179.9	3.1	165.9	84.4	9338
December	183.8	19.9	132.3	19.9	203.7	103.6	11463
Total	1168.6	64.8	3621.1		1233.3	582.5	64420

Fraser River Basin – City of Quesnel

CONTAMINANT LOADINGS

(TSS) (mg/L)				(BOD) (mg/L)				(COD) (mg/L)				FECAL COLIFORM (#/100mL)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)		MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)		MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)		MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
27.9	41.8	34.9	1.4	3.9	2.5	16.7	22.3	19.5	56	66953	33476			
70.8	106.1	88.5	3.5	9.9	6.4	42.5	56.6	49.5	142	169837	84919			
36.3	54.4	45.3	1.8	5.1	3.3	21.8	29.0	25.4	73	87030	43515			
22.8	34.3	28.5	1.1	3.2	2.1	13.7	18.3	16.0	46	54803	27401			
26.0	39.0	32.5	1.3	3.6	2.3	15.6	20.8	18.2	52	62466	31233			
41.7	62.5	52.1	2.1	5.8	3.8	25.0	33.3	29.2	83	100017	50008			
36.5	54.7	45.6	1.8	5.1	3.3	21.9	29.2	25.5	73	87500	43750			
42.7	64.0	53.4	2.1	6.0	3.8	25.6	34.2	29.9	85	102472	51236			
33.9	50.8	42.4	1.7	4.7	3.0	20.3	27.1	23.7	68	81331	40666			
54.0	81.0	67.5	2.7	7.6	4.9	32.4	43.2	37.8	108	129597	64798			
48.2	72.3	60.3	2.4	6.8	4.3	28.9	38.6	33.8	96	115724	57862			
44.2	66.3	55.2	2.2	6.2	4.0	26.5	35.4	30.8	88	106073	53036			
484.9	727.4	606.1	24.2	67.9	43.6	291.0	387.9	339.4	970	1163801	581901			

Weather Stations:

- Vancouver Int'l
- Vancouver South Fraser

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	4240	0.62	0.49
Commercial	280	0.67	0.62
Residential	6540	0.43	0.22
Total urbanized area	11060	0.51	0.33
Total municipal area	16819		

Snowmelt Factor = 3 mm/Degree-day

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	142.4	26.2	100.2	26.2	168.6	85.8	9487
February	118.1	8.5	132.1	8.5	128.5	64.4	7120
March	105.6	6.8	180.6	6.8	112.3	57.2	6321
April	68.9	0.3	262.8	0.3	69.2	35.2	3885
May	54.4	0.0	378.4	0.0	54.4	18.1	2008
June	49.1	0.0	452.3	0.0	49.1	16.4	1810
July	35.5	0.0	536.5	0.0	35.5	11.8	1308
August	45.6	0.0	528.8	0.0	45.6	15.2	1683
September	73.4	0.0	426.2	0.0	73.4	24.5	2707
October	129.4	0.1	310.0	0.1	129.4	65.9	7283
November	162.8	3.1	179.9	3.1	165.9	84.4	9338
December	183.8	19.9	132.3	19.9	203.7	103.6	11463
Total	1168.6	64.8	3621.1		1233.3	582.5	64420

Fraser River Basin – City of Richmond

CONTAMINANT LOADINGS

(TSS) (mg/L)				(BOD) (mg/L)				(COD) (mg/L)				FECAL COLIFORM (#/100mL)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)		MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)		MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)		MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
948.7	1423.1	1185.9	47.4	132.8	85.4	589.2	758.0	664.1	1887	2278881	1138441			
712.0	1068.0	890.0	35.6	99.7	64.1	427.2	589.6	498.4	1424	1708843	854421			
632.1	948.1	790.1	31.6	88.5	56.9	379.3	505.7	442.5	1264	1517020	758510			
389.5	584.2	486.9	19.5	54.5	35.1	233.7	311.6	272.6	779	934798	467399			
200.6	300.8	250.7	10.0	28.1	18.0	120.3	160.4	140.4	401	481324	240662			
181.0	271.5	226.2	9.0	25.3	18.3	108.6	144.8	126.7	362	434387	217193			
130.8	196.2	163.5	6.5	18.3	11.8	78.5	104.6	91.6	262	319945	156873			
168.3	252.4	210.3	8.4	23.8	15.1	101.0	134.8	117.8	337	403884	201817			
270.7	406.0	338.3	13.5	37.8	24.4	162.4	216.5	189.5	541	649586	324794			
728.3	1092.5	910.4	36.4	102.0	65.6	437.0	582.7	509.8	1457	1748018	874009			
933.8	1400.7	1167.2	46.7	130.7	84.0	580.3	747.0	653.6	1868	2241083	1120542			
1146.3	1719.4	1432.8	5											

Fraser River Basin – City of Quesnel

CONTAMINANT LOADINGS

AMMONIA (mg/L)			NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
0	223	42	47	332	195	418	558	488	84	112	98	28	56	42	6	14	10	28	56	42	1	4	3
0	566	106	120	842	495	1061	1415	1238	212	283	248	71	142	106	14	35	25	71	142	106	4	11	7
0	290	54	62	432	254	544	725	635	109	145	127	36	73	54	7	18	13	36	73	54	2	5	4
0	183	34	39	272	160	343	457	400	69	91	80	23	46	34	5	11	8	23	46	34	1	3	2
0	208.	39	44	310	182	390	521	455	78	104	91	26	52	39	5	13	9	26	52	39	1	4	3
0	333	63	71	496	292	625	833	729	125	167	146	42	83	63	8	21	15	42	83	63	2	6	4
0	292	55	62	434	255	547	729	638	109	146	128	36	73	55	7	18	13	36	73	55	2	5	4
0	342	64	73	508	299	640	854	747	128	171	149	43	85	64	8	21	15	43	85	64	2	6	4
0	271	51	58	403	237	508	678	593	102	136	119	34	88	51	7	17	12	34	68	51	2	5	3
0	432	81	82	643	378	810	1080	945	162	216	189	54	108	81	11	27	19	54	108	81	3	8	5
0	388	72	82	574	338	723	964	844	145	183	169	48	96	72	10	24	17	48	96	72	2	7	5
0	354	66	75	526	309	663	884	773	133	177	155	44	88	66	9	22	15	44	88	66	2	7	4
0	3879	727	824	5771	3394	7274	9698	8486	1455	1940	1697	485	970	727	97	242	170	485	970	727	24	73	48

Fraser River Basin – City of Richmond

CONTAMINANT LOADINGS

AMMONIA (mg/L)			NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
0	7590	1423	1613	11290	6641	14231	18974	16602	2848	3795	3320	949	1897	1423	190	474	332	849	1897	1423	47	142	85
0	5696	1068	1210	8473	4984	10680	14240	12460	2136	2848	2492	712	1424	1068	142	356	249	712	1424	1068	38	107	71
0	5057	948	1075	7522	4425	9481	12842	11062	1898	2528	2212	632	1284	948	126	316	221	632	1264	948	32	95	63
0	3118	584	662	4635	2726	5842	7790	6816	1168	1558	1363	389	779	584	78	195	136	389	779	584	19	58	39
0	1604	301	341	2387	1404	3008	4011	3510	602	802	702	201	401	301	40	100	70	201	401	301	10	30	20
0	1448	271	308	2154	1267	2715	3620	3167	543	724	633	181	362	271	36	90	63	181	362	271	9	27	18
0	1046	196	222	1557	916	1962	2616	2289	392	523	458	131	262	196	26	65	46	131	262	196	7	20	13
0	1348	252	286	2002	1178	2524	3365	2945	505	673	589	168	337	252	34	84	58	168	337	252	8	25	17
0	2165	406	460	3221	1895	4060	5413	4737	812	1063	947	271	541	406	54	135	95	271	541	406	14	41	27
0	5827	1093	1238	8667	5098	10925	14567	12746	2185	2913	2549	728	1457	1083	146	364	255	728	1457	1083	36	109	73
0	7470	1401	1587	11112	6536	14007	18678	16341	2801	3735	3268	934	1868	1401	187	467	327	934	1868	1401	47	140	83
0	9170	1719	1949	13641	8024	17194	22925	20060	3439	4585	4012	1146	2283	1719	229	573	401	1146	2283	1719	57	172	115
0	51536	9663	10951	76660	45094	96630	128840	112735	19326	25768	22547	6442	12884	9663	1268	3221	2255	6442	12884	9663	322	966	644

Fraser River Basin – City of Quesnel

CONTAMINANT LOADINGS

CADMIUM (ug/L)			NICKEL (ug/L)			ARSENIC (ug/L)			PHENOLS (ug/L)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. (ug/L)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80 (kg)	MAX 9.20 (kg)	TYP 4.00 (kg)	MIN 0.30 (kg)	MAX 12.00 (kg)	TYP 1.00 (kg)
1	3	2	6	8	7	3	4	4	0	32	4	837	8648	1395	502	2567	1116	0	3	0
4	7	6	14	21	18	7	11	9	1	81	9	2123	21937	3538	1274	6510	2831	0	8	1
2	4	3	7	11	9	4	5	5	0	42	5	1088	11241	1813	653	3336	1450	0	4	0
1	2	2	5	7	6	2	3	3	0	26	3	685	7079	1142	411	2101	913	0	3	0
1	3	2	5	8	7	3	4	3	0	30	3	781	8068	1301	468	2395	1041	0	3	0
2	4	3	8	13	10	4	6	5	0	48	5	1250	12919	2084	750	3834	1667	0	5	0
2	4	3	7	11	9	4	5	5	0	42	5	1084	11302	1823	656	3354	1458	0	4	0
2	4	3	9	13	11	4	6	6	0	49	6	1281	13236	2135	768	3928	1708	0	5	0
2	3	3	7	10	8	3	5	4	0	39	4	1017	10505	1694	610	3118	1356	0	4	0
3	5	4	11	16	13	5	8	7	1	62	7	1620	16740	2700	972	4968	2160	0	6	1
2	5	4	10	14	12	5	7	6	0	55	6	1447	14948	2411	868	4436	1929	0	6	0
2	4	4	9	13	11	4	7	6	0	51	6	1326	13701	2210	796	4066	1768	0	5	0
24	48	39	97	145	121	48	73	63	5	558	63	14548	150324	24246	8729	44612	19397	1	58	5

Fraser River Basin – City of Richmond

CONTAMINANT LOADINGS

CADMIUM (ug/L)			NICKEL (ug/L)			ARSENIC (ug/L)			PHENOLS (ug/L)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. (ug/L)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80 (kg)	MAX 9.20 (kg)	TYP 4.00 (kg)	MIN 0.30 (kg)	MAX 12.00 (kg)	TYP 1.00 (kg)
47	95	76	190	285	237	95	142	123	9	1091	123	28481	294097	47435	17077	87280	37948	3	114	8
36	71	57	142	214	178	71	107	93	7	819	93	21361	220726	35601	12816	65506	28481	2	85	7
32	63	51	126	190	158	63	95	82	6	727	82	18963	195948	31805	11378	58152	25284	2	76	6
19	39	31	78	117	97	39	58	51	4	448	51	11685	120745	19475	7011	35834	15580	1	47	4
10	20	16	40	60	50	20	30	26	2	231	26	6017	62171	10028	3610	18451	8022	1	24	2
9	18	14	36	54	45	18	27	24	2	208	24	5430	56108	9050	3258	16651	7240	1	22	2
7	13	10	26	39	33	13	20	17	1	150	17	3924	40551	6541	2355	12035	5232	0	16	1
8	17	13	34	50	42	17	25	22	2	194	22	5048	52162	8413	3029	15480	6731	1	20	2
14	27	22	54	81	68	27	41	35	3	311	35	8120	83905	13533	4872	24901	10826	1	32	3
36	73	58	146	219	182	73	109	95	7	838	95	21850	225788	36417	13110	67007	29134	2	87	7
47	93	75	187	280	233	93	140	121	9	1074	121	28014	289473	46689	16808	85908	37351	3	112	9
57	115	92	229	344	287	115	172	149	11	1318	149	34388	355342	57313	20633	105458	45851	3	138	11
322	644	515	1288	1933	1610	644	966	837	64	7408	837	193259	1997014	322099	115956	592662	257679	19	773	64

Weather Stations:

- Salmon Arm 2
- Salmon Arm

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	288	0.62	0.49
Commercial	208	0.67	0.62
Residential	1324	0.43	0.22
Total urbanized area	1820	0.49	0.31
Total municipal area	17212		

Snowmelt Factor = 3 mm/Degree-day

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS) (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	8.7	57.5	14.1	42.3	51.0	24.9	452
February	15.0	24.8	30.7	40.0	55.0	26.8	488
March	23.6	10.7	92.8	10.7	34.2	16.7	303
April	26.5	1.3	234.2	1.3	27.8	13.5	246
May	34.3	0.0	396.2	0.0	34.3	10.6	192
June	45.7	0.0	483.5	0.0	45.7	14.1	256
July	34.5	0.0	600.5	0.0	34.5	10.6	194
August	44.6	0.0	576.9	0.0	44.6	13.8	250
September	38.0	0.0	415.5	0.0	38.0	11.7	213
October	41.3	1.6	237.2	1.6	42.8	20.9	380
November	32.2	21.8	71.5	21.8	54.0	26.3	479
December	17.0	53.7	21.5	53.7	70.6	34.4	626
Total	361.1	171.2	3184.4		532.3	224.2	4081

Weather Stations:

- Surrey Kwantlen Park
- Surrey Municipal Hall
- Surrey Newton
- Surrey Sunnyside

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	1263	0.62	0.49
Commercial	52	0.67	0.62
Residential	3649	0.43	0.22
Total urbanized area	5264	0.48	0.29
Total municipal area	37140		

Snowmelt Factor = 3 mm/Degree-day

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS) (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	159.7	26.6	90.5	26.6	186.2	89.0	4685
February	136.1	8.1	127.2	9.1	145.2	69.4	3653
March	118.0	4.7	180.3	4.7	122.7	58.7	3088
April	83.8	0.0	262.6	0.0	83.8	40.1	2109
May	61.9	0.0	376.3	0.0	61.9	17.9	941
June	52.0	0.0	441.1	0.0	52.0	15.0	780
July	43.2	0.0	527.5	0.0	43.2	12.5	657
August	54.4	0.0	519.5	0.0	54.4	15.7	827
September	79.5	0.0	437.1	0.0	79.5	22.9	1208
October	141.7	0.1	319.1	0.1	141.8	67.8	3567
November	178.2	5.4	178.1	5.4	183.6	87.7	4619
December	198.6	21.7	119.4	21.7	220.3	105.3	5542
Total	1307.0	67.5	3578.8		1374.6	601.9	31685

Fraser River Basin – District of Salmon Arm

CONTAMINANT LOADINGS

(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
45.2	67.9	56.6	2.3	6.3	4.1	27.1	36.2	31.7	90	106598	54299
48.8	73.1	60.9	2.4	6.8	4.4	29.3	39.0	34.1	98	117009	58505
30.3	45.5	37.9	1.5	4.2	2.7	18.2	24.3	21.2	61	72825	36412
24.6	36.9	30.8	1.2	3.4	2.2	14.8	19.7	17.2	49	59090	29545
19.2	28.8	24.0	1.0	2.7	1.7	11.5	15.4	13.5	38	48144	23072
25.6	38.4	32.0	1.3	3.6	2.3	15.4	20.5	17.9	51	61503	30751
19.4	29.1	24.2	1.0	2.7	1.7	11.6	15.5	13.6	39	46481	23240
25.0	37.6	31.3	1.3	3.5	2.3	15.0	20.0	17.5	50	60088	30044
21.3	32.0	26.7	1.1	3.0	1.9	12.8	17.1	14.9	43	51196	25598
38.0	57.0	47.5	1.9	5.3	3.4	22.8	30.4	26.6	76	91137	45569
47.8	71.9	59.9	2.4	6.7	4.3	28.7	38.3	33.5	96	114986	57493
62.6	94.0	78.3	3.1	8.8	5.6	37.6	50.1	43.6	125	150334	75167
408.1	612.1	510.1	20.4	57.1	36.7	244.8	326.5	285.7	816	979391	489695

Fraser River Basin – District of Surrey

CONTAMINANT LOADINGS

(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
468.5	702.8	585.7	23.4	65.6	42.2	281.1	374.8	328.0	937	1124488	562244
365.3	547.9	458.6	18.3	51.1	32.9	219.2	292.2	255.7	731	878614	438307
308.8	463.2	386.0	15.4	43.2	27.8	185.3	247.0	216.1	618	741054	370527
210.9	316.4	263.6	10.5	29.5	19.0	126.5	168.7	147.6	422	508163	253081
94.1	141.1	117.8	4.7	13.2	8.5	56.4	75.3	65.9	188	225795	112897
79.0	118.5	98.7	3.9	11.1	7.1	47.4	63.2	55.3	158	189581	94768
65.7	98.5	82.1	3.3	8.2	5.9	39.4	52.6	48.0	131	157673	78837
82.7	124.0	103.4	4.1	11.6	7.4	49.8	66.1	57.9	165	198437	98218
120.8	181.2	151.0	6.0	18.9	10.9	72.5	96.6	84.6	242	288904	144952
358.7	535.1	445.9	17.8	49.9	32.1	214.0	285.4	249.7	713	858084	428042
461.9	692.8	577.3	23.1	64.7	41.8	277.1	369.5	323.3	924	1108488	554243
554.2	831.3	692.8	27.7	77.8	49.9	332.5	443.4	387.9	1108	1330883	665048
3168.5	4752.7	3960.6	158.4	443.6	285.2	1901.1	2534.8	2217.9	6337	7604381	3802191

Fraser River Basin – District of Salmon Arm

CONTAMINANT LOADINGS

AMMONIA (mg/L)			NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN 0.00	MAX 0.80	TYP 0.15	MIN 0.17	MAX 1.19	TYP 0.70	MIN 1.50	MAX 2.00	TYP 1.75	MIN 0.30	MAX 0.40	TYP 0.35	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 20 (kg)	MAX 50 (kg)	TYP 35 (kg)	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 5 (kg)	MAX 15 (kg)	TYP 10 (kg)
0 362	68	77	538	317	679	905	792	136	181	158	45	90	68	9	23	18	45	90	68	2	7	5	
0 390	73	83	580	341	731	975	853	146	195	171	49	98	73	10	24	17	49	98	73	2	7	5	
0 243	46	52	361	212	455	607	531	91	121	106	30	61	46	6	15	11	30	61	46	2	5	3	
0 197	37	42	293	172	369	492	431	74	98	86	25	49	37	5	12	9	25	49	37	1	4	2	
0 154	29	33	229	135	288	385	336	58	77	67	19	38	29	4	10	7	19	38	29	1	3	2	
0 205	38	44	305	179	384	513	448	77	103	90	26	51	38	5	13	9	28	51	38	1	4	3	
0 155	29	33	230	136	291	387	339	58	77	68	19	39	29	4	10	7	19	39	29	1	3	2	
0 200	38	43	298	175	376	501	438	75	100	88	25	50	38	5	13	9	25	50	38	1	4	3	
0 171	32	36	254	149	320	427	373	64	85	75	21	43	32	4	11	7	21	43	32	1	3	2	
0 304	57	65	452	266	570	759	665	114	152	133	38	76	57	8	19	13	38	76	57	2	6	4	
0 383	72	81	570	335	719	958	838	144	192	168	48	96	72	10	24	17	48	96	72	2	7	5	
0 501	94	106	745	438	940	1253	1096	188	251	219	63	125	94	13	31	22	63	125	94	3	9	6	
0 3265	612	694	4856	2857	6121	8162	7141	1224	1632	1428	408	816	612	82	204	143	408	816	612	20	61	41	

Fraser River Basin – District of Surrey

CONTAMINANT LOADINGS

AMMONIA (mg/L)			NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN 0.00	MAX 0.80	TYP 0.15	MIN 0.17	MAX 1.19	TYP 0.70	MIN 1.50	MAX 2.00	TYP 1.75	MIN 0.30	MAX 0.40	TYP 0.35	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 20 (kg)	MAX 50 (kg)	TYP 35 (kg)	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 5 (kg)	MAX 15 (kg)	TYP 10 (kg)
0 3748	703	797	5576	3280	7028	9371	8198	1406	1874	1640	469	937	703	94	234	164	469	937	703	23	70	47	
0 2922	548	621	4347	2557	5479	7305	6392	1096	1461	1278	365	731	548	73	183	128	365	731	548	18	55	37	
0 2470	463	525	3674	2161	4632	6175	5404	926	1235	1081	309	618	463	62	154	108	309	618	463	15	46	31	
0 1687	316	359	2510	1476	3164	4218	3691	633	844	738	211	422	316	42	105	74	211	422	316	11	32	21	
0 753	141	160	1120	659	1411	1882	1646	282	376	329	94	188	141	19	47	33	94	188	141	5	14	9	
0 632	118	134	940	553	1185	1580	1382	237	316	276	79	158	118	16	39	28	79	158	118	4	12	8	
0 526	99	112	782	460	985	1314	1150	197	263	230	66	131	99	13	33	23	66	131	99	3	10	7	
0 681	124	141	984	579	1240	1654	1447	248	331	289	83	165	124	17	41	29	83	165	124	4	12	8	
0 966	181	205	1437	846	1812	2416	2114	362	483	423	121	242	181	24	60	42	121	242	181	6	18	12	
0 2854	535	606	4245	2497	5351	7134	6242	1070	1427	1248	357	713	535	71	178	125	357	713	535	18	54	36	
0 3695	693	785	5496	3233	6928	9237	8083	1386	1847	1617	462	824	693	92	231	162	462	824	693	23	69	46	
0 4434	831	942	6595	3879	8313	11084	9699	1663	2217	1940	554	1108	831	111	277	194	554	1108	831	28	83	55	
0 25348	4753	5386	37705	22179	47527	63370	55449	9505	12674	11090	3168	6337	4753	634	1584	1109	3168	6337	4753	158	475	317	

Fraser River Basin – District of Salmon Arm

CONTAMINANT LOADINGS

CADMIUM (ug/L)			NICKEL (ug/L)			ARSENIC (ug/L)			PHENOLS (ug/L)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. (ug/L)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.00	MAX 9.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
2	5	4	8	14	11	5	7	6	0	52	6	1357	14027	2262	814	4163	1810	0	5	0
2	5	4	10	15	12	5	7	6	0	56	6	1463	15114	2438	878	4485	1950	0	6	0
2	3	2	6	9	8	3	5	4	0	35	4	910	9407	1517	546	2792	1214	0	4	0
1	2	2	5	7	6	2	4	3	0	28	3	739	7632	1231	443	2285	985	0	3	0
1	2	2	4	6	5	2	3	2	0	22	2	577	5980	981	348	1768	769	0	2	0
1	3	2	5	8	6	3	4	3	0	29	3	769	7944	1281	461	2358	1025	0	3	0
1	2	2	4	6	5	2	3	3	0	22	3	581	6004	968	349	1782	775	0	2	0
1	3	2	5	8	6	3	4	3	0	28	3	751	7761	1252	451	2303	1001	0	3	0
1	2	2	4	6	5	2	3	3	0	25	3	640	6613	1067	384	1963	853	0	3	0
2	4	3	8	11	9	4	6	5	0	44	5	1139	11772	1899	684	3494	1519	0	5	0
2	5	4	10	14	12	5	7	6	0	55	6	1437	14852	2398	662	4408	1916	0	6	0
3	6	5	13	19	16	6	9	8	1	72	8	1879	19418	3132	1128	5763	2506	0	8	1
20	41	33	82	122	102	41	61	53	4	469	53	12242	126505	20404	7345	37543	16323	1	49	4

Fraser River Basin – District of Surrey

CONTAMINANT LOADINGS

CADMIUM (ug/L)			NICKEL (ug/L)			ARSENIC (ug/L)			PHENOLS (ug/L)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. (ug/L)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.00	MAX 9.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
23	47	37	94	141	117	47	70	61	5	539	61	14058	145246	23427	8434	43105	18741	1	56	5
18	37	29	73	110	91	37	55	47	4	420	47	10958	113229	18263	6575	33604	14810	1	44	4
15	31	25	62	93	77	31	48	40	3	355	40	9263	95719	15439	5558	28407	12351	1	37	3
11	21	17	42	63	53	21	32	27	2	243	27	6327	65378	10545	3798	19403	8438	1	25	2
5	9	8	19	28	24	9	14	12	1	108	12	2822	29165	4704	1693	8655	3763	0	11	1
4	8	6	16	24	20	8	12	10	1	91	10	2370	24489	3950	1422	7268	3160	0	9	1
3	7	5	13	20	16	7	10	8	1	78	9	1971	20366	3285	1183	6044	2628	0	8	1
4	8	7	17	25	21	8	12	11	1	95	11	2480	25631	4134	1488	7607	3307	0	10	1
6	12	10	24	36	30	12	18	16	1	139	16	3624	37448	6040	2174	11113	4832	0	14	1
18	36	29	71	107	89	38	54	46	4	410	46	10701	110578	17835	6421	32817	14268	1	43	4
23	46	37	92	139	115	46	68	60	5	531	60	13856	143179	23083	8314	42492	18475	1	55	5
28	55	44	111	166	139	55	83	72	6	637	72	16628	171804	27710	9978	50987	22188	2	67	6
158	317	253	634	951	792	317	475	412	32	3644	412	95055	982233	158425	57033	291501	126740	10	380	32

Weather Stations:

- Vancouver City Hall
- Vancouver Dunbar
- Vancouver Dunbar South
- Vancouver Harbour
- Vancouver Int'l A
- Vancouver Kerrisdale
- Vancouver Kitsilano
- Vancouver Oak 53
- Vancouver PMO
- Vancouver South Fr
- Vancouver UBC

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	360	0.68	0.55
Commercial	65	0.74	0.68
Residential	4721	0.47	0.24
Total urbanized area	5146	0.49	0.27
Total municipal area	11615		
Snowmelt Factor = 3 mm/Degree-day			

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	156.9	24.2	106.9	24.2	181.1	88.4	4548
February	129.7	8.4	144.1	8.4	138.1	67.4	3468
March	118.0	5.7	192.3	5.7	123.7	60.4	3108
April	73.4	0.3	272.8	0.3	73.7	36.0	1852
May	59.8	0.0	386.6	0.0	59.8	16.0	822
June	53.0	0.0	458.2	0.0	53.0	14.2	729
July	38.5	0.0	547.3	0.0	38.5	10.3	529
August	50.0	0.0	538.6	0.0	50.0	13.4	688
September	76.2	0.0	443.6	0.0	76.2	20.4	1048
October	138.4	0.0	328.0	0.0	138.4	67.6	3477
November	175.6	3.2	192.4	3.2	178.8	87.3	4491
December	196.2	19.5	140.3	19.5	215.8	105.3	5420
Total	1265.7	61.4	3751.9		1327.1	586.5	30180

Weather Stations:

- Williams Lake A
- Williams Lake Glendale

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	598	0.62	0.49
Commercial	139	0.67	0.62
Residential	527	0.43	0.22
Total urbanized area	1264	0.55	0.39
Total municipal area	2333		
Snowmelt Factor = 3 mm/Degree-day			

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	3.8	42.1	8.8	26.3	30.1	16.4	207
February	3.6	21.1	25.1	37.0	40.6	22.2	280
March	5.1	15.4	62.4	15.4	20.5	11.2	142
April	15.2	6.5	162.4	6.5	21.7	11.8	149
May	27.2	1.6	311.0	1.6	26.8	11.3	143
June	44.0	0.1	418.7	0.1	44.1	17.3	218
July	42.8	0.0	507.3	0.0	42.8	16.8	212
August	46.7	0.0	490.4	0.0	46.7	18.3	231
September	31.2	0.6	340.9	0.6	31.8	12.5	157
October	23.8	4.8	188.6	4.8	28.4	15.5	196
November	7.7	24.1	45.2	24.1	31.8	17.3	219
December	2.5	41.1	13.8	41.1	43.6	23.8	301
Total	253.4	157.3	2574.6		410.7	194.3	2456

Fraser River Basin – City of Vancouver

CONTAMINANT LOADINGS

(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
454.8	682.3	568.5	22.7	63.7	40.9	272.9	363.9	318.4	910	1091606	545803
346.9	520.3	433.6	17.3	48.6	31.2	208.1	277.5	242.8	694	832556	416278
310.8	466.1	388.4	15.5	43.5	28.0	186.5	248.6	217.5	622	745804	372902
185.2	277.8	231.5	9.3	25.9	16.7	111.1	148.2	129.8	370	444501	222251
82.2	123.3	102.7	4.1	11.5	7.4	49.3	65.7	57.5	164	197224	88612
72.9	108.3	91.1	3.6	10.2	6.6	43.7	58.3	51.0	146	174871	87435
52.9	79.4	66.2	2.6	7.4	4.8	31.8	42.3	37.1	106	127042	63521
68.8	103.2	86.0	3.4	9.6	6.2	41.3	55.0	48.2	138	165149	82574
104.8	157.2	131.0	5.2	14.7	9.4	62.9	83.8	73.3	210	251444	125722
347.7	521.6	434.7	17.4	48.7	31.3	208.6	278.2	243.4	695	834584	417292
449.1	673.6	561.4	22.5	62.9	40.4	269.4	359.3	314.4	898	1077796	538888
542.0	813.0	677.5	27.1	75.9	48.8	325.2	433.6	379.4	1084	1300732	650368
3018.0	4527.1	3772.6	150.9	422.5	271.6	1810.8	2414.4	2112.6	6036	7243308	3621654

CONTAMINANT LOADINGS

(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
20.7	31.1	25.8	1.0	2.9	1.9	12.4	18.6	14.5	41	49799	24899
28.0	42.0	35.0	1.4	3.9	2.5	16.8	22.4	19.6	56	67189	33600
14.2	21.2	17.7	0.7	2.0	1.3	8.5	11.3	9.9	28	33973	16986
14.9	22.4	18.7	0.7	2.1	1.3	8.0	12.0	10.5	30	35878	17939
14.3	21.4	17.8	0.7	2.0	1.3	8.6	11.4	10.0	29	34224	17112
21.8	32.6	27.3	1.1	3.1	2.0	13.1	17.5	15.3	44	52406	26203
21.2	31.8	28.5	1.1	3.0	1.9	12.7	17.0	14.8	42	50861	25430
23.1	34.7	26.8	1.2	3.2	2.1	13.9	18.5	16.2	46	55485	27748
15.7	23.6	19.7	0.8	2.2	1.4	9.4	12.8	11.0	31	37789	18895
19.8	29.4	24.5	1.0	2.7	1.8	11.8	15.7	13.7	39	47064	23532
21.9	32.9	27.4	1.1	3.1	2.0	13.2	17.5	15.3	44	52618	26308
30.1	45.2	37.6	1.5	4.2	2.7	18.1	24.1	21.1	60	72254	36127
245.6	368.5	307.1	12.3	34.4	22.1	147.4	196.5	172.0	491	589559	294779

Fraser River Basin – City of Vancouver

CONTAMINANT LOADINGS

AMMONIA (mg/L)			NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
0	3639	682	773	5413	3184	6823	9097	7960	1365	1819	1592	455	910	682	91	227	159	455	910	682	23	68	45
0	2775	520	590	4128	2428	5203	6838	6071	1041	1388	1214	347	694	520	69	173	121	347	694	520	17	52	35
0	2496	466	528	3698	2175	4661	6215	5438	832	1243	1088	311	622	466	62	155	109	311	622	466	16	47	31
0	1482	278	315	2204	1296	2778	3704	3241	556	741	648	185	370	278	37	83	65	185	370	278	9	28	19
0	657	123	140	978	575	1233	1644	1438	247	329	288	82	164	123	16	41	29	82	164	123	4	12	8
0	583	108	124	867	510	1083	1457	1275	219	281	255	73	146	109	15	36	26	73	146	109	4	11	7
0	423	79	90	630	371	794	1059	926	159	212	185	53	106	79	11	26	19	53	106	79	3	8	5
0	550	103	117	819	482	1032	1376	1204	206	275	241	69	138	103	14	34	24	68	138	103	3	10	7
0	838	157	178	1247	733	1572	2095	1833	314	419	367	105	210	157	21	52	37	105	210	157	5	16	10
0	2782	522	591	4138	2434	5216	6955	6086	1043	1391	1217	348	695	522	70	174	122	348	695	522	17	52	35
0	3593	674	763	5344	3144	6736	8962	7859	1347	1796	1572	449	898	674	90	225	157	449	898	674	22	67	45
0	4336	813	921	6449	3794	8130	10839	9485	1626	2168	1897	542	1084	813	108	271	180	542	1084	813	27	81	54
0	24144	4527	5131	35915	21126	45271	60361	52816	9054	12072	10563	3018	6036	4527	604	1509	1056	3018	6036	4527	151	453	302

Fraser River Basin – City of Williams Lake

CONTAMINANT LOADINGS

AMMONIA (mg/L)			NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
0	166	31	35	247	145	311	415	363	62	83	73	21	41	31	4	10	7	21	41	31	1	3	2
0	224	42	48	333	196	420	560	490	84	112	98	28	56	42	6	14	10	28	56	42	1	4	3
0	113	21	24	168	98	212	283	248	42	57	50	14	28	21	3	7	5	14	28	21	1	2	1
0	120	22	25	178	105	224	298	262	45	60	52	15	30	22	3	7	5	15	30	22	1	2	1
0	114	21	24	170	100	214	285	250	43	57	50	14	29	21	3	7	5	14	28	21	1	2	1
0	175	33	37	260	153	328	437	382	66	87	76	22	44	33	4	11	8	22	44	33	1	3	2
0	170	32	36	252	148	318	424	371	64	85	74	21	42	32	4	11	7	21	42	32	1	3	2
0	185	35	39	275	162	347	462	405	69	92	81	23	46	35	5	12	8	23	46	35	1	3	2
0	126	24	27	187	110	236	315	276	47	63	55	16	31	24	3	8	6	16	31	24	1	2	2
0	157	29	33	233	137	294	392	343	59	78	68	20	38	28	4	10	7	20	38	29	1	3	2
0	175	33	37	261	153	329	438	384	66	88	77	22	44	33	4	11	8	22	44	33	1	3	2
0	241	45	51	358	211	452	602	527	90	120	105	30	60	45	6	15	11	30	60	45	2	5	3
0	1965	368	418	2923	1720	3685	4913	4299	737	983	860	246	491	368	49	123	86	246	491	368	12	37	25

Fraser River Basin – City of Vancouver

CONTAMINANT LOADINGS

CADMIUM (<i>ug/L</i>)			NICKEL (<i>ug/L</i>)			ARSENIC (<i>ug/L</i>)			PHENOLS (<i>ug/L</i>)			OIL & GREASE (<i>mg/L</i>)			TOTAL HYDROCARBONS (<i>mg/L</i>)			POLYNUCLEAR AROMATIC HYDROCARB. (<i>ug/L</i>)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 8.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
23	45	36	91	136	114	45	68	59	5	523	59	13645	140999	22742	8187	41845	18193	1	55	5
17	35	28	69	104	87	35	52	45	3	399	45	10407	107538	17345	6244	31915	13876	1	42	3
18	31	25	62	93	78	31	47	40	3	357	40	9323	96333	15538	5594	28589	12430	1	37	3
9	19	15	37	56	46	19	28	24	2	213	24	5556	57415	9260	3334	17039	7408	1	22	2
4	8	7	16	25	21	8	12	11	1	85	11	2465	25475	4109	1479	7560	3287	0	10	1
4	7	6	15	22	18	7	11	9	1	84	9	2186	22587	3643	1312	6703	2915	0	9	1
3	5	4	11	16	13	5	8	7	1	61	7	1588	16410	2647	953	4870	2117	0	6	1
3	7	6	14	21	17	7	10	9	1	79	9	2064	21332	3441	1239	6331	2752	0	8	1
5	10	8	21	31	26	10	16	14	1	120	14	3143	32478	5238	1886	9639	4191	0	13	1
17	35	28	70	104	87	35	52	45	3	400	45	10432	107800	17387	6259	31992	13910	1	42	3
22	45	36	90	135	112	45	67	58	4	516	58	13472	139215	22454	8083	41316	17963	1	54	4
27	54	43	108	163	135	54	81	70	5	623	70	16259	168011	27099	9755	49861	21679	2	65	5
151	302	241	604	905	755	302	453	392	30	3471	392	90541	935594	150902	54325	277660	120722	9	362	30

Fraser River Basin – City of Williams Lake

CONTAMINANT LOADINGS

CADMIUM (<i>ug/L</i>)			NICKEL (<i>ug/L</i>)			ARSENIC (<i>ug/L</i>)			PHENOLS (<i>ug/L</i>)			OIL & GREASE (<i>mg/L</i>)			TOTAL HYDROCARBONS (<i>mg/L</i>)			POLYNUCLEAR AROMATIC HYDROCARB. (<i>ug/L</i>)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 8.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
1	2	2	4	6	5	2	3	3	0	24	3	622	6432	1037	373	1909	830	0	2	0
1	3	2	6	8	7	3	4	4	0	32	4	840	8680	1400	504	2578	1120	0	3	0
1	1	1	3	4	4	1	2	2	0	16	2	425	4388	708	255	1302	566	0	2	0
1	1	1	3	4	4	1	2	2	0	17	2	448	4634	747	269	1375	598	0	2	0
1	1	1	3	4	4	1	2	2	0	16	2	428	4421	713	257	1312	570	0	2	0
1	2	2	4	7	5	2	3	3	0	25	3	655	6769	1092	393	2009	873	0	3	0
1	2	2	4	6	5	2	3	3	0	24	3	636	6570	1060	381	1950	848	0	3	0
1	2	2	5	7	6	2	3	3	0	27	3	694	7168	1158	416	2127	925	0	3	0
1	2	1	3	5	4	2	2	2	0	18	2	472	4881	787	283	1449	630	0	2	0
1	2	2	4	6	5	2	3	3	0	23	3	588	6079	981	353	1804	784	0	2	0
1	2	2	4	7	5	2	3	3	0	25	3	658	6798	1098	395	2017	877	0	3	0
2	3	2	6	9	8	3	5	4	0	35	4	903	9333	1505	542	2770	1204	0	4	0
12	25	20	49	74	61	25	37	32	2	282	32	7369	76151	12282	4422	22600	9826	1	29	2

MUNICIPALITIES IN BURRARD INLET

RUNOFF AND CONTAMINANT LOADING DATA

Weather Stations:

- Burnaby Brandford
- Burnaby capitol Hill
- Burnaby Mnt Terminal
- Burnaby Simon Fraser U

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	240	0.72	0.57
Commercial	18	0.77	0.72
Residential	656	0.50	0.25
Total urbanized area	914	0.56	0.34
Total municipal area	10674		
Snowmelt Factor = 3 mm/Degree-day			

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS) (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	214.0	32.6	86.3	32.6	246.6	138.9	1269
February	182.0	11.0	130.0	11.0	193.0	108.6	993
March	161.7	6.2	170.4	6.2	167.9	94.5	864
April	115.0	0.7	255.9	0.7	115.7	65.1	595
May	86.4	0.0	360.4	0.0	86.4	29.7	271
June	71.6	0.0	434.7	0.0	71.6	24.6	225
July	53.9	0.0	532.0	0.0	53.9	18.5	169
August	65.0	0.0	534.0	0.0	65.0	22.3	204
September	105.9	0.0	439.3	0.0	105.9	36.3	332
October	200.8	0.1	321.4	0.1	200.9	113.1	1034
November	238.3	6.2	176.7	6.2	244.5	137.7	1258
December	266.1	24.9	123.2	24.9	290.9	163.8	1497
Total	1760.6	81.6	3564.0		1842.2	953.2	8712

Weather Stations:

- Port Moody Gulf Oil Rfy

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	0	0.72	0.57
Commercial	0	0.77	0.72
Residential	446	0.50	0.25
Total urbanized area	446	0.50	0.25
Total municipal area	15275		
Snowmelt Factor = 3 mm/Degree-day			

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS) (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	228.1	29.2	83.5	29.2	257.3	128.7	574
February	197.0	6.8	127.0	6.8	203.8	101.9	454
March	167.1	3.5	174.0	3.5	170.6	85.3	380
April	127.9	0.0	267.0	0.0	127.9	64.0	285
May	86.2	0.0	363.0	0.0	86.2	21.6	96
June	76.9	0.0	437.0	0.0	76.9	19.2	86
July	54.8	0.0	535.0	0.0	54.8	13.7	61
August	61.6	0.0	543.0	0.0	61.6	15.4	69
September	99.0	0.0	438.0	0.0	99.0	24.8	110
October	199.9	0.1	326.0	0.1	200.0	100.0	446
November	238.3	1.2	173.0	1.2	239.5	119.8	534
December	262.8	18.7	129.0	18.7	301.5	150.8	672
Total	1819.6	59.5	3596.5		1879.1	844.9	3768

Burrard Inlet Basin – City of Burnaby

CONTAMINANT LOADINGS

(TSS) (mg/L)				(BOD) (mg/L)				(COD) (mg/L)				FECAL COLIFORM (#/100mL)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)		MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)		MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)		MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
126.9	190.4	158.6	6.3	17.8	11.4	76.1	101.5	88.8	254	304596	152298			
99.3	149.0	124.1	5.0	13.9	8.9	59.6	79.4	69.5	199	238329	119164			
86.4	128.6	108.0	4.3	12.1	7.8	51.8	69.1	60.5	173	207387	103694			
59.5	89.3	74.4	3.0	8.3	5.4	35.7	47.6	41.7	119	142911	71455			
27.1	40.7	33.9	1.4	3.8	2.4	16.3	21.7	19.0	54	65061	32531			
22.5	33.7	28.1	1.1	3.1	2.0	13.5	18.0	15.7	45	53935	26968			
16.9	25.4	21.1	0.8	2.4	1.5	10.2	13.5	11.8	34	40607	20303			
20.4	30.6	25.5	1.0	2.9	1.8	12.2	16.3	14.3	41	48965	24483			
33.2	49.8	41.5	1.7	4.6	3.0	19.8	26.6	23.2	66	79708	39854			
103.4	155.1	129.2	5.2	14.5	9.3	62.0	82.7	72.4	207	248118	124059			
125.8	188.7	157.3	6.3	17.6	11.3	75.5	100.7	88.1	252	301972	150986			
149.7	224.6	187.1	7.5	21.0	13.5	89.8	119.8	104.8	299	359315	179658			
871.2	1306.8	1089.0	43.6	122.0	78.4	522.7	697.0	609.8	1742	2090904	1045452			

CONTAMINANT LOADINGS

(TSS) (mg/L)				(BOD) (mg/L)				(COD) (mg/L)				FECAL COLIFORM (#/100mL)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)		MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)		MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)		MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
57.4	86.1	71.7	2.9	8.0	5.2	34.4	45.9	40.2	115	137707	68853			
45.4	68.2	56.8	2.3	6.4	4.1	27.3	36.4	31.8	91	109074	54537			
38.0	57.1	47.6	1.9	5.3	3.4	22.8	30.4	26.6	76	91305	45653			
28.5	42.8	35.7	1.4	4.0	2.6	17.1	22.8	20.0	57	68452	34226			
9.6	14.4	12.0	0.5	1.3	0.9	5.8	7.7	6.7	19	23067	11534			
8.6	12.9	10.7	0.4	1.2	0.8	5.1	6.9	6.0	17	20578	10289			
6.1	9.2	7.6	0.3	0.9	0.5	3.7	4.9	4.3	12	14664	7332			
6.9	10.3	8.6	0.3	1.0	0.6	4.1	5.5	4.8	14	16484	8242			
11.0	16.6	13.8	0.6	1.5	1.0	6.6	8.8	7.7	22	26492	13248			
44.6	66.9	55.8	2.2	6.2	4.0	26.8	35.7	31.2	89	107040	53520			
53.4	80.1	66.8	2.7	7.5	4.8	32.0	42.7	37.4	107	128180	64090			
67.2	100.9	84.0	3.4	9.4	6.1	40.3	53.8	47.1	134	161363	80681			
376.8	565.3	471.0	18.8	52.8	33.9	226.1	301.5	263.8	754	904408	452204			

Burrard Inlet Basin – City of Burnaby

CONTAMINANT LOADINGS

AMMONIA (mg/L)			NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP
(kg)	(kg)		(kg)	(kg)		(kg)	(kg)		(kg)	(kg)		(kg)	(kg)		(kg)	(kg)		(kg)	(kg)		(kg)	(kg)	
0	1015	190	216	1510	888	1904	2538	2221	381	508	444	127	254	180	25	63	44	127	254	180	6	19	13
0	794	149	169	1182	695	1490	1986	1738	298	397	348	99	199	149	20	50	35	99	199	149	5	15	10
0	681	130	147	1028	605	1298	1728	1512	259	346	302	86	173	130	17	43	30	86	173	130	4	13	9
0	476	89	101	709	417	883	1191	1042	179	238	208	60	118	89	12	30	21	60	118	89	3	9	6
0	217	41	46	323	190	407	542	474	81	108	95	27	54	41	5	14	9	27	54	41	1	4	3
0	180	34	38	267	157	337	449	393	67	90	79	22	45	34	4	11	8	22	45	34	1	3	2
0	135	25	29	201	118	254	338	296	51	68	59	17	34	25	3	8	6	17	34	25	1	3	2
0	163	31	35	243	143	306	408	357	61	82	71	20	41	31	4	10	7	20	41	31	1	3	2
0	266	50	56	395	232	498	664	581	100	133	116	33	68	50	7	17	12	33	66	50	2	5	3
0	827	155	176	1230	724	1551	2068	1809	310	414	362	103	207	155	21	52	36	103	207	155	5	16	10
0	1007	189	214	1497	881	1887	2518	2202	377	503	440	126	252	189	25	63	44	126	252	189	6	19	13
0	1198	225	255	1782	1048	2246	2994	2620	449	599	524	150	299	225	30	75	52	150	299	225	7	22	15
0	6970	1307	1481	10367	6098	13068	17424	15246	2614	3485	3049	871	1742	1307	174	436	305	871	1742	1307	44	131	87

Burrard Inlet Basin – City of Coquitlam

CONTAMINANT LOADINGS

AMMONIA (mg/L)			NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP
(kg)	(kg)		(kg)	(kg)		(kg)	(kg)		(kg)	(kg)		(kg)	(kg)		(kg)	(kg)		(kg)	(kg)		(kg)	(kg)	
0	459	86	98	683	402	881	1148	1004	172	230	201	57	115	88	11	29	20	57	115	88	3	9	6
0	364	68	77	541	318	682	909	795	136	182	159	45	91	68	9	23	16	45	91	68	2	7	5
0	304	57	65	453	266	571	761	666	114	152	133	38	76	57	8	19	13	38	76	57	2	6	4
0	228	43	48	339	200	428	570	499	86	114	100	29	57	43	6	14	10	29	57	43	1	4	3
0	77	14	16	114	67	144	192	168	29	38	34	10	19	14	2	5	3	10	19	14	0	1	1
0	69	13	15	102	60	129	171	150	26	34	30	9	17	13	2	4	3	9	17	13	0	1	1
0	49	9	10	73	43	92	122	107	18	24	21	6	12	9	1	3	2	6	12	9	0	1	1
0	55	10	12	82	48	103	137	120	21	27	24	7	14	10	1	3	2	7	14	10	0	1	1
0	88	17	19	131	77	166	221	193	33	44	38	11	22	17	2	6	4	11	22	17	1	2	1
0	357	67	76	531	312	669	892	781	134	178	156	45	89	67	9	22	18	45	89	67	2	7	4
0	427	80	91	636	374	801	1068	935	160	214	187	53	107	80	11	27	19	53	107	80	3	8	5
0	538	101	114	800	471	1009	1345	1177	202	269	235	67	134	101	13	34	24	67	134	101	3	10	7
0	3015	565	641	4484	2638	5653	7537	6595	1131	1507	1319	377	754	565	75	188	132	377	754	565	19	57	38

Burrard Inlet Basin – City of Burnaby

CONTAMINANT LOADINGS

CADMIUM ($\mu\text{g/L}$)			NICKEL ($\mu\text{g/L}$)			ARSENIC ($\mu\text{g/L}$)			PHENOLS ($\mu\text{g/L}$)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. ($\mu\text{g/L}$)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 8.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
6	13	10	25	38	32	13	19	16	1	146	16	3807	39344	6346	2284	11676	5077	0	15	1
5	10	8	20	30	25	10	15	13	1	114	13	2979	30784	4965	1787	9136	3972	0	12	1
4	9	7	17	26	22	9	13	11	1	99	11	2592	26788	4321	1555	7950	3456	0	10	1
3	6	5	12	18	15	6	9	8	1	68	8	1786	18459	2977	1072	5476	2382	0	7	1
1	3	2	5	8	7	3	4	4	0	31	4	813	8404	1355	488	2494	1084	0	3	0
1	2	2	4	7	6	2	3	3	0	26	3	674	6967	1124	405	2068	899	0	3	0
1	2	1	3	5	4	2	3	2	0	19	2	508	5245	846	305	1557	677	0	2	0
1	2	2	4	6	5	2	3	3	0	23	3	612	6325	1020	367	1877	816	0	2	0
2	3	3	7	10	8	3	5	4	0	38	4	996	10296	1661	598	3055	1326	0	4	0
5	10	8	21	31	26	10	16	13	1	119	13	3101	32049	5169	1861	9511	4135	0	12	1
6	13	10	25	38	31	13	19	16	1	145	16	3775	38005	6291	2265	11578	5033	0	15	1
7	15	12	30	45	37	15	22	19	1	172	19	4491	46412	7486	2695	13774	5989	0	18	1
44	87	70	174	261	218	87	131	113	9	1002	113	26136	270075	43560	15682	80151	34848	3	105	9

Burrard Inlet Basin – City of Coquitlam

CONTAMINANT LOADINGS

CADMIUM ($\mu\text{g/L}$)			NICKEL ($\mu\text{g/L}$)			ARSENIC ($\mu\text{g/L}$)			PHENOLS ($\mu\text{g/L}$)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. ($\mu\text{g/L}$)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 8.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
3	6	5	11	17	14	6	9	7	1	66	7	1721	17787	2869	1033	5279	2295	0	7	1
2	5	4	9	14	11	5	7	6	0	52	6	1363	14089	2272	818	4181	1818	0	5	0
2	4	3	8	11	10	4	6	5	0	44	5	1141	11794	1902	685	3500	1522	0	5	0
1	3	2	6	9	7	3	4	4	0	33	4	856	8842	1426	513	2624	1141	0	3	0
0	1	1	2	3	2	1	1	1	0	11	1	288	2980	481	173	884	384	0	1	0
0	1	1	2	3	2	1	1	1	0	10	1	257	2658	429	154	789	343	0	1	0
0	1	0	1	2	2	1	1	1	0	7	1	183	1894	306	110	562	244	0	1	0
0	1	1	2	2	2	1	1	1	0	8	1	206	2129	343	124	632	275	0	1	0
1	1	1	2	3	3	1	2	1	0	13	1	331	3422	552	199	1016	442	0	1	0
2	4	4	9	13	11	4	7	6	0	51	6	1338	13826	2230	803	4103	1784	0	5	0
3	5	4	11	16	13	5	8	7	1	61	7	1602	16557	2670	961	4914	2136	0	6	1
3	7	5	13	20	17	7	10	9	1	77	9	2017	20843	3362	1210	6186	2689	0	8	1
19	38	30	75	113	94	38	57	49	4	433	49	11305	116819	18842	6783	34669	15073	1	45	4

Weather Stations:

- NVancouver Capilano
- NVancouver Cleveland
- NVancouver Cloverley
- NVanc Grouse Mnt Resort
- North Vancouver Holyrood
- NVancouver Lynn Creek
- NVancouver Redonda Dr
- NVancouver 2nd Narrows
- NVancouver Seymour Blvd
- NVancouver 2nd Upper Lynn
- NVancouver Wharves

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	232	0.75	0.60
Commercial	110	0.81	0.75
Residential	974	0.52	0.26
Total urbanized area	1316	0.58	0.36
Total municipal area	1316		

Snowmelt Factor = 3 mm/Degree-day

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	237.6	53.6	13.1	39.3	276.9	161.9	2131
February	206.1	27.8	28.8	27.8	233.9	136.8	1800
March	179.8	31.6	50.1	31.6	211.4	123.6	1627
April	124.0	7.5	118.5	7.5	131.5	76.8	1012
May	102.0	2.5	226.1	2.5	104.5	37.7	496
June	86.2	0.0	307.2	0.0	86.2	31.1	409
July	64.9	0.0	389.0	0.0	64.9	23.4	308
August	73.0	0.0	388.8	0.0	73.0	26.3	347
September	129.5	0.0	297.5	0.0	129.5	46.7	615
October	240.2	3.2	183.8	3.2	243.4	142.3	1873
November	270.5	24.1	58.3	24.1	294.6	172.3	2267
December	309.5	21.7	25.2	21.7	331.2	193.7	2549
Total	2023.3	172.0	2088.4		2181.0	1172.9	15435

Burrard Inlet Basin – City of North Vancouver

CONTAMINANT LOADINGS

(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
213.1	319.6	266.4	10.7	29.8	19.2	127.9	170.5	149.2	426	511432	255716
180.0	270.0	225.0	9.0	25.2	16.2	108.0	144.0	126.0	360	432011	216006
162.7	244.0	203.4	8.1	22.8	14.6	97.6	130.2	113.9	325	390454	195227
101.2	151.8	126.5	5.1	14.2	9.1	60.7	81.0	70.8	202	242878	121440
49.6	74.4	62.0	2.5	6.9	4.5	29.8	39.7	34.7	99	119115	59557
40.9	61.4	51.2	2.0	5.7	3.7	24.8	32.8	28.7	82	88256	49128
30.8	46.2	38.5	1.5	4.3	2.8	18.5	24.7	21.6	62	73977	36988
34.7	52.0	43.3	1.7	4.9	3.1	20.8	27.7	24.3	69	83209	41605
61.5	82.3	76.9	3.1	8.6	5.5	36.9	49.2	43.1	123	147611	73806
187.3	281.0	234.1	9.4	26.2	16.9	112.4	149.9	131.1	375	449558	224779
226.7	340.1	283.4	11.3	31.7	20.4	136.0	181.4	158.7	453	544124	272062
254.9	382.3	318.6	12.7	35.7	22.9	152.9	203.9	178.4	510	611724	305862
1543.5	2315.2	1929.3	77.2	216.1	138.9	926.1	1234.8	1080.4	3087	3704351	1852175

Weather Stations:

- NVancouver Capilano
- NVancouver Cleveland
- NVancouver Cloverley
- NVanc Grouse Mnt Resort
- North Vancouver Holyrood
- NVancouver Lynn Creek
- NVancouver Redonda Dr
- NVancouver 2nd Narrows
- NVancouver Seymour Blvd
- NVancouver 2nd Upper Lynn
- NVancouver Wharves

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	535	0.75	0.60
Commercial	84	0.81	0.75
Residential	1999	0.52	0.26
Total urbanized area	2618	0.58	0.35
Total municipal area	17819		

Snowmelt Factor = 3 mm/Degree-day

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	237.6	53.6	13.1	39.3	276.9	159.6	4178
February	206.1	27.8	28.8	42.1	248.2	143.0	3745
March	179.8	31.6	50.1	31.6	211.4	121.8	3190
April	124.0	7.5	118.5	7.5	131.5	75.8	1984
May	102.0	2.5	226.1	2.5	104.5	36.1	944
June	86.2	0.0	307.2	0.0	86.2	29.8	778
July	64.9	0.0	389.0	0.0	64.9	22.4	587
August	73.0	0.0	388.8	0.0	73.0	25.2	660
September	129.5	0.0	297.5	0.0	129.5	44.7	1170
October	240.2	3.2	183.8	3.2	243.4	140.3	3672
November	270.5	24.1	58.3	24.1	294.6	169.8	4445
December	309.5	21.7	25.2	21.7	331.2	190.9	4997
Total	2023.3	172.0	2088.4		2195.3	1159.3	30350

Burrard Inlet Basin – District of North Vancouver

CONTAMINANT LOADINGS

(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
417.8	626.7	522.2	20.8	58.5	37.6	250.7	334.2	292.4	836	1002688	501334
374.5	561.7	468.1	18.7	52.4	33.7	224.7	299.6	262.1	749	898744	448372
318.0	478.4	398.7	15.9	44.7	26.7	191.4	255.2	223.3	638	765490	382745
188.4	297.6	248.0	9.9	27.8	17.9	119.0	158.7	138.9	397	476168	238084
94.4	141.7	118.1	4.7	13.2	8.5	56.7	75.6	66.1	189	226658	113329
77.8	116.9	97.4	3.9	10.9	7.0	46.7	62.3	54.5	156	186668	93483
58.7	88.0	73.3	2.9	8.2	5.3	35.2	46.9	41.1	117	140767	70363
66.0	99.0	82.5	3.3	9.2	5.9	36.6	52.8	46.2	132	158335	79168
117.0	175.6	146.3	5.9	16.4	10.5	70.2	93.6	81.9	234	280882	140441
367.2	550.9	459.0	18.4	51.4	33.1	220.3	283.8	257.1	734	881363	440682
444.5	666.7	555.6	22.2	62.2	40.0	266.7	355.6	311.1	889	1066761	533380
499.7	749.6	624.6	25.0	70.0	45.0	299.8	399.8	349.8	999	1199291	599646
3035.0	4552.6	3793.8	151.8	424.9	273.2	1821.0	2428.0	2124.5	6070	7284092	3642046

Burrard Inlet Basin – City of North Vancouver

CONTAMINANT LOADINGS

AMMONIA (mg/L)			NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
0	1705	320	362	2538	1492	3196	4262	3729	639	852	746	213	426	320	43	107	75	213	426	320	11	32	21
0	1440	270	306	2142	1260	2700	3600	3150	540	720	630	180	360	270	36	90	63	180	360	270	9	27	18
0	1302	244	277	1936	1139	2440	3254	2847	488	651	569	163	325	244	33	81	57	163	325	244	8	24	16
0	810	152	172	1204	708	1518	2024	1771	304	405	354	101	202	152	20	51	35	101	202	152	5	15	10
0	387	74	84	591	347	744	993	869	149	199	174	50	99	74	10	25	17	50	99	74	2	7	5
0	328	61	70	487	287	614	819	716	123	164	143	41	82	61	8	20	14	41	82	61	2	6	4
0	247	46	52	367	216	462	616	539	92	123	108	31	62	46	6	15	11	31	62	46	2	5	3
0	277	52	59	413	243	520	693	607	104	139	121	35	69	52	7	17	12	35	69	52	2	5	3
0	492	92	105	732	431	823	1230	1076	185	246	215	62	123	92	12	31	22	62	123	92	3	9	6
0	1499	281	318	2229	1311	2810	3746	3278	562	749	656	187	375	281	37	94	66	187	375	281	9	28	18
0	1814	340	385	2698	1587	3401	4534	3968	680	907	794	227	453	340	45	113	79	227	453	340	11	34	23
0	2039	382	433	3033	1784	3823	5098	4460	765	1020	892	255	510	382	51	127	89	255	510	382	13	38	25
0	12348	2315	2624	18367	10804	23152	30870	27011	4630	6174	5402	1543	3087	2315	309	772	540	1543	3087	2315	77	232	154

Burrard Inlet Basin – District of North Vancouver

CONTAMINANT LOADINGS

AMMONIA (mg/L)			NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
0	3342	627	710	4972	2824	6267	8356	7311	1253	1671	1462	418	836	627	84	209	146	418	836	627	21	63	42
0	2986	562	637	4456	2621	5617	7490	6553	1123	1498	1311	374	749	562	75	187	131	374	749	562	19	56	37
0	2552	478	542	3796	2233	4784	6379	5582	857	1276	1116	319	638	478	64	159	112	319	638	478	16	48	32
0	1587	298	337	2361	1388	2976	3968	3472	595	794	694	198	397	298	40	99	69	198	397	298	10	30	20
0	758	142	161	1124	861	1417	1889	1653	283	378	331	94	189	142	19	47	33	94	189	142	5	14	9
0	823	117	132	927	545	1168	1558	1363	234	312	273	78	156	117	16	39	27	78	156	117	4	12	8
0	469	88	100	698	411	880	1173	1026	178	235	205	59	117	88	12	29	21	59	117	88	3	9	6
0	528	99	112	785	462	990	1319	1155	198	264	231	66	132	99	13	33	23	66	132	99	3	10	7
0	936	176	199	1393	819	1758	2341	2048	351	468	410	117	234	176	23	59	41	117	234	176	6	18	12
0	2838	551	624	4370	2571	5509	7345	6427	1102	1469	1285	367	734	551	73	184	129	367	734	551	18	55	37
0	3556	667	756	5289	3111	6667	8890	7778	1333	1778	1556	444	889	667	89	222	156	444	889	667	22	67	44
0	3988	750	849	5946	3498	7496	9994	8745	1499	1999	1749	500	899	750	100	250	175	500	999	750	25	75	50
0	24280	4553	5160	36117	21245	45526	60701	53113	9105	12140	10623	3035	6070	4553	607	1518	1062	3035	6070	4553	152	455	304

Burrard Inlet Basin – City of North Vancouver

CONTAMINANT LOADINGS

CADMIUM (ug/L)			NICKEL (ug/L)			ARSENIC (ug/L)			PHENOLS (ug/L)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. (ug/L)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 9.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
11	21	17	43	64	53	21	32	28	2	245	28	6393	66060	10655	3836	19605	8524	1	26	2
9	18	14	36	54	45	18	27	23	2	207	23	5400	55801	9000	3240	16560	7200	1	22	2
8	16	13	33	49	41	16	24	21	2	187	21	4881	50434	8134	2928	14967	6508	0	20	2
5	10	8	20	30	25	10	15	13	1	116	13	3036	31372	5060	1822	9310	4048	0	12	1
2	5	4	10	15	12	5	7	6	0	57	6	1489	15386	2482	893	4566	1985	0	6	0
2	4	3	8	12	10	4	6	5	0	47	5	1228	12691	2047	737	3766	1638	0	5	0
2	3	2	6	9	8	3	5	4	0	35	4	925	9555	1541	555	2838	1233	0	4	0
2	3	3	7	10	9	3	5	5	0	40	5	1040	10748	1734	624	3190	1387	0	4	0
3	6	5	12	18	15	6	9	8	1	71	8	1845	19068	3075	1107	5658	2460	0	7	1
9	18	15	37	56	47	19	28	24	2	215	24	5619	58068	9366	3372	17233	7493	1	22	2
11	23	18	45	68	57	23	34	29	2	261	29	6802	70283	11336	4081	20858	8069	1	27	2
13	25	20	51	76	64	25	38	33	3	283	33	7647	79014	12744	4588	23449	10195	1	31	3
77	154	123	309	463	386	154	232	201	15	1775	201	46304	478479	77174	27783	142000	61739	5	185	15

Burrard Inlet Basin – District of North Vancouver

CONTAMINANT LOADINGS

CADMIUM (ug/L)			NICKEL (ug/L)			ARSENIC (ug/L)			PHENOLS (ug/L)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. (ug/L)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 9.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
21	42	33	84	125	104	42	63	54	4	480	54	12533	129511	20889	7520	38438	16711	1	50	4
19	37	30	75	112	94	37	56	49	4	431	49	11234	116088	18724	6741	34452	14979	1	45	4
16	32	26	64	96	80	32	48	41	3	367	41	8569	88876	15948	5741	29344	12758	1	38	3
10	20	16	40	60	50	20	30	26	2	228	26	5952	61505	9920	3571	18253	7936	1	24	2
5	9	8	19	28	24	9	14	12	1	109	12	2833	29277	4722	1700	8689	3778	0	11	1
4	8	6	18	23	19	8	12	10	1	90	10	2337	24150	3895	1402	7187	3116	0	9	1
3	6	5	12	18	15	6	9	8	1	67	8	1760	18182	2933	1056	5398	2346	0	7	1
3	7	5	13	20	16	7	10	9	1	76	9	1979	20452	3299	1188	6070	2639	0	8	1
6	12	9	23	35	29	12	18	15	1	135	15	3511	36281	5852	2107	10767	4681	0	14	1
18	37	29	73	110	92	37	55	48	4	422	48	11017	113843	18362	6610	33788	14688	1	44	4
22	44	36	89	133	111	44	67	58	4	511	58	13335	137790	22224	8001	40892	17779	1	53	4
25	50	40	100	150	125	50	75	65	5	575	65	14891	154908	24985	8985	45973	19988	1	60	5
152	304	243	607	911	759	304	455	395	30	3490	395	91051	940862	151752	54631	279224	121402	9	364	30

Weather Stations:

- Port Moody Gulf Oil Rwy

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	287	0.72	0.57
Commercial	57	0.77	0.72
Residential	806	0.50	0.25
Total urbanized area	1150	0.57	0.35
Total municipal area	2980		
Snowmelt Factor = 3 mm/Degree-day			

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS) (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	226.1	29.2	83.5	29.2	257.3	146.2	1682
February	197.0	6.8	127.0	6.8	203.8	115.8	1332
March	167.1	3.5	174.0	3.5	170.6	96.9	1115
April	127.9	0.0	267.0	0.0	127.9	72.7	836
May	86.2	0.0	363.0	0.0	86.2	30.4	350
June	76.9	0.0	437.0	0.0	76.9	27.2	312
July	54.8	0.0	535.0	0.0	54.8	19.4	223
August	61.6	0.0	543.0	0.0	61.6	21.8	250
September	99.0	0.0	439.0	0.0	99.0	35.0	402
October	199.9	0.1	326.0	0.1	200.0	113.7	1307
November	236.3	1.2	173.0	1.2	239.5	136.1	1565
December	282.8	18.7	129.0	18.7	301.5	171.3	1970
Total	1819.6	59.5	3596.5		1879.1	986.4	11344

Weather Stations:

- Vancouver City Hall
- Vancouver Dunbar
- Vancouver Dunbar South
- Vancouver Harbour
- Vancouver Int'l A
- Vancouver Kerrisdale
- Vancouver Kitsilano
- Vancouver Oak 53
- Vancouver PMO
- Vancouver South Fr
- Vancouver UBC

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	680	0.68	0.55
Commercial	315	0.74	0.68
Residential	4674	0.47	0.24
Total urbanized area	5669	0.51	0.30
Total municipal area	11615		
Snowmelt Factor = 3 mm/Degree-day			

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS) (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	156.9	24.2	106.9	24.2	181.1	92.4	5237
February	128.7	8.4	144.1	8.4	138.1	70.5	3895
March	118.0	5.7	192.3	5.7	123.7	63.1	3578
April	73.4	0.3	272.6	0.3	73.7	37.6	2133
May	58.8	0.0	386.6	0.0	59.8	18.0	1022
June	53.0	0.0	459.2	0.0	53.0	16.0	906
July	38.5	0.0	547.3	0.0	38.5	11.6	658
August	50.0	0.0	538.6	0.0	50.0	15.1	856
September	76.2	0.0	443.6	0.0	76.2	23.0	1303
October	138.4	0.0	328.0	0.0	138.4	70.6	4004
November	175.8	3.2	192.4	3.2	178.8	91.2	5171
December	196.2	19.5	140.3	19.5	215.8	110.1	6241
Total	1265.7	61.4	3751.9		1327.1	619.2	35103

Burrard Inlet Basin – City of Port Moody

CONTAMINANT LOADINGS

(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
168.2	252.2	210.2	8.4	23.5	15.1	100.9	134.5	117.7	336	403568	201784
133.2	199.8	166.5	6.7	18.6	12.0	79.9	106.6	93.2	266	319655	159827
111.5	167.2	139.4	5.6	15.6	10.0	66.9	89.2	78.0	223	267581	133791
83.6	125.4	104.5	4.2	11.7	7.5	50.2	66.9	58.5	167	200608	100304
35.0	52.5	43.8	1.8	4.9	3.2	21.0	28.0	24.5	70	84020	42010
31.2	46.8	39.0	1.6	4.4	2.8	18.7	25.0	21.9	62	74955	37478
22.3	33.4	27.8	1.1	3.1	2.0	13.4	17.8	15.6	45	53414	26707
25.0	37.5	31.3	1.3	3.5	2.3	15.0	20.0	17.5	50	60042	30021
40.2	60.3	50.3	2.0	5.6	3.6	24.1	32.2	28.1	80	98496	48248
130.7	196.1	163.4	6.5	18.3	11.8	78.4	104.6	81.5	261	313694	156847
156.5	234.8	185.7	7.8	21.9	14.1	83.9	125.2	109.6	313	375649	187825
197.0	295.6	246.3	9.9	27.6	17.7	118.2	157.6	137.9	394	472894	236447
1134.4	1701.6	1418.0	56.7	158.8	102.1	680.6	907.5	794.1	2269	2722578	1361289

Burrard Inlet Basin – City of Vancouver

CONTAMINANT LOADINGS

(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
523.7	785.6	654.7	26.2	73.3	47.1	314.2	419.0	368.6	1047	1258974	626487
399.5	599.2	499.3	20.0	55.9	36.0	239.7	319.6	279.6	799	958680	479340
357.8	536.7	447.3	17.9	50.1	32.2	214.7	288.3	250.5	716	858786	428393
213.3	319.9	266.6	10.7	29.9	19.2	128.0	170.6	149.3	427	511839	255919
102.2	153.3	127.7	5.1	14.3	9.2	61.3	81.7	71.5	204	245227	122613
90.6	135.8	113.2	4.5	12.7	8.2	54.4	72.5	63.4	181	217432	108716
65.6	98.7	62.3	3.3	9.2	5.9	39.5	52.7	46.1	132	157963	78981
85.6	128.3	107.0	4.3	12.0	7.7	51.3	68.4	59.9	171	205344	102872
130.3	195.4	162.8	6.5	18.2	11.7	78.2	104.2	91.2	261	312643	156321
400.4	606.0	500.5	20.0	56.1	36.0	240.3	320.3	280.3	801	961015	480508
517.1	775.7	646.4	25.9	72.4	46.5	310.3	413.7	362.0	1034	1241072	620536
624.1	936.1	780.1	31.2	87.4	56.2	374.4	499.3	436.9	1248	1497780	748890
3510.3	5265.5	4387.9	175.5	491.4	315.9	2106.2	2808.3	2457.2	7021	8424757	4212379

Burrard Inlet Basin – City of Port Moody

CONTAMINANT LOADINGS

AMMONIA (mg/L)			NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (µg/L)			COPPER (µg/L)			ZINC (µg/L)			CHROMIUM (µg/L)		
MIN 0.00 (kg)	MAX 0.80 (kg)	TYP 0.15 (kg)	MIN 0.17 (kg)	MAX 1.19 (kg)	TYP 0.70 (kg)	MIN 1.50 (kg)	MAX 2.00 (kg)	TYP 1.75 (kg)	MIN 0.30 (kg)	MAX 0.40 (kg)	TYP 0.35 (kg)	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 20 (kg)	MAX 50 (kg)	TYP 35 (kg)	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 5 (kg)	MAX 15 (kg)	TYP 10 (kg)
0	1345	252	286	2001	1177	2522	3363	2943	504	673	589	168	336	252	34	84	58	168	336	252	8	25	17
0	1068	200	226	1585	932	1998	2664	231	400	533	466	133	266	200	27	67	47	133	266	200	7	20	13
0	892	167	190	1327	780	1672	2230	1851	334	446	390	111	223	187	22	56	39	111	223	187	6	17	11
0	669	125	142	995	585	1254	1672	1483	251	334	293	84	167	125	17	42	28	84	167	125	4	13	8
0	280	53	80	417	245	525	700	813	105	140	123	35	70	53	7	18	12	35	70	53	2	5	4
0	250	47	53	372	219	468	625	547	94	125	109	31	62	47	6	16	11	31	62	47	2	5	3
0	178	33	38	265	158	334	445	389	67	89	78	22	45	33	4	11	8	22	45	33	1	3	2
0	200	38	43	298	175	375	500	438	75	100	88	25	50	38	5	13	9	25	50	38	1	4	3
0	322	60	68	478	281	603	804	704	121	161	141	40	80	60	8	20	14	40	80	60	2	6	4
0	1046	196	222	1555	815	1961	2614	2287	382	523	457	131	261	196	26	65	46	131	261	196	7	20	13
0	1252	235	266	1863	1066	2348	3130	2739	470	626	548	157	313	235	31	78	55	157	313	235	8	23	16
0	1576	286	335	2345	1379	2956	3941	3448	591	788	690	197	394	296	39	99	68	197	394	296	10	30	20
0	9075	1702	1928	13499	7941	17016	22688	19852	3403	4538	3970	1134	2269	1702	227	567	397	1134	2269	1702	57	170	113

Burrard Inlet Basin – City of Vancouver

CONTAMINANT LOADINGS

AMMONIA (mg/L)			NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (µg/L)			COPPER (µg/L)			ZINC (µg/L)			CHROMIUM (µg/L)		
MIN 0.00 (kg)	MAX 0.80 (kg)	TYP 0.15 (kg)	MIN 0.17 (kg)	MAX 1.19 (kg)	TYP 0.70 (kg)	MIN 1.50 (kg)	MAX 2.00 (kg)	TYP 1.75 (kg)	MIN 0.30 (kg)	MAX 0.40 (kg)	TYP 0.35 (kg)	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 20 (kg)	MAX 50 (kg)	TYP 35 (kg)	MIN 100 (kg)	MAX 200 (kg)	TYP 150 (kg)	MIN 5 (kg)	MAX 15 (kg)	TYP 10 (kg)
0	4190	786	890	6232	3666	7856	10475	9165	1571	2095	1833	524	1047	786	105	282	183	524	1047	786	26	79	52
0	3196	599	679	4753	2796	5982	7989	6990	1198	1588	1398	399	799	599	80	200	140	399	799	599	20	60	40
0	2663	537	608	4258	2505	5367	7157	6262	1073	1431	1252	358	716	537	72	179	125	358	716	537	18	54	36
0	1706	320	363	2538	1493	3198	4265	3732	640	853	746	213	427	320	43	107	75	213	427	320	11	32	21
0	817	153	174	1216	715	1533	2044	1788	307	409	358	102	204	153	20	51	36	102	204	153	5	15	10
0	725	136	154	1078	634	1359	1812	1585	272	362	317	91	181	136	18	45	32	81	181	136	5	14	9
0	527	99	112	783	461	987	1316	1152	197	263	230	66	132	99	13	33	23	66	132	99	3	10	7
0	684	128	145	1018	599	1283	1711	1497	257	342	298	86	171	128	17	43	30	86	171	128	4	13	9
0	1042	195	221	1550	912	1954	2605	2280	391	521	456	130	261	195	26	65	46	130	261	195	7	20	13
0	3203	601	681	4765	2803	6006	8008	7007	1201	1802	1401	400	801	601	80	200	140	400	801	601	20	60	40
0	4137	776	879	6154	3620	7757	10342	9049	1551	2068	1810	517	1034	776	103	258	181	517	1034	776	26	78	52
0	4993	936	1061	7428	4369	9361	12482	10921	1872	2498	2184	624	1246	936	125	312	218	624	1246	936	31	94	82
0	28083	5265	5968	41773	24572	52655	70206	61431	10531	14041	12286	3510	7021	5265	702	1755	1229	3510	7021	5265	176	527	351

Burrard Inlet Basin – City of Port Moody

CONTAMINANT LOADINGS

CADMIUM ($\mu\text{g/L}$)			NICKEL ($\mu\text{g/L}$)			ARSENIC ($\mu\text{g/L}$)			PHENOLS ($\mu\text{g/L}$)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. ($\mu\text{g/L}$)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 9.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)		(kg)	(kg)		(kg)	(kg)		(kg)	(kg)		(kg)	(kg)		(kg)	(kg)		(kg)	(kg)	
8	17	13	34	50	42	17	25	22	2	193	22	5045	52128	8408	3027	15470	6726	1	20	2
7	13	11	27	40	33	13	20	17	1	153	17	3996	41289	6659	2397	12253	5328	0	16	1
6	11	9	22	33	28	11	17	14	1	128	14	3345	34563	5575	2007	10257	4460	0	13	1
4	8	7	17	25	21	8	13	11	1	96	11	2508	25912	4179	1505	7690	3343	0	10	1
2	4	3	7	11	9	4	5	5	0	40	5	1050	10853	1750	630	3221	1400	0	4	0
2	3	2	6	9	8	3	5	4	0	36	4	837	9682	1582	562	2873	1249	0	4	0
1	2	2	4	7	6	2	3	3	0	26	3	668	6899	1113	401	2048	890	0	3	0
1	3	2	5	8	6	3	4	3	0	29	3	751	7755	1251	450	2302	1001	0	3	0
2	4	3	8	12	10	4	6	5	0	46	5	1206	12464	2010	724	3699	1608	0	5	0
7	13	10	26	39	33	13	20	17	1	150	17	3921	40519	6535	2353	12025	5228	0	16	1
8	16	13	31	47	39	16	23	20	2	180	20	4696	48521	7826	2817	14400	6261	0	19	2
10	20	16	39	59	49	20	30	26	2	227	26	5911	61082	9852	3547	18128	7882	1	24	2
57	113	91	227	340	284	113	170	147	11	1305	147	34032	351666	56720	20419	104365	45376	3	136	11

Burrard Inlet Basin – City of Vancouver

CONTAMINANT LOADINGS

CADMIUM ($\mu\text{g/L}$)			NICKEL ($\mu\text{g/L}$)			ARSENIC ($\mu\text{g/L}$)			PHENOLS ($\mu\text{g/L}$)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. ($\mu\text{g/L}$)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 9.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)		(kg)	(kg)		(kg)	(kg)		(kg)	(kg)		(kg)	(kg)		(kg)	(kg)		(kg)	(kg)	
26	52	42	105	157	131	52	78	68	5	802	68	15712	162359	26187	9427	48184	20950	2	63	5
20	40	32	80	120	100	40	60	52	4	459	52	11884	123830	18973	7190	36749	13978	1	48	4
18	36	29	72	107	89	36	54	47	4	412	47	10735	110927	17891	8441	32920	14313	1	43	4
11	21	17	43	64	53	21	32	28	2	245	28	6398	68113	10663	3839	19620	8531	1	26	2
5	10	8	20	31	26	10	15	13	1	118	13	3065	31675	5109	1839	9400	4087	0	12	1
5	9	7	18	27	23	9	14	12	1	104	12	2718	28085	4530	1631	8335	3624	0	11	1
3	7	5	13	20	16	7	10	9	1	76	9	1975	20404	3291	1185	6055	2633	0	8	1
4	9	7	17	26	21	9	13	11	1	98	11	2567	26524	4278	1540	7872	3422	0	10	1
7	13	10	26	39	33	13	20	17	1	150	17	3908	40383	6513	2345	11985	5211	0	16	1
20	40	32	80	120	100	40	60	52	4	460	52	12013	124131	20021	7208	36839	16017	1	48	4
28	52	41	103	155	129	52	78	67	5	585	67	15513	160305	25856	9308	47574	20685	2	62	5
31	62	50	125	187	156	62	94	81	6	718	81	18722	193463	31204	11233	57415	24963	2	75	6
176	351	261	702	1053	878	351	527	456	35	4037	456	105309	1088198	175516	63186	322949	140413	11	421	35

Weather Stations:

- W Vancouver Dundarave
- West Vancouver Macbeth
- W Vancouver Millstream
- W Vancouver Palmerston
- W Vancouver Rena Cres

	Area (ha)	Winter Runoff Coeff.	Summer Runoff Coeff.
Industrial	110	0.75	0.60
Commercial	90	0.81	0.75
Residential	2657	0.52	0.26
Total urbanized area	2857	0.54	0.29
Total municipal area	8966		

Snowmelt Factor = 3 mm/Degree-day

MONTH	MEAN RAINFALL (mm)	MEAN SNOWPACK (cm)	DEGREE DAYS (days)	ACTUAL SNOWMELT (mm)	POTENTIAL RUNOFF (mm)	TOTAL RUNOFF (mm)	RUNOFF VOLUME (1000m³)
January	241.7	27.8	100.3	27.8	269.5	145.0	4143
February	205.1	12.0	141.2	12.0	217.1	116.8	3336
March	176.7	8.5	186.0	8.5	185.3	99.7	2848
April	117.2	0.9	267.8	0.9	118.1	63.5	1815
May	88.8	0.0	383.0	0.0	88.8	25.6	732
June	79.6	0.0	457.2	0.0	78.6	23.0	656
July	60.3	0.0	543.9	0.0	60.3	17.4	497
August	78.2	0.0	543.8	0.0	78.2	22.6	645
September	120.3	0.0	447.5	0.0	120.3	34.7	991
October	226.6	0.1	337.5	0.1	226.7	122.0	3485
November	265.6	4.7	189.7	4.7	270.3	145.4	4154
December	307.9	22.0	130.8	22.0	328.9	177.5	5071
Total	1968.0	76.0	3728.7		2044.0	993.1	28373

Burrard Inlet Basin – District of West Vancouver

CONTAMINANT LOADINGS

(TSS) (mg/L)			(BOD) (mg/L)			(COD) (mg/L)			FECAL COLIFORM (#/100mL)		
MIN 100 (tonne)	MAX 150 (tonne)	TYP 125 (tonne)	MIN 5 (tonne)	MAX 14 (tonne)	TYP 9 (tonne)	MIN 60 (tonne)	MAX 80 (tonne)	TYP 70 (tonne)	MIN 20 (billion)	MAX 24000 (billion)	TYP 12000 (billion)
414.3	621.4	517.8	20.7	58.0	37.3	248.6	331.4	290.0	828	984305	497153
333.6	500.4	417.0	16.7	46.7	30.0	200.2	266.9	233.5	667	800712	400356
284.8	427.1	355.9	14.2	39.9	25.6	170.8	227.8	198.3	570	683405	341702
181.5	272.3	226.9	9.1	25.4	16.3	108.9	145.2	127.1	363	435659	217829
73.2	109.8	91.5	3.7	10.2	6.6	43.8	58.5	51.2	146	175640	87620
65.6	98.4	82.0	3.3	9.2	5.9	39.4	52.5	45.9	131	157439	78719
49.7	74.6	62.1	2.5	7.0	4.5	29.8	39.8	34.8	89	118296	59648
64.5	96.7	80.8	3.2	9.0	5.8	38.7	51.8	45.1	129	154788	77394
89.1	148.7	123.9	5.0	13.9	8.9	59.5	79.3	68.4	198	237919	118659
348.5	522.7	435.6	17.4	48.8	31.4	209.1	278.8	243.9	697	836347	418173
415.4	623.1	519.3	20.8	58.2	37.4	249.2	332.3	290.8	831	996981	498481
507.1	760.6	633.8	25.4	71.0	45.6	304.2	405.7	354.9	1014	1216987	608483
2837.3	4255.9	3546.6	141.9	397.2	255.4	1702.4	2269.8	1986.1	5675	6809434	3404717

Burrard Inlet Basin – District of West Vancouver

CONTAMINANT LOADINGS

AMMONIA (mg/L)			NITRATE / NITRITE (mg/L)			TOTAL NITROGEN (mg/L)			TOTAL PHOSPHORUS (mg/L)			LEAD (ug/L)			COPPER (ug/L)			ZINC (ug/L)			CHROMIUM (ug/L)		
MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP	MIN	MAX	TYP
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
0	3314	621	704	4930	2900	6214	8286	7250	1243	1657	1450	414	829	621	83	207	145	414	829	621	21	62	41
0	2669	500	567	3970	2335	5004	6673	5839	1001	1335	1168	334	667	500	67	167	117	334	667	500	17	50	33
0	2278	427	484	3389	1993	4271	5695	4983	854	1139	997	285	570	427	57	142	100	285	570	427	14	43	28
0	1452	272	309	2160	1271	2723	3630	3177	545	726	635	182	363	272	36	91	64	182	363	272	9	27	18
0	585	110	124	871	512	1098	1464	1281	220	293	256	73	146	110	15	37	26	73	146	110	4	11	7
0	525	98	112	781	459	984	1312	1148	197	262	230	66	131	98	13	33	23	66	131	98	3	10	7
0	398	75	85	592	348	746	994	870	149	199	174	50	99	75	10	25	17	50	99	75	2	7	5
0	516	87	110	767	451	987	1290	1129	193	258	226	64	129	97	13	32	23	64	129	97	3	10	6
0	793	149	169	1180	694	1487	1983	1735	297	397	347	99	198	149	20	50	35	99	198	149	5	15	10
0	2788	523	592	4147	2439	5227	6970	6098	1045	1394	1220	348	697	523	70	174	122	348	697	523	17	52	35
0	3323	623	706	4943	2908	6231	6308	7270	1246	1662	1454	415	831	623	83	208	145	415	831	623	21	62	42
0	4057	761	862	6034	3549	7606	10141	8874	1521	2028	1775	507	1014	761	101	254	177	507	1014	761	25	76	51
0	22698	4256	4823	33763	19861	42559	56745	49652	8512	11349	9930	2837	5675	4256	567	1419	993	2837	5675	4256	142	426	284

Burrard Inlet Basin – District of West Vancouver

CONTAMINANT LOADINGS

CADMIUM (ug/L)			NICKEL (ug/L)			ARSENIC (ug/L)			PHENOLS (ug/L)			OIL & GREASE (mg/L)			TOTAL HYDROCARBONS (mg/L)			POLYNUCLEAR AROMATIC HYDROCARB. (ug/L)		
MIN 5	MAX 10	TYP 8	MIN 20	MAX 30	TYP 25	MIN 10	MAX 15	TYP 13	MIN 1	MAX 115	TYP 13	MIN 3	MAX 31	TYP 5	MIN 1.80	MAX 9.20	TYP 4.00	MIN 0.30	MAX 12.00	TYP 1.00
(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)	(kg)
21	41	33	83	124	104	41	62	54	4	476	54	12429	128431	20715	7457	38115	16572	1	50	4
17	33	27	67	100	83	33	50	43	3	384	43	10009	103425	16681	6005	30694	13345	1	40	3
14	28	23	57	85	71	28	43	37	3	327	37	8543	88273	14238	5128	28197	11390	1	34	3
9	18	15	38	54	45	18	27	24	2	209	24	5446	56273	9076	3267	16700	7261	1	22	2
4	7	6	15	22	18	7	11	10	1	84	10	2195	22687	3658	1317	6733	2927	0	9	1
3	7	5	13	20	16	7	10	9	1	75	9	1968	20336	3280	1181	6035	2624	0	8	1
2	5	4	10	15	12	5	7	6	0	57	6	1491	15409	2485	695	4573	1888	0	6	0
3	6	5	13	19	16	6	10	8	1	74	8	1935	19963	3225	1161	5934	2580	0	8	1
5	10	8	20	30	25	10	15	13	1	114	13	2974	30731	4957	1784	9120	3985	0	12	1
17	35	28	70	105	87	35	52	45	3	401	45	10454	108028	17424	6273	32060	13939	1	42	3
21	42	33	83	125	104	42	62	54	4	478	54	12462	128774	20770	7477	38217	16616	1	50	4
25	51	41	101	152	127	51	76	66	5	583	66	15212	157192	25353	9127	46650	20283	2	61	5
142	284	227	567	851	709	284	426	369	28	3263	369	85118	879552	141863	51071	261028	113491	9	340	28