PROVINCE OF BRITISH COLUMBIA
MINISTRY OF ENVIRONMENT, LANDS AND PARKS
VANCOUVER ISLAND REGION

SAANICH-VICTORIA

WATER ALLOCATION PLAN

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SAANICH-VICTORIA WATER ALLOCATION PLAN

1.0 INTRODUCTION

The Water Management Program's goals are to sustain a healthy water resource through anticipating and planning for water uses. Water Allocation Plans are a means of identifying water demands and ensuring that water use is compatible with the goals of a sustainable environment. The advantages are:

1. Water Managements position on water allocation decisions is available to applicants and the public.

2. Response time is reduced.

3. Eliminates the need for individual studies and reports on each application.

4. Consistency of decisions are improved.

5. Specific allocation directions and decisions are defined.

6. Plans are more comprehensive.

7. Eliminates the need for referrals on individual applications.

The following regional policy was developed to provide direction:

Regional Policy:

The region shall be subdivided into watershed areas and a water allocation plan shall be prepared for each watershed area. Water licence decisions will be made in accordance with approved plans.

Assessments undertaken as part of the water allocation planning process include identifying the surface water resources available, the instream requirements for fish, the existing and potential licensable water demands and providing direction regarding further water licence allocations.

Input may be sought from other agencies. Referrals go to Federal & Provincial Fisheries agencies and to Water Management in Victoria.

The Saanich-Victoria Water Allocation Plan area is shown in Figure 1.

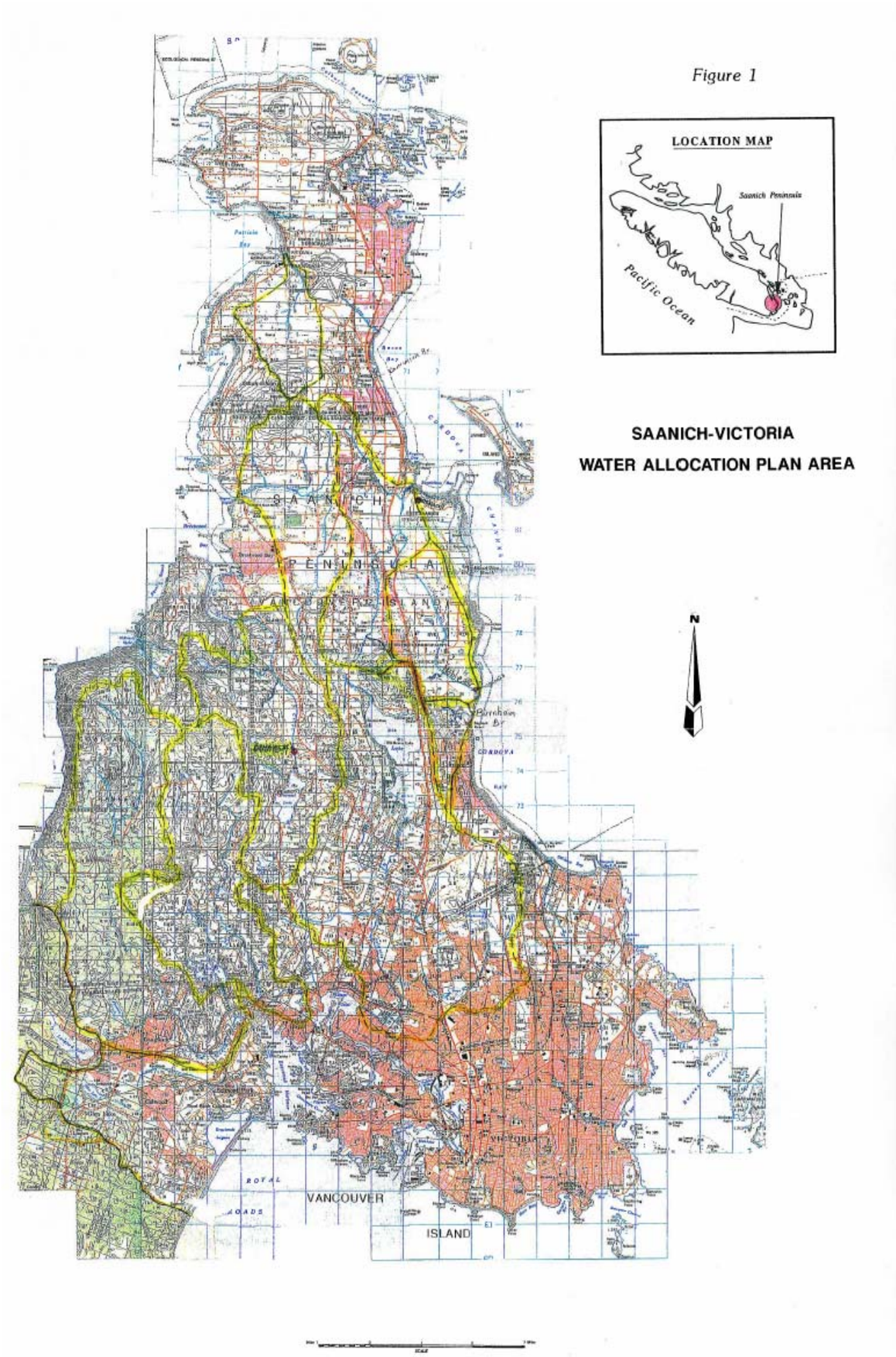


Figure 1: Saanich-Victoria Water Allocation Plan Area

2.0 GENERAL WATERSHED INFORMATION

2.1 Plan Area

The Saanich-Victoria plan area covers the southeastern tip of Vancouver Island including the surrounding islands. The total area of the plan is 346.20 km^2. Eleven major watersheds have been defined representing 52.0% of the plan area. The remaining area of the plan is represented by; Urban Victoria (17.5%); the surrounding Islands of Pier, Coal, James and Sydney (4.0%); and other minor watersheds (26.5%).

Water Allocation Plan Areas

Drainage	Size (km^2)	% Area
Chalet Creek	2.99	0.9
Airport Creek	5.81	1.7
Hagan Creek	14.86	4.3
Sandhill Creek	13.34	3.9
Noble Creek	8.80	2.5
Tod Creek	22.80	6.6
Colquitz River	45.56	13.2
Burnham Brook	2.51	0.7
Millstream	28.96	8.4
Craigflower Creek	24.79	7.2
Colwood Creek	9.19	2.6
Urban Victoria	60.40	17.5
Sydney Island	8.44	2.4
James Island	3.08	0.9
Coal Island	1.43	0.4
Pier Island	1.08	0.3
Other Areas	92.18	26.5
Total Area	**346.22**	**100.0**

Source: Measured By Planimeter from 1:50000 NTS Maps

2.2 Topography and Climate

The plan area includes three main topographically variable areas, namely; Saanich Peninsula, Highlands and Victoria-Colwood. The topography of the Saanich Peninsula is predominantly characterized by lowlands. The Highlands is distinguished by its steep rocky terrain. Included in the Highlands area are Mount Work and Jocelyn Hill their elevations are 446 m and 434 m, respectively. The topography of Victoria-Colwood is characterized by rolling rocky hills and rock outcroppings. Elevation in the plan area can vary from 446 m (Mount Work) to sea level.

The climate of the Saanich-Victoria plan area can be described as the Cool Mediterranean type. The characteristics of this type of climate are cool, relatively dry summers and cold wet winters.

The climate records for Victoria Gonzales Heights Station (elev. 69 m) indicate that the lowest average mean daily temperature is in January and is 4.1°C; with a mean daily maximum temperature of 6.1°C and a mean daily minimum temperature of 2.1°C. The highest average mean daily temperature is in July and is 15.4°C; with a mean daily maximum temperature of 19.7°C and a mean daily minimum temperature of 11.1°C.

The climate records for Saanichton CDA station (elev. 61 m) also indicate similar conditions. The lowest average mean daily temperature is in January and is 3.1°C; with a mean daily maximum temperature of 5.6°C and a mean daily minimum temperature of 0.5°C. The highest average mean daily temperature is in July and is 16.5°C; with a mean daily maximum temperature of 21.6°C and a mean daily minimum temperature of 11.3°C. See Appendix A for climatic normals and precipitation records for the period of 1951 to 1980.

2.3 History and Growth

Hudson Bay Company selected Victoria as its trading post on March 14, 1843. Victoria's population totalled about 450 people at the time. With the discovery of gold in the Cariboo in 1858, Victoria became the transient and outfitting port for the Cariboo gold fields. Its population grew rapidly. Today, Victoria and Greater Victoria have become the most heavily populated and urbanized area on Vancouver Island. Land use is primarily urban however, there are areas of light industry, agriculture and small pockets of undeveloped land. The following table highlights population growth over the past 17 years.

Population Growth In Municipalities

Year	1978	1981	1984	1987	1990	1993	% Incr
North Saanich	5407	6307	7022	7864	9551	10691	108.6
Sydney	6737	8186	9053	9438	10070	10467	55.3
Central Saanich	8723	10186	11345	12248	13615	15053	72.6
Saanich	76734	81262	84131	88758	96408	101993	32.9
Victoria	66335	66466	67780	70126	72023	73874	11.4
Oak Bay	17713	17518	17346	17777	18140	18413	4.0
Esquimalt	16341	10186	16539	16671	16850	17398	8.7
View Royal					6062	6302	3.4
Colwood				12229	13589	14293	16.9
Langford						15878	
Total Pop.	**243428**	**257320**	**267863**	**277603**	**298003**	**313714**	**31.0**

Source: B.C. Stats

The average population growth in the plan area for the 1978-1993 period was 31%. North Saanich Municipality had the highest population increase (108.6%) and Oak bay Municipality the lowest (4.0%) for the period.

The following table projects the population growth over the next 25 years:

Population Forecasts In Municipalities

Year	1995	2000	2005	2010	2015	2020
North Saanich	11737	14824	18722	23646	29864	37717
Sydney	10998	12450	14093	15953	18058	20441
Central Saanich	16310	19929	24352	29756	36360	44429
Saanich	105661	115400	126043	137668	150364	164231
Victoria	75076	78166	81383	84733	88221	91852
Oak Bay	18446	18529	18613	18697	18781	18866
Esquimalt	17642	18269	18917	19588	20284	21004
Veiw Royal	6523	7111	7751	8450	9211	10040
Colwood	14795	16127	17580	19164	20890	22772
Langford	16435	17916	19530	21289	23207	25297
Total Pop.	**324726**	**353978**	**385864**	**420623**	**458513**	**499817**

Forecast based on population growth trend (1978-1993)

The total population in the plan area is forecasted to approach 500,000 people by the year 2020.

2.4 Significant Watershed Areas

For the purpose of assessing water supplies for allocation demands, the following drainage areas were identified and the drainage areas determined.

Significant Drainage Areas

Drainage	Drainage Area km^2
Colwood Creek	9.2
Millstream Creek	29.0
Craigflower Creek	24.8
Tod Creek	22.8
Colquitz River	45.6
Burnham Brook	2.5
Noble Creek	8.8
Sandhill Creek	13.3
Hagan Creek	14.9
Airport Creek	5.8
Chalet Creek	3.0

These drainage areas are delineated in Figure 2.

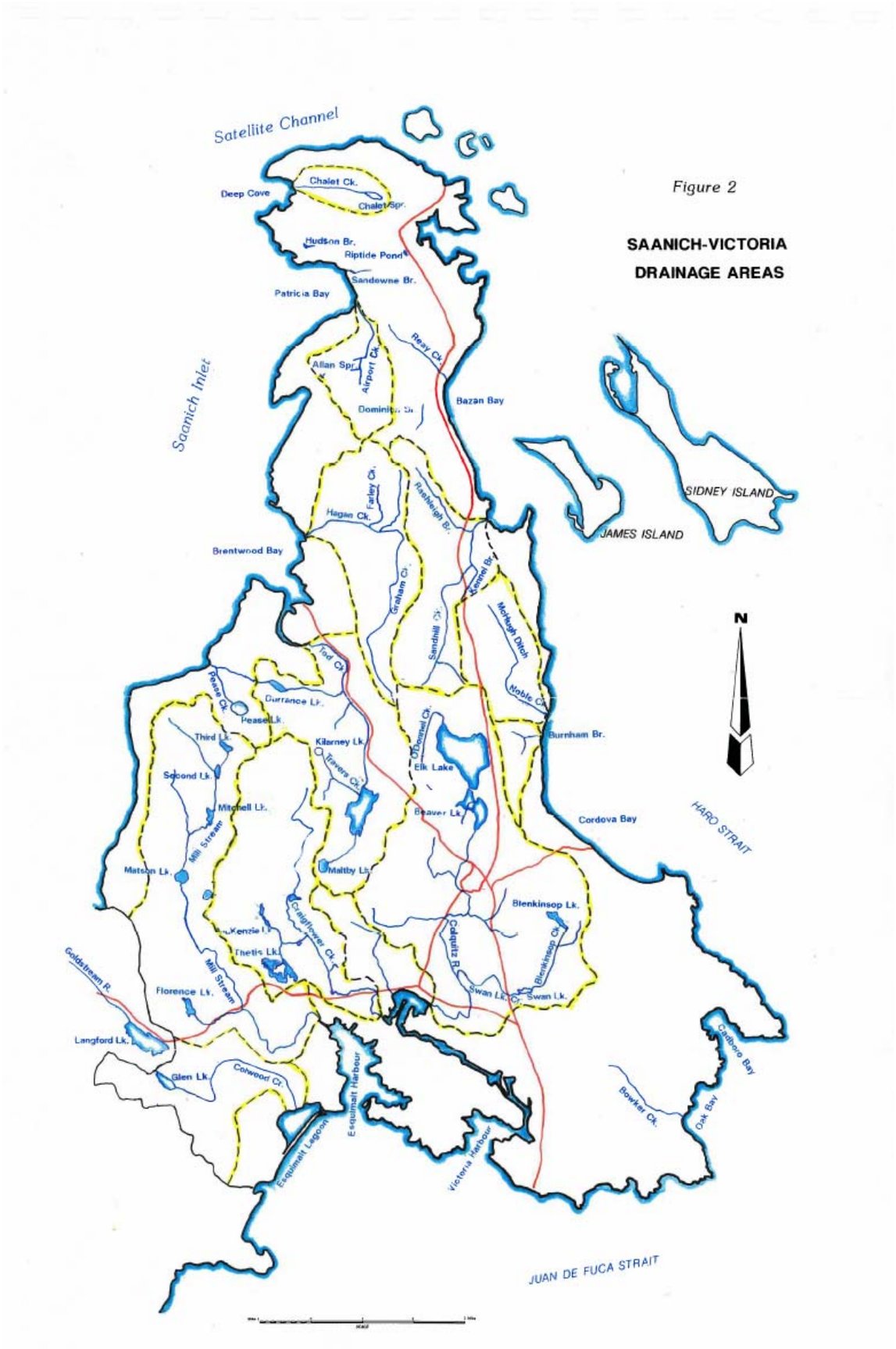


Figure 2: Saanich-Victoria Drainage Areas

3.0 HYDROLOGY

3.1 Precipitation

There are 14 Atmospheric Environment Service (AES) climatic stations within the Saanich-Victoria Water Allocation Plan area. The Canadian Climatic Normals 1951-1980 data is provided in Appendix A. The average of the mean monthly precipitation normals (1951-1980) is illustrated in Figure 3.

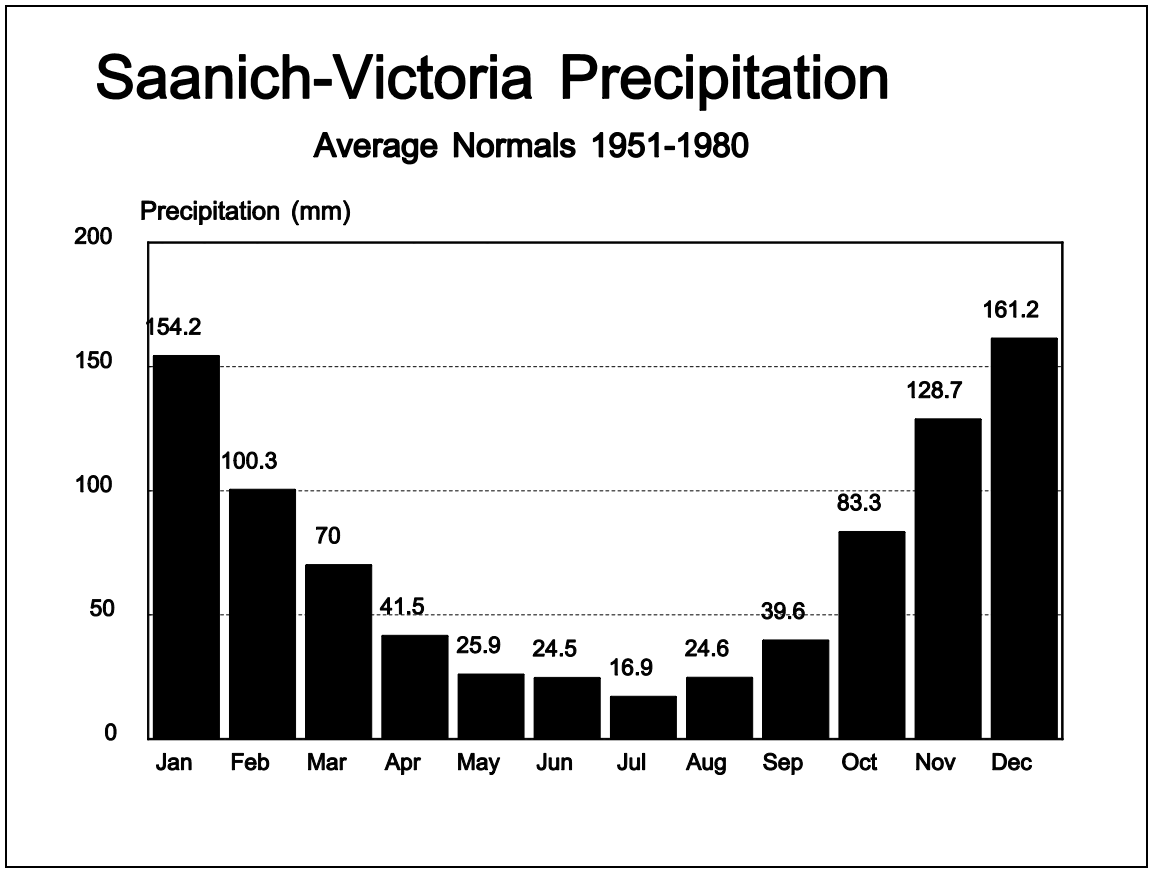


Figure 3: Saanich-Victoria Precipitation Normals

3.2 Hydrometric Information

There are three Water Survey of Canada (WSC) hydrometric stations within the Saanich-Victoria Water Allocation Plan area which have been operated on an annual basis, namely; Craigflower Creek below Burnside Road (08HA034), Colquitz River at Hyacinth Road (08HA037) and Colquitz River at Violet Avenue (08HA047). There are also

three Water Survey of Canada (WSC) hydrometric stations within the Saanich-Victoria Water Allocation Plan area which have been operated on a seasonal basis, namely; Pelky Spring near Saanichton (08HA007), Noble Creek at the Mouth (08HA028) and Tod Creek below Prospect Lake (08HA054). The following table lists the WSC stations and the period of record, drainage area, mean annual discharge and minimum daily discharge:

Water Survey Canada Hydrometric Discharge Stations

Station Name	Station Number	Period of Record	Drainage Area (km^2)	Mean Annual Discharge (m^3/s)	Minimum Daily Discharge (m^3/sec)
Craigflower Creek below Burnside Road	08HA034	1974-81	21.4	0.307	0.0
Colquitz River at Hyacinth Road	08HA037	1976-81	30.7	0.354	0.0
Colquitz River at Violet Avenue	08HA047	1981-90	42.6	0.567	0.019
Pelky Springs near Saanichton	08HA007	Feb-Jun 1949	-	-	0.0
Noble Creek at mouth	08HA028	Apr-Sep 1971-72	8.8	-	0.007
Tod Creek below Prospect Lake	08HA054	Apr-Sep 1982-90	9.04	-	0.0

There is also, within the plan area, one Water Survey of Canada (WSC) hydrometric station operated on a seasonal basis with lake levels, namely; Prospect Lake in Saanich (08HA053).

The Water Survey Canada hydrometric station discharge and lake water level records are summarized in Appendix B.

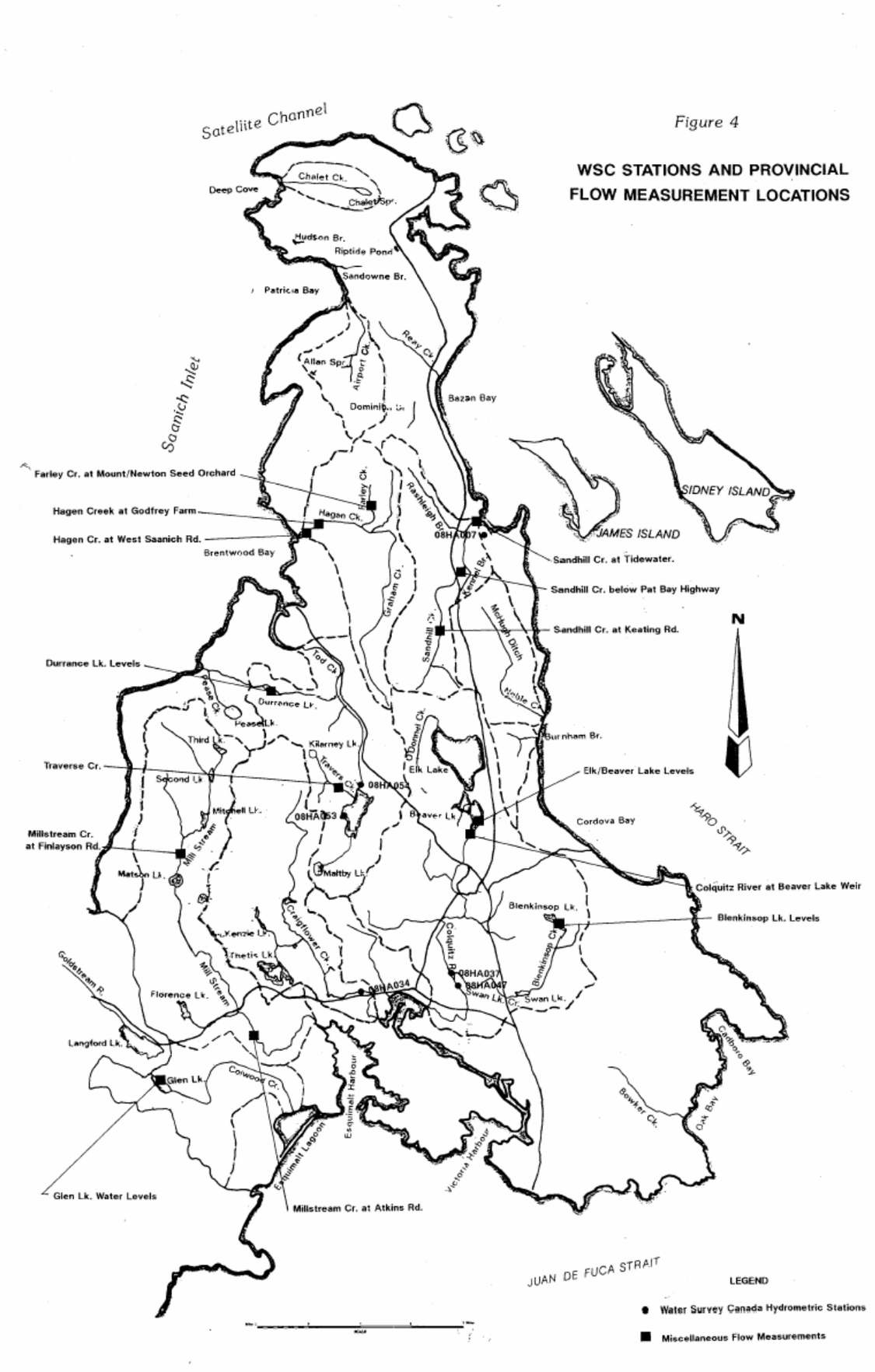


Figure 4: WSC Stations and Provincial Flow Measurement Locations.

In addition there are miscellaneous stream flow measurements and water level and volume measurements available from Regional Engineer's Reports related to water licenses, Fish and Wildlife bathymetric surveys and provincial low flow monitoring studies (1977, 1985, 1992). In particular there are water level data on Elk-Beaver Lake, discharge at the outlet of Elk-Beaver Lake and streamflow for Farley Creek in Central Saanich. Figure 4 illustrates the location of the WSC stations and provincial low flow records.

The discharge runoff per square kilometre was estimated from the mean monthly and mean annual records for each WSC hydrometric station for the period of record. The average annual discharge runoff and average monthly discharges runoff per square kilometre were used to estimate the mean monthly discharges (MMD) and mean annual discharge (MAD) in all identified significant drainages which lacked annual discharge records within the Saanich-Victoria Water Allocation Plan area. These estimated discharge runoff per square kilometre are in the following table:

Discharge Runoff per Square Kilometre (litres/second/Km^2)

Station Number*	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MAD
08HA034	41	39	24	10	3	2	0	1	1	1	12	52	14
08HA037	21	34	18	8	3	3	1	1	1	1	9	35	12
08HA047	39	29	16	10	5	3	2	2	2	4	22	28	13
08HA028				11	3	1	1	1	2				
08HA054				16	4	1	0	0	0				
Average	34	34	19	11	4	2	1	1	1	2	14	38	13
% MAD	262	262	146	85	31	15	8	8	8	15	108	292	100

* Note: The drainage area of Pelky Springs near Saanichton (08HB007) could not be determined and therefore was not included.

For each identified significant drainage area without annual discharge records, the average discharge runoff per square kilometre noted in the above table were multiplied by the drainage area to obtain a first estimate of the mean monthly discharges and mean annual discharge. The seasonal WSC hydrometric record on the Noble Creek and Tod Creek and the miscellaneous stream flow measurements were used to modify the estimated mean monthly discharges.

3.2.1 Colwood Creek

The estimated drainage area of Colwood Creek is 9.2 km^2 (3.6 mi^2).

Glen Lake is a significant lake in the headwaters of the drainage area. Glen Lake water level information was obtain by the provincial government from October 1979 to the end of 1982. The maximum recorded annual lake level variation is 0.81 metres (2.67 ft) in 1982. The lake level record is in Appendix C.

There are no flow measurements for Colwood Creek. The mean monthly discharge and mean annual discharge flow estimates are in the following table:

Colwood Creek Mean Monthly and Mean Annual Discharge (litres/sec)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MAD
313	313	175	101	37	18	9	9	9	18	129	350	120

3.2.2 Millstream Creek

The estimated drainage area of Millstream Creek is 29.0 km^2 (11.2 mi^2). Florence Lake, Matson Lake, Mitchell Lake, Second Lake and Third Lake are significant lakes in the headwaters of the drainage area.

There are miscellaneous flow measurements for Millstream Creek for 1950 to 1954. The flow was measured from two to four times each year during the 1950 to 1954 period at Finlayson Road and at Atkins Road. Less than half the watershed is above Finlayson Road while more than 90% of the watershed is above Atkins Road. These flow measurements are listed in Appendix C. These miscellaneous flow measurements indicate that the flow in July, August and September may be less than the flow estimated using the average MMD per square kilometre. Therefore the average miscellaneous measured flows at Atkins Road for July, August and September from 1950 to 1954 were used and the remaining monthly discharge flows adjusted approximately 2% higher to compensate. The mean monthly discharge and mean annual discharge flow estimates are in the following table:

Millstream Creek Mean Monthly and Mean Annual Discharge (litres/sec)												
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MAD
995	995	558	328	124	64	9	6	2	64	415	1108	377

3.2.3 Craigflower Creek

The estimated drainage area of Craigflower Creek is 24.8 km^2 (9.6 mi^2). Thetis Lake and McKenzie Lake drain into Craigflower Creek.

There are 8 years of flow discharge records (1974-1981) available for Craigflower Creek below Burnside Road (08HA034). These flow records are the best estimate of the flow discharge from the total drainage area. The following table summarizes the mean monthly discharge and mean annual discharge flow estimates:

Craigflower Creek Mean Monthly and Mean Annual Discharge (litres/sec)												
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MAD
886	835	507	207	57	45	10	20	16	24	259	1120	307

The following figure illustrates the flow estimates:

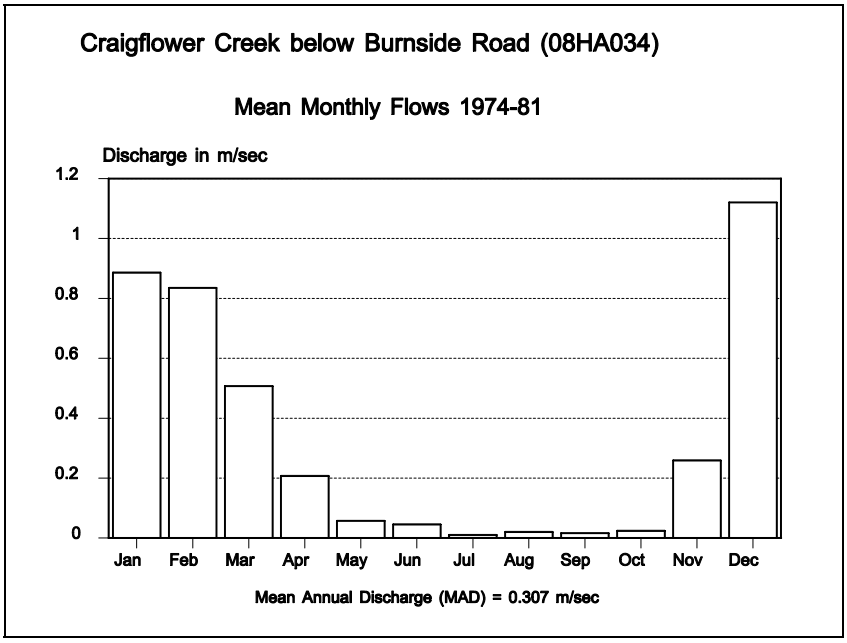


Figure 5: Craigflower Creek below Burnside Road (08HA034)

3.2.4 Tod Creek

The estimated drainage area of Tod Creek is 22.8 km^2 (8.8 mi^2). Maltby Lake, Prospect Lake, Durrance Lake and Quarry Lake are all in the Tod Creek drainage area.

There are 9 years of flow discharge records (1982-1990) available for Tod Creek below Prospect Lake (08HA054) for the April through September period. There are also miscellaneous flow measurements from August 1 to November 29, 1982 on Travers Creek; a tributary to Prospect Lake. Water levels are available on Prospect Lake (08HA053), Durrance Lake and Quarry Lake.

There is 6 years (1982 - 1987) of April through September water levels on Prospect Lake in Saanichton (08HA053). The maximum recorded annual lake level variation is 0.485 metres (1.59 ft) in 1988. The monthly flow summary for 1982 to 1990 is in Appendix C.

The flow records for Tod Creek below Prospect Lake (08HA054) are the best estimate of the natural flow discharge for the April through September period. However these flow discharge measurements represent only 38% of the total drainage area. Therefore the April to September MMD's have been multiplied by the proportion of the total drainage area over the hydrometric station drainage area (2.7). The mean annual discharge, which is estimated from the average annual WSC hydrometric station discharge

runoff per square kilometre, is assumed to be reliable. Therefore, the mean monthly discharge flows for October through March have been adjusted to compensate for the lower April to September flow. The mean monthly discharge and mean annual discharge flow estimates are in the following table:

Tod Creek Mean Monthly and Mean Annual Discharge (litres/sec)												
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MAD
752	752	408	387	96	16	5	11	8	21	296	841	296

The following figure illustrates the mean monthly flow of Tod Creek below Prospect Lake (08HA054) and the estimated mean monthly discharge flow from the drainage area:

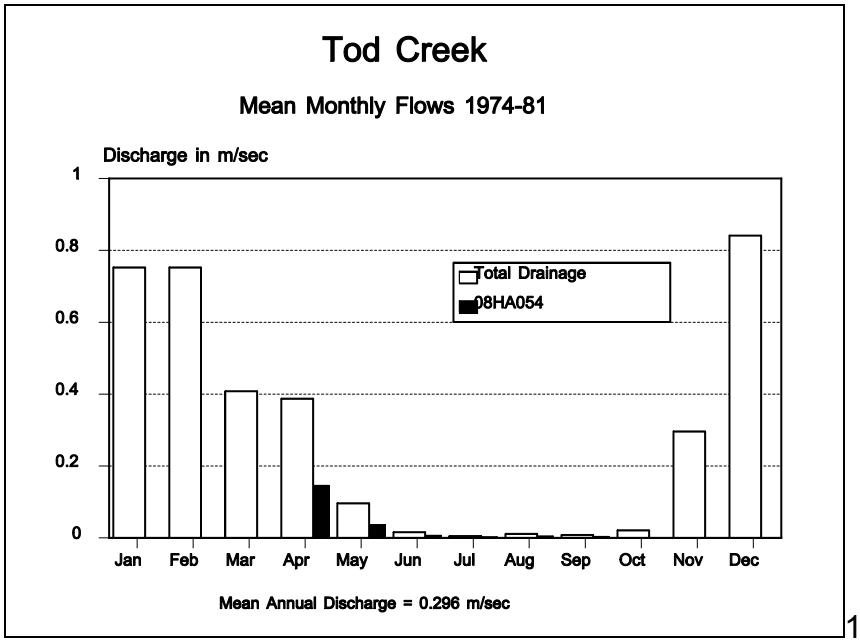


Figure 6: Tod Creek Mean Monthly Flow

3.2.5 Colquitz River

The Colquitz River is the largest drainage area within the plan area with an estimated drainage area of 45.6 km^2 (17.6 mi^2). Elk and Beaver Lakes at the head waters of the Colquitz River are the largest lakes in the plan area. Blenkinsop Lake flows by way

of Blenkinsop Creek into Swan Lake. Swan Lake flows by way of Swan Lake Creek into the Colquitz River at a point upstream of the mouth of the river in Portage Inlet. The flows from both Elk and Beaver Lakes and Blenkinsop Lake are regulated by weirs at the outlets. The regulated water levels of Elk and Beaver Lakes and Blenkinsop Lake and the flow release into Colquitz River are monitored and reported on a regular basis since 1987.

There are two Water Survey Canada hydrometric stations on the Colquitz River. Colquitz River at Hyacinth Road (08HA037) has approximately 6 years of annual flow discharge records (1976-1981) at a location just above the Swan Lake Creek confluence. This hydrometric station was relocated, in 1981, downstream to below the Swan Lake Creek confluence to Colquitz River at Violet Avenue (08HA047). There are approximately 9 years of annual flow discharge records up to 1990 for the Colquitz River at Violet Avenue (08HA047). The Colquitz River at Violet Avenue (08HA047) is near enough the mouth of the river that it represents the discharge of the drainage area. However the flow in the Colquitz River is regulated at both Beaver Lake and Blenkinsop Lake and therefore the recorded low flow is artificially higher than natural flow. The mean monthly discharge and mean annual discharge flow estimates for each hydrometric station and the estimated natural flow from the average discharge runoff per square kilometre noted above, are in the following table:

Colquitz River Mean Monthly and Mean Annual Discharge (litres/sec)

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MAD
08HA037	638	1030	561	236	97	77	36	39	41	31	290	1080	354
08HA047	1650	1250	698	446	201	126	100	72	79	150	949	1190	567
Natural	1550	1550	866	502	182	91	46	46	46	91	638	1733	593

The following figure illustrates the mean monthly flow of the Colquitz River at Hyacinth Road (08HA037), Colquitz River at Violet Avenue (08HA047) and the estimated natural discharge flow from the drainage area:

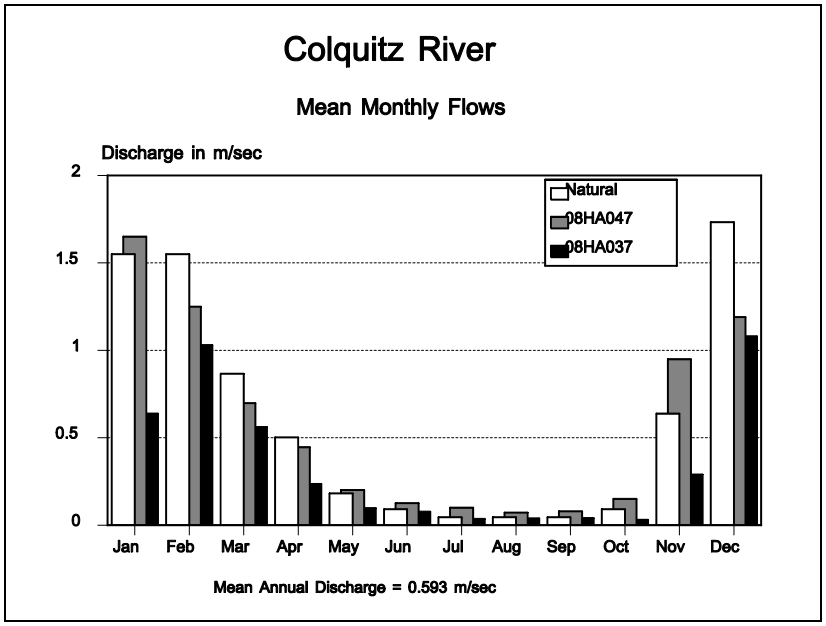


Figure 7: Colquitz River Mean Monthly Flow

3.2.6 Burnham Brook

The estimated drainage area of Burnham Brook is 2.5 km^2 (1.0 mi^2).

There are no flow measurements for Burnham Brook. The mean monthly discharge and mean annual discharge flow estimates are in the following table:

Burnham Brook Mean Monthly and Mean Annual Discharge (litres/sec)												
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MAD
85	85	48	28	10	5	3	3	3	5	35	95	33

3.2.7 Noble Creek

The estimated drainage area of Noble Creek is 8.8 km^2 (3.4 mi^2).

There are two years (1971 and 1972) of April through September discharge flow measurements for Noble Creek at the Mouth (08HA028). The mean monthly discharge

flow records for the period of record were used as the best estimate of the flow for the April through September period. The mean monthly discharge flow for October through March and the mean annual discharge (MAD) are estimated from the average monthly and annual WSC hydrometric station discharge runoff per square kilometre. The mean monthly discharge and mean annual discharge flow estimates are in the following table:

Noble Creek Mean Monthly and Mean Annual Discharge (litres/sec)												
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MAD
299	299	167	93*	29*	12*	10*	8*	16*	18	123	334	114

* Noble Creek at the Mouth (08HA028)

The following figure illustrates the mean monthly flow of Noble Creek.

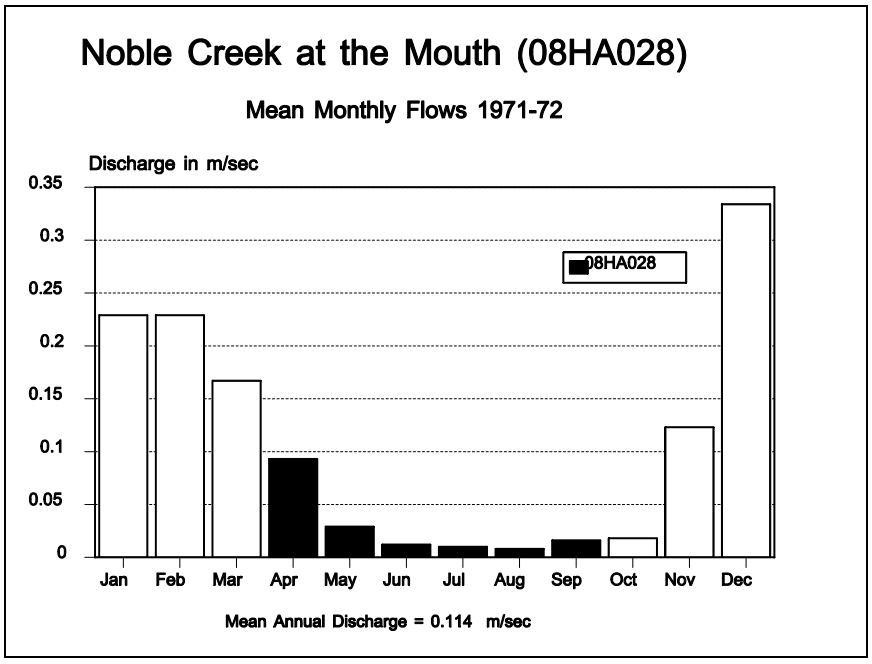


Figure 8: Noble Creek Mean Monthly Flow

3.2.8 Sandhill Creek

The estimated drainage area of Sandhill Creek is 13.3 km^2 (5.1 mi^2).

There are miscellaneous discharge flow measurements on Sandhill Creek in July to October of 1992, December 18, 1979 and July, August and September 1951-52. During the provincial low flow study of 1992 twelve flow measurements were made, using a current metre or Parshall flume, between July 21 and October 13. The location of the measurements, below the Pat Bay Highway, indicates that these flow measurements represent the discharge flow of less than half of the total drainage. The main tributary streams of Kennel Brook and Rashleigh Brook flow into Sandhill Creek below the 1992 measurement location. The minimum flow measured was 4 litres/sec on August 4, 1992. The estimated mean monthly flow for both August and September, 1992 is 7 litres/sec. The flow measured on December 18, 1979 was 322 litres/sec (11.72 cfs). In 1951-52 five flow measurements were made at both Keating Road and at tide water. There was zero flow at Keating Road for all five measurements. The average flow for all 5 discharge flow measurements at tide water, from late June to early September, was 13 litres/sec (0.45 cfs).

The above flow measurements indicate that the estimated average discharge runoff per square kilometre multiplied by the drainage area are a reasonable estimate of the mean monthly and mean annual flow in Sandhill Creek. The mean monthly discharge and mean annual discharge flow estimates are in the following table:

Sandhill Creek Mean Monthly and Mean Annual Discharge (litres/sec)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MAD
452	452	253	146	53	27	13	13	13	27	186	505	173

3.2.9 Hagen Creek

The estimated drainage area of Hagen Creek is 14.9 km^2 (5.8 mi^2). There are miscellaneous discharge flow measurements on Hagen Creek in July to October of 1950 to 1952. These flow measurements were made at both West Saanich Road and at Godfrey Farm. The minimum flow measurement was 3 litres/sec (0.11 cfs) at West Saanich Road on August 11, 1951. The average of the flow measurements at Hagen Creek at Godfrey Farm was 12 litres/sec (0.43 cfs) and at West Saanich was 8 litres/sec (0.30 cfs).

There are also miscellaneous flow measurements, between 1980 and 1984, on Farley Creek, a main tributary to Hagen Creek.

The above flow measurements indicate that the estimated average discharge runoff per square kilometre multiplied by the drainage area are a reasonable estimate of the mean monthly and mean annual flow in Hagen Creek. The mean monthly discharge and mean annual discharge flow estimates are in the following table:

Hagen Creek Mean Monthly and Mean Annual Discharge (litres/sec)												
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MAD
507	507	283	164	60	30	15	15	15	30	209	566	194

.3.2.10 Airport Creek

The estimated drainage area of Airport Creek is 5.8 km^2 (2.2 mi^2). There are no flow measurements for Airport Creek.

The mean monthly discharge and mean annual discharge flow estimates are in the following table:

Airport Creek Mean Monthly and Mean Annual Discharge (litres/sec)												
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MAD
197	197	110	64	23	12	6	6	6	12	81	220	75

3.2.11 Chalet Creek

The estimated drainage area of Chalet Creek is 3.0 km^2 (1.2 mi^2). There are no flow measurements for Chalet Creek.

The mean monthly discharge and mean annual discharge flow estimates are in the following table:

Chalet Creek Mean Monthly and Mean Annual Discharge (litres/sec)												
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	MAD
102	102	57	33	12	6	3	3	3	6	42	114	39

3.3 Other Small Drainages

There are numerous other small drainage areas within the plan area that are not noted above. These other small drainages are less significant and have either no discharge flow or very intermittent discharge flow from July through September. The average discharge runoff per square kilometre, noted in the table in Section 3.2, multiplied by the drainage area can be used to obtain an estimate of the mean monthly discharges and mean annual discharge.

3.4 Lake Volumes

The following table summarizes the area and volume of the lakes located in the Saanich-Victoria Water Allocation Plan area. These estimates are derived from bathymetric surveys by Water Management Branch and Fish and Wildlife Branch.

.Lake Area and Volume Summary

	Surface Area (ha)	Maximum Depth (m)	Mean Depth (m)	Volume (dam^3)
Glen Lake	18.1	14.0	6.4	156
Third Lake	3.5	4.9	2.4	85
Second Lake	6.5	9.4	2.8	180
Mitchell Lake	3.0	7.9	1.8	53
Matson Lake	3.4	3.0	1.7	58
Teanook Lake	3.3	7.6	2.4	78
Florence Lake	9.5	4.3	1.9	174
Fork Lake	3.8	9.1	2.9	109

	Surface Area (ha)	Maximum Depth (m)	Mean Depth (m)	Volume (dam^3)
Fizzle Lake	46.1	11.6	4.5	208
Pike Lake	7.4	9.0	3.7	278
Prior Lake	5.9	5.0	2.6	156
McKenzie Lake	2.9	5.0	2.2	65
Thetis lake	35.5	9.0	2.8	987
Maltby lake	7.1	8.0	4.1	292
Prospect Lake	72.0	12.3	6.9	5023
Kilarney Lake	22.3	4.6	2.4	543
Durrance Lake (pipe invert - elev. 127.65m)	5.0	12.2	10.1*	332
Durrance Lake (spillway invert - elev. 132.27m)	10.0	16.6	9.5*	627
Quarry lake	1.1	25.9	18.2*	131
Elk/Beaver Lake (dam invert - elev. 59.03m)	219.0	10.7*	10.7*	15445
Elk/Beaver Lake (crest of dam - elev. 60.54m)	246.8	11.7*	11.7*	18934
Blenkinsop Lake (dam invert - elev. 24.89m)	7.9	2.9	2.0*	102
Blenkinsop Lake (crest of dam - elev. 25.77m)	11.3	3.7	2.6*	181
Swan Lake	9.8	6.0	2.4	238

Depths are measured from outlet/invert unless stated otherwise.
* mean depth = volume/surface area

.3.5 Evaporation

The net evaporation for the plan area is estimated in the following table:

Net Evaporation Loss

	Saanich-Victoria 1951-80 Precipitation (mm)	Saanichton CDA 1960-90 Mean Evaporation (mm)	Net Evaporation Loss (mm)
Jan	164.7	33.4	-131.3
Feb	105.5	8.3	-97.2
Mar	73.1	29.5	-43.6
Apr	42.4	57.5	+15.1
May	26.0	86.9	+60.9
Jun	25.5	99.5	+74.0
Jul	17.5	114.0	+96.5
Aug	25.5	92.5	+67.0
Sep	40.4	61.1	+20.7
Oct	87.1	30.5	-56.6
Nov	137.3	13.9	-123.4
Dec	172.5	10.1	-162.4
Total	917.5	637.2	-280.3

* January evaporation of 33.4 mm may be high because it is based on 3 years of records only 1971-73 of which, January 1971 evaporation of 86.2 mm was exceptionally high.

The net evaporation loss during the period between April through September is 334.2 mm (1.1 ft).

4.0 INSTREAM FLOW REQUIREMENTS

Maintaining the natural stream environment and instream uses is of paramount importance for present and future generations. Maintaining water for the fisheries resource is a key factor in maintaining instream flow requirements for water quality, other wildlife, recreational, aesthetic and cultural values. The Ministry of Environment Provincial policy is:

> **In situations where a water allocation decision will significantly impact instream uses of water, the comptroller or regional water manager may refuse the application or include water licence conditions to protect the instream use.**

Instream fisheries flow requirements are based on a provincially modified version of the Tennant (Montana) Method.

Modified Tennant (Montana) Method Instream Flow Requirements	
Flows	**Description**
30-60% MAD	Excellent spawning/rearing
20-30% MAD	Good spawning/rearing
10-20% MAD	Fair spawning/rearing
5-10% MAD	Poor spawning/rearing
>5% MAD	Severely degraded spawning/rearing

In drainages where fish are present, the minimum flow required to sustain the fisheries resource for fair spawning and rearing habitat is 10% of the Mean Annual Discharge (MAD). Therefore, the Regional policies to implement the Provincial policy are:

> **The minimum flow required to sustain the fisheries resources for spawning and rearing is 10% of the Mean Annual Discharge (MAD); unless a more rigorous analysis indicates a different minimum flow requirement.**
>
> **For streams where the natural mean monthly flow falls below 10% of the MAD, extractive licensed demands should only be allowed for the period of months when the mean monthly flow is above 60% of the MAD**
>
> **For streams where the mean 7-day average low flow falls below 10% of the MAD, extractive demands should only be allowed for the period of months when the mean monthly flow is above 60% of the MAD. Where the mean 7-day average low flow remains above 10%, then the 7-day low flow amount**

above 10% MAD is available

Withdrawals from natural water bodies (lakes, ponds, swamps and marshes) supporting natural fisheries resources shall not reduce the shoal area more than 10%.

The shoal area is the area from the lake shore at average summer level to a 6 metre depth.

The flows in all of the streams in the Saanich-Victoria Water Allocation Plan area are naturally limiting to fish production and maintenance of fish habitat. Fish have been identified in most significant drainage area stream channels and lakes. Species of fish found in the plan area include Coho Salmon, Chum Salmon, searun and resident Cutthroat Trout, Rainbow Trout, Bass, Pumpkinseed, Stickleback, Brown Bullhead and Scalpins. Figure 9 illustrates the identified fish habitat.

Elk/Beaver Lake, Colwood Lake, Glen Lake, Fork Lake, McKenzie Lake, Thetis Lake, Florence Lake, Prospect Lake and Durrance Lake are all stocked with fish to support the sport fishery. Elk/Beaver Lake supports the heaviest lake sport fishery on southern Vancouver Island.

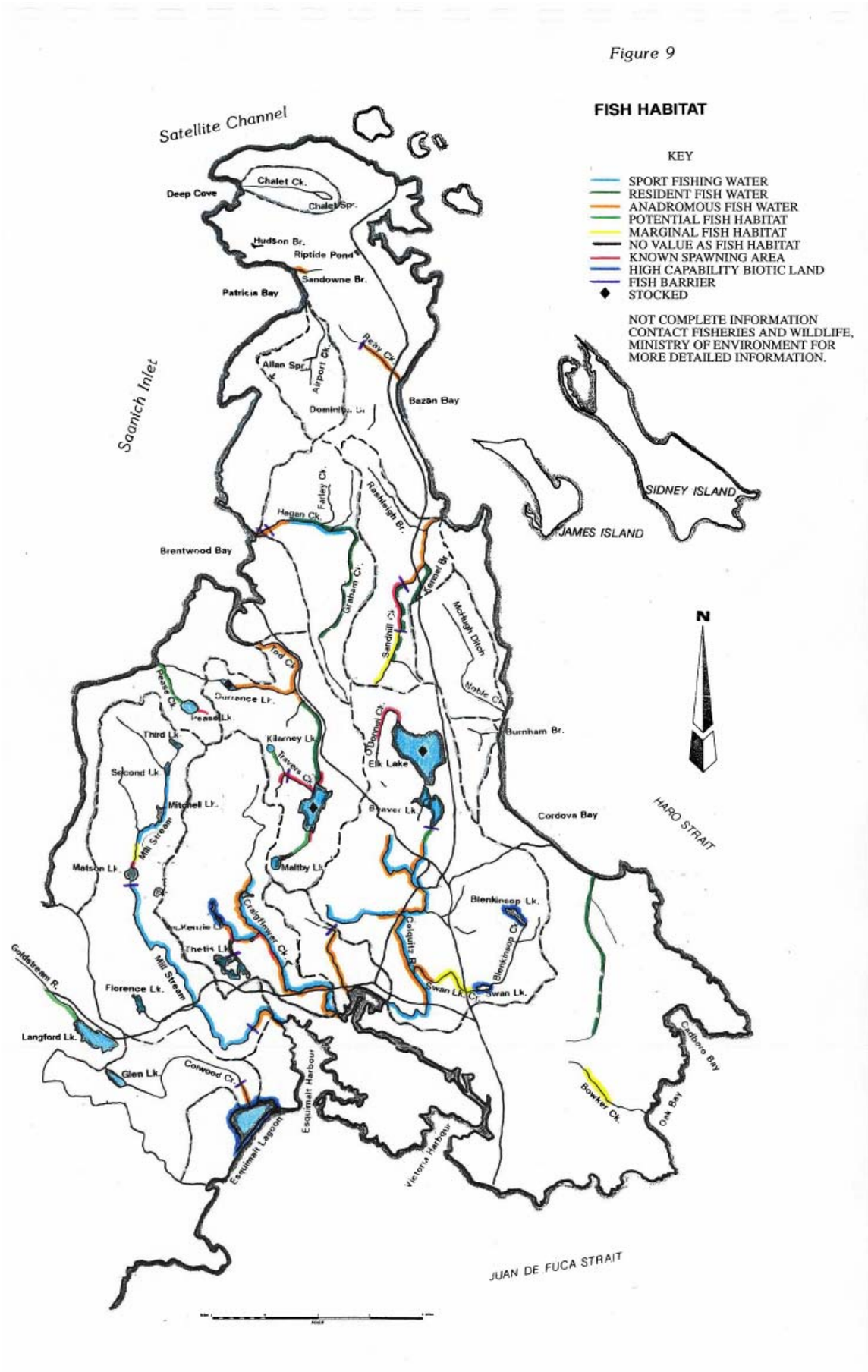
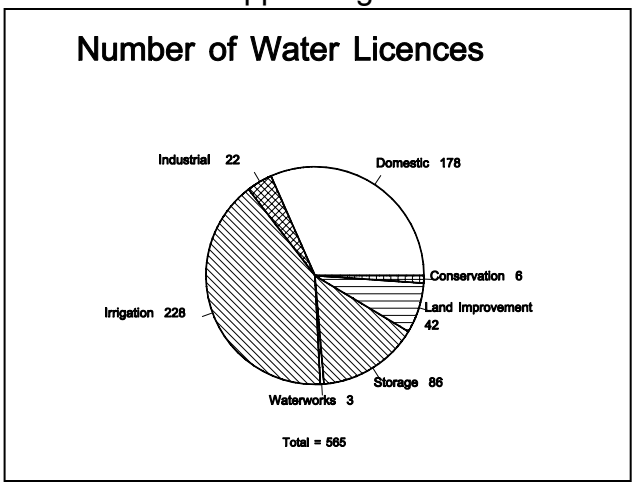


Figure 9: Fish Habitat

5.0 LICENCED WATER DEMAND

There are 565 water licenses currently (April 1994) within the Saanich-Victoria Water Allocation Plan area. The largest number of water licences support irrigation demands (228 water licences) and rural residential domestic demands (178 water licenses) which reflect the rural agricultural nature of the Saanich Peninsula. Figure 10 illustrates the number of existing water licences issued for each purpose within the plan area. In addition to irrigation and domestic purpose there are 86 water licenses for storage purpose, 42 water licences for land improvement purpose, 22 water licenses for various industrial purposes, 6 water licenses for conservation purpose and 3 water licences for municipal waterworks purpose.



.Figure 10: Number of Water Licences

The total licensed average annual demand within the Saanich-Victoria Water Allocation Plan area is 10,429 dam^3 (8,455 acre-feet). Figure 11 illustrates the average annual licenced water demands for each purpose for which water licences have issued within the plan area. A summary of the licensed demand by purpose is provided in Appendix E.

The largest licenced annual water demand in the plan area is for land improvement purpose (5,500 dam^3); followed by irrigation purpose (2,160 dam^3), waterworks purpose (1,106 dam^3), storage purpose (925 dam^3), industrial purpose (567 dam^3), domestic purpose (104 dam^3) and finally conservation purpose (67 dam^3).

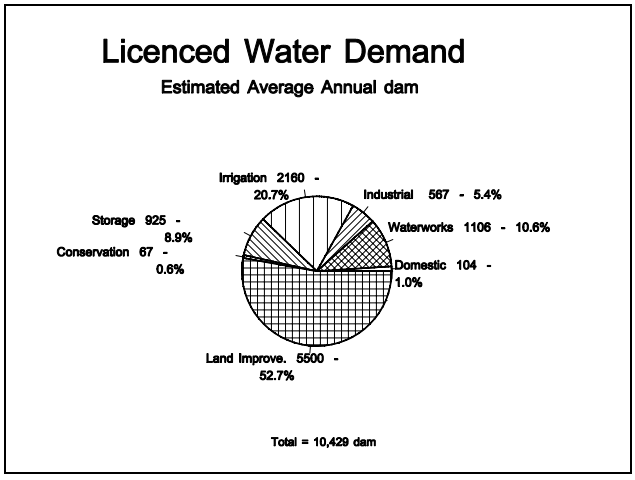


Figure 11: Licensed Water Demand

The following table summarizes these annual water demands.

Average Annual Licensed Demand

Purpose	No. of Lic.	Licensed Quantity	Average Annual Licensed Demand dam^3*
Municipal Waterworks	3	243,250,000 gpy	1,106
Domestic	178	124,800 gpd	104
Industrial			
Water Bottling	2	9,500 gpd	16
Cold Storage Cooling	1	19,000 gpd	32
Stock Watering	1	2,500 gpd	4
Tree Spraying	4	179 acft	221
Fish Culture Ponds	7	8.4 acft	10
Golf Course Watering	6	95.8 acft	118
Gravel Washing	1	100,000 gpd	166
Subtotal	22		567
Irrigation	228	1,751.215 acft	2,160
Storage	86	749.92 acft	925
Land Improvement			
Impoundments	20	4,452.94 acft	5,493
Diversions	11	4,420 gpd	7
Works	11	0.0 (total flow)	0
Subtotal	42		5,500
Conservation			
Impoundments	4	51 acft	63
Works	2	3 acft	4
Subtotal	6		67
Total	565		10,429

* Based on the following assumptions:

Municipal waterworks demand and domestic demand is the authorizes maximum daily licenced divided by 2 to estimate the average daily demand and multiplied by 365 days for an annual demand; except where a municipal waterworks annual allowable is specified in the water licence;

Industrial and land improvement licenced gpd demand is a uniform demand over the year and multiplied by 365 days to obtain an annual demand. licenced volume is the total annual demand;

Industrial, irrigation, storage, land improvement and conservation licenced acft demand is the annual licenced demand volume converted to dam^3.

Licensed surface water sources located in the Saanich-Victoria plan area include about 128 springs, 68 brooks and creeks, 16 lakes and a number of ponds, swamps and ditches.

5.1 Low Flow Licensed Water Demand

The low flow period licensed water demand may be critical between competing water uses and instream flow requirements to maintain the fish resource. The estimated low flow licensed demand for each identified drainage area and for other drainages in the Saanich-Victoria Water Allocation Plan area is summarized in the following table.

Low Flow Licensed Demand by Drainage

Drainage	Low Flow Water Demand*	
	litres/sec	Dam^3
Colwood Creek	-0.9	-7.1
Millstream Creek	1.0	7.6
Craigflower Creek	0.2	2.6
Tod Creek	16.3	130.3
Colquitz River	108.7	846.0
Burnham Brook	2.9	22.9
Noble Creek	33.2	258.4
Sandhill Creek	39.8	309.0
Hagen Creek	72.4	561.3
Airport Creek	9.6	73.8
Chalet Creek	0.5	4.3
Other	35.3	275.2
Total	319.0	2,484.3

* Based on an estimated 90 day period demand assuming that; irrigation and industrial demands are totally withdrawn over the 90 day period; domestic and municipal waterworks demand is the authorizes licenced maximum daily for 90 days; authorized storage balances demand and therefore is a negative demand over 90 days; land improvement and conservation are non-consumptive and therefore have no demand.

The above low flow demands represent the water demands not supported by

storage. The total low flow licensed consumptive water demand is 3,409.2 dam^3; of which 924.9 dam^3 can be supplied from and supported by storage. Therefore storage only supports 27% of the total low flow licenced demand.

5.2 Municipal Waterworks Water Demand

Water supply for all municipal waterworks within the plan area is obtained from outside the plan area. Bulk municipal water supply to the plan area is from the Greater Victoria Waterworks District's (GVWD) supplies from the Sooke River and Goldstream River watersheds. However there are three municipal waterworks water licenses still within the plan area and municipal waterworks purposes water licence demands are the third largest annual licenced water demand in the plan area. The three water licenses are:

FL21629 on Elk Lake for 1,537,000 gpd (maximum day) and 152 Mgpyr
CL23144 on Brentwood Spring for 300,000 gpd (maximum day)
CL27027 on Quarry Lake for 200,000 gpd (maximum day)

The Capital Regional District (CRD) holds all three water licences and is possibly retaining them for an emergency backup supply should the GVWD pipeline fail due to a natural catastrophe. However emergency water supply is provided for in Section 7 (short term nonrecurrent use) and Section 42 (extinguishing a fire) of the Water Act. These three water licences are no longer required for municipal waterworks water supply.

The CRD was also encouraged to consider amending and developing these water licenses as a separate irrigation supply for the Saanich Peninsula; especially FL21629 on Elk Lake. Although reports were completed that assessed the feasibility of the proposed irrigation supply nothing ever was developed. Both FL21629 on Elk Lake and CL23144 on Brentwood Spring should be cancelled for none use.

Butchard Gardens has been encouraged to use water from Quarry Lake in exchange for relinquishing their water licences on Prospect Lake and Tod Creek. Instream fish flows in Tod Creek could be enhanced if Butchard Gardens removed water from Quarry Lake rather than Tod Creek. The Amendment of CL27027 is awaiting transfer of the water licence to Butchard Gardens Limited by CRD and agreement to the transfer by the Municipal District of Central Saanich. Failing the transfer the water licence CL27027 should also be cancelled for none use.

5.3 Domestic Water Demand

Despite the large number of domestic water licences, the licenced domestic water demand represents only 1.0% of the total average annual demand. Except for local competition for water on small streams and springs, domestic demand is not significant.

5.4 Industrial Water Demand

The water demand under this category would be better described as commercial (water bottling, cold storage cooling and gravel washing) or agricultural (stock watering, tree spraying for frost protection, fish culture ponds and golf course watering) demands. However under the Water Act Regulations these uses are categorized as sub-categories of industrial water demand. Most industrial demands have some natural or dugout storage development to provide support. The older cold storage purpose and gravel washing purpose water licenses should be investigated to determine if there is still water use.

5.5 Irrigation Water Demand

Irrigation water demand is the second largest annual water demand and the largest consumptive water demand within the plan area. Irrigation water demand will have the most significant impact on low flows. Irrigation water demand occurs during the low flow period and when the instream water requirement to support fish is the highest.

Individual licenses for irrigation water demand vary from 0.16 dam^3 (0.13 acft) to 111 dam^3 (90 acft). Most individual water licence demand for irrigation are small with 98% less than 60 dam^3 (50 acft), 93% less than 25 dam^3 (20 acft) and 76% less than 12 dam^3 (10 acft). It is the large number of these irrigation water demands that cumulatively impact on instream water requirements to support fish. Many of the irrigation water demands are not supported by storage.

5.6 Storage Water Demand

Storage only supports 27% of the total low flow licenced demand. The largest licenced storage developments mainly support industrial demands such as tree spraying for frost protection, golf course watering and gravel washing.

There is considerable water available in excess of instream flow requirements (greater than 60% MAD) for storage development during the period from November through April in most drainages.

5.7 Land Improvement Water Demand

The largest annual water demand in this plan area is for land improvement purpose. Land improvement water licences are, in general, non-consumptive uses of the water resource. No significant water quantity is removed from the stream. Water is usually maintained in a dammed lake or reservoir for recreation (ie boating, fishing, swimming, golf course water traps) and aesthetics. The dammed lake or reservoir is usually filled during the high flow period and the water levels maintained or gradually lowered during the low flow period. Thus land improvement demands have little impact on low flows; except in the three cases as noted below.

The three largest land improvement water licences represent 96% of the total land improvement licensed annual demand. These three largest water licences are:

CL65796 on Elk/Beaver Lakes for	2,800 acft =	3,453.8 dam^3
FL21628 on Thetis Lake for	1,285 acft =	1,585.0 dam^3
CL60785 on Durrance Lake for	209 acft =	257.8 dam^3
	4,294 acft =	5,296.6 dam^3

These three water licenses authorize regional and municipal governments to maintain and operate dams or flow control weirs and maintain water levels on three lakes. These three lakes are the centre of regional parks and are used for recreation pursuits such as boating, fishing and swimming. However all three lakes are also regulated to maintain some outflow for instream fish values in Colquitz River, Craigflower Creek and Tod Creek. Therefore all three streams have some level of improved low flows. For example the Capital Regional District and the Municipality of Saanich endeavour to maintain the outflow from Elk/Beaver Lakes above a minimum flow of 0.06 m^3/sec (2.0 cfs). The flow records indicates that this low flow maintenance endeavour may be improving the estimated low flows in July by over 200%, in August by over 150% and in September by over 170%. The regulated lake outflow of the land improvement water licenses on Thetis Lake and Durrance Lake would probably not increase the low flows as much in Craigflower Creek and Tod Creek respectively.

5.8 Conservation Water Demand

Conservation water demand is the smallest licenced water demand in this plan area. There are only 6 water licences for conservation purpose; 4 authorizing small impoundments and 2 authorizing the construction of works in a stream to enhance fish habitat. The conservation demands have little impact on low flows or licensed demands.

5.9 Projected Demand

There are 13 water licence application demands pending as of March 31, 1995. The following table summarizes the pending water licence applications. More details on these water licence applications may be found in Appendix F.

Average Annual Water Licence Application Demand

Purpose	No. of Lic.	Licensed Quantity	Average Annual Licensed Demand
			dam^3*
Domestic	4	2,500 gpd	2
Industrial (Golf Course Watering)	1	40 acft	49
Irrigation	2	48.5 acft	60
Storage	2	48.5 acft	60
Land Improvement (Ponds)	4	4.0 acft	5
Total	13		176

* Based on the following assumptions:
Domestic demand is the authorizes maximum daily licenced divided by 2 to estimate the average daily demand and multiplied by 365 days for an annual demand;
Industrial irrigation, storage and land improvement licenced volume is the total annual demand converted to dam^3.

The industrial (Golf Course Watering) water licence application for water from Prospect Lake may include some provision for a quantity of supporting storage which is yet to be determined. The two water licence applications for irrigation purpose are proposed to be supported by storage. Three of the four water licence applications for land improvement purpose are for the construction and maintenance of small aesthetic ponds of an unspecified size on small brooks.

The fourth water licence application for land improvement purpose was submitted by the applicant to protect 1/20 of the riparian area of a small lake (Mystic Lake) adjoining her property. As there is no works and valid use of water this latter water licence application will probably have to be refused. Also it is not in the public interest to have one individual with a none beneficial use interest controlling Mystic Lake. Therefore it is prefered that the Municipality of Saanich apply for a water licence to maintain the water level for all adjoining property owners. A nominal size of 1.0 acft for each water licence application for land improvement was assumed for the above table.

Future water demands within the plan area will primarily relate to small domestic demand outside of municipal water supply areas, irrigation demand on agricultural land on the Saanich Peninsula, land improvement demand for small aesthetic ponds on semi-rural lots and industrial demands for water golf courses and other small commercial enterprises.

6.0 CONCLUSIONS AND RECOMMENDATIONS

The following table provides a summary of the mean annual discharge (MAD) and licence water demand and water available for various periods.

Water Available

Drainage	MAD (l/sec)	Licence Water Demand			Water Available	
		Low Flow[1.] (dam^3)	Annual[2.] (dam^3)	Storage[3.] (dam^3)	May-Oct[4.] (dam^3)	Nov-Apr[5.] (dam^3)
Colwood Creek	120	-7.1	103.9	111.0	0	2,470
Millstream Creek	377	7.6	14.9	56.7	0	7,920
Craigflower Creek	307	2.6	6.5	1,638.8	0	7,070
Tod Creek	296	130.6	410.0	494.7	0	6,640
Colquitz River	593	846.0	1,611.1	3,572.0	0	12,250
Burnham Brook	33	22.9	56.2	75.2	0	670
Noble Creek	114	258.4	271.1	8.9	0	2,350
Sandhill Creek	173	309.0	483.3	148.0	0	3,570
Hagen Creek	194	561.3	936.4	234.6	0	4,000
Airport Creek	75	73.8	121.6	46.9	0	1,560
Chalet Creek	39	4.3	8.2	3.7	0	800
Other	13[6.]	275.2	349.8	63.5	0	269

1. Net 90 day licenced water demand, subtracting supporting storage, during April through September period.
2. Annual demand excluding supporting storage, land improvement and conservation volumes.
3. Licensed water supporting storage, land improvement and conservation demand volumes during the November through April period.
4. A natural mean monthly flow is below 10% MAD during this period in all significant drainages. Therefore water is only available for the period when the mean monthly flow is above 60% MAD.
5. Estimated natural average volume of water above 60% MAD.
6. Mean annual discharge (MAD) per square kilometre.

To estimate the net water available in excess of 60% MAD for the November through April period, the licensed water supporting storage, land improvement and conservation volume and part of the annual demand should be subtracted from the water available during the November through April period. The net water available in excess of

60% MAD is considerably larger than the existing and projected licensed demand. Therefore ample water is available during the November through April period to supply all water demands. However off-stream storage is required to support water demands during the low flow months of May through October if instream fish flow requirements are to be maintained.

There is fish and fish habitat in all identified drainages within the plan area. Existing low flows are naturally limiting to fish migration, rearing and habitat maintenance. Low flow licensed water demands would further reduce the low flow and adversely affect the fisheries resource unless supporting storage is developed. Existing storage in most of the identified drainages is not adequate to support existing and licensed water demands. All existing and proposed significant licensed demands should be supported with off stream storage if water withdrawals are not to adversely affect flows required to maintain the fisheries resource.

Significant water withdrawals from lakes can reduce the low flows required to maintain the fisheries resource or extend the period of time of zero flow and thus hinder fish migration. When water withdrawals from a lake affect the flow required to maintain the fisheries resource, storage will be required to maintain the flow in the outflow stream.

On streams that support fish migration, water diversion works and storage dams need to be constructed so as to ensure fish passage for both juvenile and adult fish. To prevent fish and debris entering intakes, adequately designed and constructed fish screens are required on both lakes and streams that support fish.

6.1 Waterworks

The population of the plan area has increased from 243,428 people to 313,714 people from 1978 to 1993; an increase of 31%. Most impacted by this growth in population were the municipalities of North Saanich, Sydney and Central Saanich; their individual percentage increases were 108.6%, 55.5% and 72.6%, respectively. Population growth for the plan area is forecasted to continue a similar trend over the next 25 years. However, as municipal waterworks demands within the plan area will continue to be supplied by the Greater Victoria Water District from the Sooke River and Goldstream River watersheds outside of the plan area, the population growth will have little impact on water demand.

All further subdivision development within the plan area will be required to connect to the Greater Victoria Water District supply or obtain deep ground water supplies that do not affect surface water flows. No significant surface water supply is available in the plan area for municipal waterworks use.

6.2 Domestic

A domestic water licence shall be 2273 litres per day (500 gallons per day) for each rural dwelling as indicated on the plan attached to the water license application. This amount will allow for the maintaining of 0.10 hectares (0.25 acres) of garden associated with the dwelling. Domestic water licences shall not be issued solely to maintain green lawns and gardens where groundwater and other sources of water supply provide the primary domestic household needs.

Domestic water licences shall not be issued to provide evidence to subdivision approval authorities of an "adequate potable water supply" for subdivision development. Subdivisions of large areas of land into urban or suburban size lots shall be encouraged to develop a community water system and connect to the Greater Victoria Water District municipal waterworks system.

To ensure an adequate domestic water supply for household uses, from a surface water source, applicants shall be required to develop storage or use the natural storage provided in lakes, ponds or marshes. Individual domestic demands are not significant and will not significantly affect the water volume in or the flow from most lakes, ponds and large marshes. For domestic water demands from brooks, creeks and rivers, the storage required is the average daily demand of 1135 litres per day (250 gpd) for the five month period of June through October (184 days) when the natural flow is below 20% MAD. This requires a reservoir or dugout which is approximately 210 m^3 (7,400 ft^3 or 0.17 acre feet). A dugout that is 10 metres long by 7 metres wide with an average depth of 3.3 metres (30 feet wide by 25 feet long by 11 feet deep) will provide an adequate storage support for domestic demand and allowing 0.3 metre (1 foot) for evaporation losses.

For domestic water demands within the plan area, but in minor drainages where there are no instream fish flow requirements, the storage required is the average daily demand of 1135 litres per day (250 gpd) for a three month period of no flow from July through September (92 days); which is 105 m^3 (3,700 ft^3 or 0.08 acre feet). This requires a reservoir or dugout approximately 7 metres long by 5 metres wide with an average depth of 3.3 metres (25 feet long by 15 feet wide by 11 feet deep); allowing 0.3 metre (1 foot) for evaporation loss. The above storage requirement (domestic demands in minor drainages with no instream fish flow requirement) may be relaxed if the applicant provides adequate flow measurements for a period of one complete year or more and these flow measurements indicate that less storage is required to support the water demand.

A water licence for domestic use shall not be issued to a residence within a community water supply area unless written leave to do so is obtained from the community water supply agency.

Domestic purpose water licences shall be appurtenant to the dwelling(s) located approximately on the plan attached to the water license.

6.3 Industrial

The industrial water licenses and water applications in the plan area are demands associated water bottling, cold storage cooling and gravel washing or stock watering, tree spraying for frost protection, fish culture ponds and golf course watering demands.

The water quantity that will be authorized for water bottling will depend on the quantity of water that will be stored to support the demand. Similar to domestic demands, applicants shall be required to develop storage or use the natural storage provided in lakes, ponds or marshes. Individual water bottling demands are not significant and will not significantly affect the water volume in or the flow from most lakes, ponds and large marshes. For water bottling demands from brooks, creeks and rivers, the storage required is the average daily demand of the bottling plant for the five month period of June through October (184 days) when the natural flow is below 20% MAD. A water bottling plant that bottles 250 gallons per day would require a reservoir or dugout which is approximately 210 m^3 (7,400 ft^3 or 0.17 acre feet). A dugout that is 10 metres long by 7 metres wide with an average depth of 3.3 metres (30 feet wide by 25 feet long by 11 feet deep) will provide an adequate storage support and allowing 0.3 metre (1 foot) for evaporation losses.

For water bottling demands in minor drainages where there are no instream fish flow requirements, the storage required is the average daily demand of the bottling plant for a three month period of no flow from July through September (92 days). The above storage requirement (domestic demands in minor drainages with no instream fish flow requirement) may be relaxed if the applicant provides adequate flow measurements for a period of one complete year or more and these flow measurements indicate that less storage is required to support the water demand.

Water is no longer used for cold storage cooling and the existing water licence for this purpose should be reviewed to see if cancellation for none use is appropriate.

The maximum water quantity that will be authorized for sand and gravel washing is 880 litres per metric ton (190 gallons/ton) for initial filling of the washing ponds and 130 litres per metric ton per 8 hour day (30 gallons/ton/8-hr day) to make-up the water lost from the washing ponds during washing operations. A recycling water use system and adequate storage as noted above in water bottling will be required to support the demand during the low flow period.

Cattle or livestock requiring 450 L/day or more will be considered an Industrial

(Agricultural) demand. Cattle or livestock requiring 450 L/day or less will be considered a Domestic (livestock) demand. Tree spraying for frost protection, crop suppression (potatoes) and flood harvesting (cranberries) are also industrial demands associated with agriculture. Storage is required to support all these demands. Estimated agricultural demands are:

Agricultural Water Demands

Types of Livestock	**Gallons/day**	**Litres/day**
Livestock Drinking: (per animal)		
Cattle	10	46
Dairy cattle (and servicing)	29	132
Goat	1	5
Hog	3	14
Horse	10	46
Mule	10	46
Sheep	1	5
Steer	10	46
Poultry:		
Chicken (per 100)	6	27
Turkeys (per 100)	12	55
Type of Agricultural Activity	**acre-feet/acre**	**dam^3 per hectare**
Flood harvesting (cranberries)	1	2
Crop suppression (potatoes)	0.1 (from Jan. to Mar.)	0.2 (from Jan. to Mar.)
Frost protection and tree cooling	1	2

Commercial fish hatcheries and fish rearing facilities shall require an industrial water licence. Use of water by government and non-profit organizations in fish hatcheries and fish rearing facilities shall be licensed as conservation purpose. Information on fish species and size, water temperature requirements and operating methods will be required in support of an application for a water licence. Fish Farm and Waste Management Permits will also be required.

Golf course watering and greenhouses are essentially an irrigation water demand except that the watering is not restricted to the irrigation period of April to September. The

quantity of water required should be determined as follows in the irrigation section below. Except for the period of water withdrawal; which shall be whole year; the same requirements and conditions as irrigation demands shall apply. Storage is required to support these demands.

6.4 Irrigation

The soil type, crop rooting depth and climatic characteristics determine the water requirements for irrigation. The soils on Saanich Peninsula, for the purpose of potential irrigation demands, can be classified into four soil groups. The soil groups located in the Saanich-Victoria Water Allocation Plan area are illustrated in Figure 12 and a summary of the irrigation demand for these four soil groups is provided in the following table:

Annual Irrigation Water Requirements

Crops	Beans, Beets, Blueberries, Broccoli, Cabbages, Carrots, Cauliflowers, Celery, Clover (ladino), Cranberries, Cucumbers, Lettuce, Onions, Pasture species, Peas, Potatoes, Radishes, Spinach, Strawberries, Tomatoes, Turnips	Brussels Sprouts, Cereals, Clover (red), Corn (sweet), Eggplant, Kiwifruit, Peppers, Squash	Alfalfa, Asparagus, Blackberries, Corn (field), Grapes, Loganberries, Raspberries, Sugar Beets, Tree Fruits
Effective Rooting Depth	Shallow to Medium Shallow 0.5 m to 0.6 m (1.5 to 2.0 ft)	Medium Deep 0.9 m (3.0 ft)	Deep 1.2 m (4.0 ft)
Soil Texture	mm (in)	mm (in)	mm (in)
Organic - Humic (black)	380 (15)	300 (12)	150 (6)
Clay Loam & Silty Clay Loam (dark green)	460 (18)	300 (12)	230 (9)
Gravelly Sandy Loam (light green)	610 (24)	380 (15)	380 (15)
Gravelly Loamy Sand and Very Gravelly Loamy Sand (blue)	610 (24)	460 (18)	380 (15)

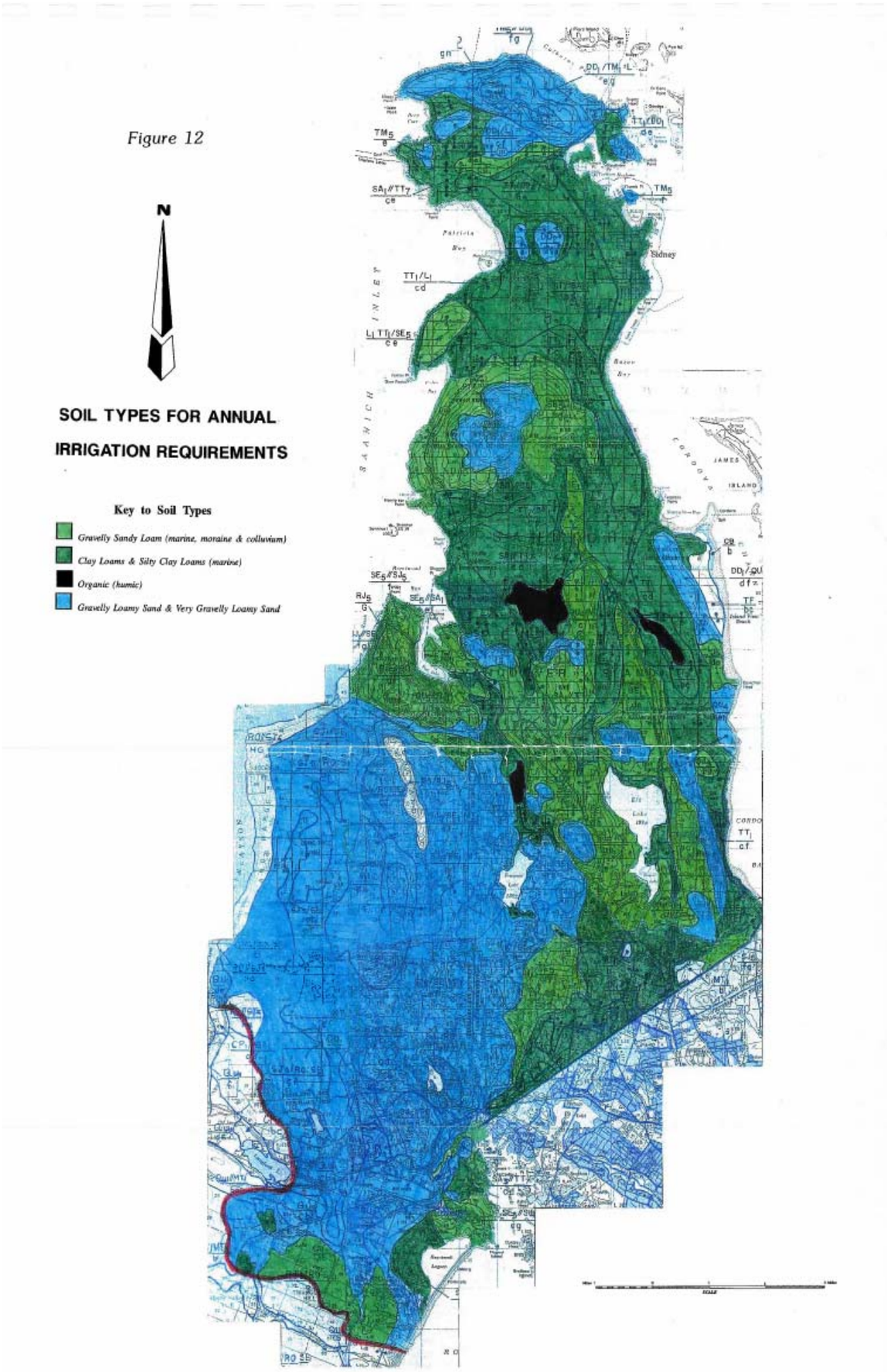


Figure 12: Soil Types for Annual Irrigation Requirement

Many of the soil association descriptions on the map were composites of two or three soil associations. Composite map symbols were used on the soils map where two or three soil associations are intermixed or occupy such small areas that they cannot be separated at the scale of the mapping. Only the predominant soil association was considered and colour mapped for irrigation requirements. Where more specific soil assessments are available for a given area, that soil assessment may be used to assess irrigation demands.

Areas identified as predominantly rock outcrop, coastal beach or tidal flats were assumed to have no potential irrigation demand. It should be noted that these annual irrigation water requirements are for sprinkler irrigation systems only.

If an irrigation gun or flood irrigation is used then greater irrigation quantities may be required; these irrigation practices should be discouraged. All irrigation gun and flood irrigation practices should be required to install suitable meters and limit their water withdrawals to sprinkler annual irrigation requirements for the equivalent area of land. As the equivalent sprinkler annual irrigation water requirement may not be adequate to sustain crops using these less efficient methods of irrigation, the farmer may then have to reduce crops, reduce acreage irrigated or convert to a more efficient sprinkler irrigation system.

An efficient alternative irrigation method is trickle irrigation. Trickle irrigation can reduce water requirements by 35% and should be encouraged. Reduced water licence fees may be the primary incentive to encourage this more efficient use of water.

Irrigation gun and flood irrigation practices should be required to install suitable meters and limit their water withdrawals to sprinkler annual irrigation water requirements for the equivalent area of land.

The maximum rate of withdrawal from any river, creek, brook, swamp, marsh or spring shall be 37.0 litres per minute per hectare (3.3 gallons per minute per acre) of land to be irrigated. This maximum water withdrawal rate shall be included in all further water licences for irrigation purpose.

All further water licences for irrigation purpose must be supported by storage. If storage is developed on existing lakes, ponds or marshes, fish passage around the storage structure must be provided and mean monthly low flows must be maintained for fish instream requirements. The storage volume required is directly proportional to the irrigation demand, plus an additional 0.3 m of water allowance over the surface area of the body of water for evaporation and other losses from the storage reservoir.

6.5 Storage

Storage purpose is the impoundment of water, either on-stream or off-stream in a dugout or behind a dam to support another water use. In the unlikely event that a large storage development to support an major water use (ie. BC Hydro power, pulp & paper, large waterworks) is proposed a more specific supply versus demand and environmental impact assessment will be required.

The storage quantity required to support the smaller water demands anticipated to support domestic, industrial, commercial and irrigation uses shall be the volume of the water demand plus an additional allowance of 0.3 metres (1.0 foot) depth over the surface area of the storage reservoir for evaporation and other losses.

The applicant will be required to complete an adequate report for "Dam and Reservoir Information Required in Support of a Water Licence Application for Storage Purpose (Schedule 2)" with the water licence application. If the required report is not provided the application will be refused.

Total storage (dead and live) will be licensed. Dead storage should be licensed as it will in most cases have some intrinsic value such as providing conservation of water for wildlife or aesthetic value.

Diversion of water into off-stream storage will be during the period from November through April. All in-stream storage water licensees will be required to release at the outflow the estimated mean monthly inflow to the reservoir during the period from May through October.

The applicant must obtain written agreement, right-of-way or easement for works or flooding of other lands.

Fish passage is required for both juvenile and adult fish, at all dams in fish bearing streams. Design of storage dams must consider fish ladders and provide adequate flow release to maintain fish passage where required. Loss of spawning areas and modification of fish habitat due to storage development may require mitigation work in the stream affected.

Design plans must be submitted and accepted in writing before construction commences on any proposed dam over 3 m (10 ft) in height or on storage of 12 dam^3 (10.0 acft) or more in volume.

6.6 Land Improvement

Land improvement purpose is the impoundment of water on a stream or the diversion of water from a stream to facilitate the development of a park, to construct and maintain an aesthetic pond, to protect property from erosion or to drain and reclaim land. No significant water quantity is removed from the stream. Land improvement water demands are non-consumptive uses of the water resource.

Water used to facilitate the development of a park is usually maintained in a dammed lake or reservoir for recreation (ie boating, fishing, swimming, golf course water traps) and aesthetics. The dammed lake or reservoir is usually filled during the high flow period and the water levels maintained or gradually lowered during the low flow period. Golf courses also acquire water licences to construct and maintain dugouts or control the volume of water in small ponds for water traps and aesthetics. Property owners likewise may acquire a water licence to construct and maintain dugouts or control the volume of small ponds for aesthetics and to increase property values. These water demands are essentially storage developments that do not support an extractive use. Therefore, all the requirements noted for storage development shall be required for land improvement development where applicable. No supporting storage is required. The water quantity required to facilitate the development of a park or create an aesthetic pond shall be the volume of the impoundment.

Constructing ditches to drain swamps or marshes, confining or straightening the meandering of stream channels and relocating a stream channel adjacent to a property line is sometimes proposed to accommodate subdivision or building development. Streams should not be relocated to accommodate development. Post-development flow conditions should be maintained as near as possible to pre-development flow conditions. The development of land improvement detention dugouts or the control of water in natural ponds, swamps and marshes to reduce flood flow and increase low flow releases will be encouraged. Proposed construction of works on streams that drain swamps or marshes or increase high flow conditions and reduce low flow conditions will not be authorized.

6.7 Conservation

Conservation purpose is the use and storage of water or the construction of works in and about a stream for the enhancement of fish or wildlife for non-profit purposes.

Salmon enhancement proposals that would increase fish stocks in the stream channels will require the development of supporting storage to maintain required low flow. All the requirements noted for storage development shall be required for conservation development where applicable.

6.8 Allocation Plan Revision

The Saanich-Victoria Water Allocation Plan should be reviewed and updated on or before December 2000 (5 years).

APPENDIX A

Canadian Climatic Normals

1951-1980

Temperature and Precipitation

APPENDIX B

Water Survey Canada Hydrometric Stations

Mean Monthly and Mean Annual Discharge

APPENDIX C

Miscellaneous Stream Flow and Water Level Records

APPENDIX D

Fish Resources and Streams

APPENDIX E

Water Licenses

The following abbreviations are used in this section.

PURPOSE

WWK -Waterworks
IRR -Irrigation
STONP -Storage Non-Power
PROCE -Industrial Processing
PONDS -Industrial Ponds
BOTTL -Industrial Bottle Sales
IFROS -Industrial Frost Protection
DOM -Domestic
LDIMP -Land Improvement
CONST -Conservation Stored Water
COOLG -Industrial Cooling
WTRNG -Industrial Watering
ISW -Industrial Stock Watering
CONWK -Conservation Construction

UNITS

GD -Gallons per day (maximum day)
AF -Acre feet
TF -Total Flow (Authorizes works in stream only - no diversion)

LICENCE NUMBER	FILE NUMBER	PURPOSE	SOURCE NAME	QUANTITY/UNIT
F070372	0216214	BOTTL	Trav Spring	500.0 GD
C072627	1001105	BOTTL	Waller Springs	9000.0 GD
			Total	9,500.0 GD
F012651	0155512	COOLG	Valleyview spring	19,000.0 GD
			Total	19,000.0 GD
C060666	0355901	CONST	Gibson Brook	2.0 AF
C101063	1001273	CONST	Outerbridge Swamp	2.0 AF
C042500	0317867	CONST	Ravenshill Pond	7.0 AF
C106041	0310139	CONST	Trevlac Brook	40.0 AF
			Total	51.0 AF
C072279	1001120	CONWK	Craigflower Creek	0.0 TF
C064092	1000682	CONWK	Reay Creek	3.0 AF
			Total	3.0 AF
C036181	0069566	DOM	Amos Spring	500.0 GD
F019939	0244489	DOM	Amos Spring	500.0 GD
F017954	0244490	DOM	Amos Spring	500.0 GD
C036182	0290867	DOM	Amos Spring	500.0 GD
F003352	0011662	DOM	Anderson Spring	500.0 GD
F045510	0264353	DOM	Anderson Spring	500.0 GD
F005425	0265285	DOM	Anderson Spring	1,000.0 GD
C047010	0329229	DOM	Bacon Brook	150.0 GD
F014453	0143410	DOM	Bawden Spring	500.0 GD
C031763	0270391	DOM	Bear Hill Spring	1,000.0 GD
C051257	0341225	DOM	Bears Spring	2,000.0 GD
F011024	0129003	DOM	Bee Creek	1,000.0 GD
C030171	0262029	DOM	Bennett Spring	1,000.0 GD
F060615	0235985	DOM	Bennett Spring #2	500.0 GD
C054617	0355874	DOM	Bleathman Creek	500.0 GD
C047890	0330618	DOM	Bonnell Spring	500.0 GD
F007416	0072029	DOM	Chalet Creek	1,000.0 GD
F017858	0223505	DOM	Charles Spring	1,000.0 GD

LICENCE NUMBER	FILE NUMBER	PURPOSE	SOURCE NAME	QUANTITY/UNIT
C050524	0341959	DOM	Chennault Spring	1,500.0 GD
C107353	0144395	DOM	Chris Spring	500.0 GD
F011503	0144434	DOM	Chris Spring	500.0 GD
F014855	0152565	DOM	Chris Spring	500.0 GD
F048235	0316262	DOM	Chris Spring	500.0 GD
F014431	0153358	DOM	Collins Spring	500.0 GD
F017535	0140083	DOM	Colquitz River	500.0 GD
F004472	0241167	DOM	Colville Spring	1,000.0 GD
C048192	0340041	DOM	Daly Spring	1,000.0 GD
F012816	0078189	DOM	Dean Brook	2,000.0 GD
F016902	0078189	DOM	Dean Brook	2,000.0 GD
F018996	0263070	DOM	Douglas Spring	1,000.0 GD
F052867	0316461	DOM	Douglas Spring	1,000.0 GD
C069466	0341879	DOM	Durrell Creek	50.0 GD
C050894	0342027	DOM	Eagles Lake	500.0 GD
C051286	0342748	DOM	Eagles Lake	500.0 GD
C061285	1000150	DOM	Eagles Lake	500.0 GD
F017195	0083501	DOM	Elgin Spring	250.0 GD
F017195	0083501	DOM	Elgin Spring	250.0 GD
C055525	0366322	DOM	Farley Creek	500.0 GD
F004988	0045735	DOM	Finlayson Spring	500.0 GD
F021008	0263374	DOM	Finlayson Spring	500.0 GD
F050350	0281411	DOM	Finlayson Spring	500.0 GD
F021009	0290195	DOM	Finlayson Spring	500.0 GD
C043285	0322824	DOM	Florence Lake	500.0 GD
C043286	0322825	DOM	Florence Lake	500.0 GD
C043287	0322826	DOM	Florence Lake	500.0 GD
C043388	0322827	DOM	Florence Lake	500.0 GD
C043389	0322829	DOM	Florence Lake	500.0 GD
C043288	0322834	DOM	Florence Lake	500.0 GD
C043289	0322835	DOM	Florence Lake	500.0 GD
C043290	0322836	DOM	Florence Lake	500.0 GD

LICENCE NUMBER	FILE NUMBER	PURPOSE	SOURCE NAME	QUANTITY/UNIT
C043291	0322837	DOM	Florence Lake	500.0 GD
C043292	0322838	DOM	Florence Lake	500.0 GD
C058481	0369977	DOM	Foden Pond #1	500.0 GD
C058484	0369977	DOM	Foden Pond #1	500.0 GD
C046273	0329351	DOM	Fork Lake	500.0 GD
C065705	1000695	DOM	Fork Lake	500.0 GD
C101065	1001195	DOM	Fork Lake	500.0 GD
C101084	1001338	DOM	Fork Lake	500.0 GD
C101159	1001379	DOM	Fork Lake	500.0 GD
C101157	1001380	DOM	Fork Lake	500.0 GD
F005919	0017192	DOM	Glamorgan Spring	5,000.0 GD
F018687	0017576	DOM	Graham Creek	500.0 GD
F008375	0076244	DOM	Hagan Creek	2,000.0 GD
F049887	0264061	DOM	Hall Spring	500.0 GD
F013415	0068395	DOM	Harrison Spring	1,000.0 GD
F013416	0068395	DOM	Harrison Spring	1,000.0 GD
C054411	0355546	DOM	Hartley Pond	600.0 GD
C104535	0330749	DOM	Hatch Spring	500.0 GD
F007898	0072178	DOM	Hatch Springs	300.0 GD
C055997	0366947	DOM	Hazlitt Creek	500.0 GD
F017711	0218965	DOM	Henry Spring	1,000.0 GD
F009411	0105547	DOM	Holland Spring	2,000.0 GD
C055117	0355797	DOM	Hollyridge Pond	100.0 GD
C057498	0367723	DOM	Holt Creek	100.0 GD
F008660	0111361	DOM	Hoops Spring	200.0 GD
F020075	0258127	DOM	Hopkins Spring	500.0 GD
F005919	0017192	DOM	John Spring	2,500.0 GD
F019605	0251606	DOM	Kennel Brook	1,000.0 GD
C049358	0328820	DOM	Kennel Brook	500.0 GD
C058649	0368852	DOM	Kerry Brook	500.0 GD
F016901	0078843	DOM	Knox Brook	500.0 GD
C053416	0364414	DOM	Laitinen Swamp	200.0 GD

LICENCE NUMBER	FILE NUMBER	PURPOSE	SOURCE NAME	QUANTITY/UNIT	
C029379	0254708	DOM	Llewellyn Spring	1,000.0	GD
C061351	1000241	DOM	Llewellyn Spring	600.0	GD
F019162	0242566	DOM	Lohr Spring	1,000.0	GD
C045296	0328397	DOM	Macklin Brook	100.0	GD
F016672	0208230	DOM	Mah Springs	500.0	GD
C050339	0195024	DOM	Maquinna Spring	500.0	GD
F039427	0067722	DOM	Mason Spring	2,500.0	GD
F009331	0088799	DOM	May Spring	1,000.0	GD
F014455	0148086	DOM	May Spring	1,000.0	GD
C020295	0189479	DOM	McHugh Ditch	500.0	GD
C065808	1000965	DOM	McKenzie Lake	500.0	GD
F016901	0078843	DOM	McMillan Brook	250.0	GD
C105595	0364822	DOM	Meadlands Spring	2,500.0	GD
C017097	0158938	DOM	Mill Stream	1,000.0	GD
F016740	0167949	DOM	Mill Stream	1,000.0	GD
F015779	0187523	DOM	Mill Stream	1,000.0	GD
C024311	0219603	DOM	Mill Stream	1,000.0	GD
C029247	0256933	DOM	Mill Stream	1,000.0	GD
C025721	0229211	DOM	Mitchell Lake	2,000.0	GD
F020429	0180562	DOM	Montfort Springs	1,500.0	GD
F016515	0194996	DOM	Montrose Spring	500.0	GD
F011434	0118608	DOM	Moses Spring	250.0	GD
F015455	0155073	DOM	Moses Spring	250.0	GD
F004284	0265279	DOM	Moses Spring	1,000.0	GD
C040178	0309828	DOM	Munn Creek	500.0	GD
C059093	0367756	DOM	Munn Creek	100.0	GD
C034491	0281918	DOM	Mutter Brook	500.0	GD
F020029	0217718	DOM	Nixon Spring	250.0	GD
F019168	0245723	DOM	Noble Creek	1,000.0	GD
F020029	0217718	DOM	Oud Spring	250.0	GD
F039378	0210527	DOM	Page Spring	500.0	GD
C024159	0218981	DOM	Page Spring	1,000.0	GD

LICENCE NUMBER	FILE NUMBER	PURPOSE	SOURCE NAME	QUANTITY/UNIT
C031127	0267168	DOM	Partridge Spring	500.0 GD
F020334	0227187	DOM	Paterson Spring	500.0 GD
F044530	0263704	DOM	Pease Lake	500.0 GD
C049218	0340815	DOM	Pease Lake	500.0 GD
F017786	0116274	DOM	Penwell Springs	1,000.0 GD
F017784	0237131	DOM	Penwell Springs	1,000.0 GD
C036478	0296712	DOM	Penwell Springs	500.0 GD
F003484	0019756	DOM	Porters Creek	500.0 GD
F003407	0021066	DOM	Porters Creek	500.0 GD
F013458	0161296	DOM	Porters Creek	1,000.0 GD
F004948	0053873	DOM	Prospect Lake	500.0 GD
F006109	0060118	DOM	Prospect Lake	500.0 GD
F015393	0201648	DOM	Prospect Lake	500.0 GD
F017610	0218118	DOM	Prospect Lake	500.0 GD
F017164	0222031	DOM	Prospect Lake	500.0 GD
F018332	0225550	DOM	Prospect Lake	500.0 GD
F017329	0226541	DOM	Prospect Lake	500.0 GD
F044526	0247797	DOM	Prospect Lake	500.0 GD
F047423	0249567	DOM	Prospect Lake	500.0 GD
F049884	0273696	DOM	Prospect Lake	500.0 GD
C032898	0273854	DOM	Prospect Lake	500.0 GD
C032897	0277245	DOM	Prospect Lake	500.0 GD
C053880	0189155	DOM	Rickenson Creek	500.0 GD
C058340	0270985	DOM	Robbins Swamp	500.0 GD
F018692	0237824	DOM	Rodd Spring	1,000.0 GD
C033259	0277386	DOM	Rodd Spring	500.0 GD
C053850	0252988	DOM	Ross Spring	500.0 GD
C054616	0355452	DOM	Ross Spring	500.0 GD
F008408	0241167	DOM	Rosslyn Spring	1,000.0 GD
F021188	0229021	DOM	Salmon Brook	500.0 GD
F021187	0229022	DOM	Salmon Brook	500.0 GD
C026194	0233295	DOM	Saul Spring	1,000.0 GD

LICENCE NUMBER	FILE NUMBER	PURPOSE	SOURCE NAME	QUANTITY/UNIT
F047424	0277454	DOM	Scudamore Spring	500.0 GD
C053010	0365081	DOM	Second Lake	500.0 GD
F005206	0241161	DOM	Selleck Creek	500.0 GD
C063911	1000493	DOM	Shortt Spring	1,000.0 GD
F049271	0346008	DOM	South Neaves Spring	250.0 GD
C046726	0329173	DOM	Sparton Brook	150.0 GD
C054762	0365360	DOM	Sparton Brook	150.0 GD
F008333	0065449	DOM	Stephen Creek	500.0 GD
F015409	0179763	DOM	Sylvia Spring	1,500.0 GD
F020382	0211064	DOM	Tapping Spring	500.0 GD
F053853	207862	DOM	Teanook Lake	500.0 GD
F042108	317525	DOM	Teanook Lake	500.0 GD
C053414	365370	DOM	Teanook Lake	500.0 GD
C055266	367620	DOM	Teanook Lake	500.0 GD
C058583	368673	DOM	Teanook Lake	500.0 GD
C056135	0364582	DOM	Third Lake	2,000.0 GD
F018276	0232178	DOM	Tod Creek	500.0 GD
C026190	0232499	DOM	Tod Creek	500.0 GD
F070372	0216214	DOM	Trav Spring	500.0 GD
C041759	0194249	DOM	Travers Creek	500.0 GD
C041760	0317542	DOM	Travers Creek	500.0 GD
C051105	0341944	DOM	Umpoola Swamp	500.0 GD
F012652	0155512	DOM	Valleyview Spring	500.0 GD
C036779	0290472	DOM	Vellacott Springs	500.0 GD
C041280	0316547	DOM	Vellacott Springs	500.0 GD
C053332	0355424	DOM	Waller Springs	500.0 GD
C023801	0216634	DOM	Waterfront Springs	500.0 GD
C026928	0236650	DOM	Waterfront Springs	1,000.0 GD
C044434	0281101	DOM	Watson Springs	500.0 GD
C044436	0328575	DOM	Watson Springs	500.0 GD
F015421	0158939	DOM	West Brook	1,000.0 GD
F019901	0218294	DOM	Young Spring	500.0 GD

LICENCE NUMBER	FILE NUMBER	PURPOSE	SOURCE NAME	QUANTITY/UNIT	
			Total	124,800.0	GD
C107150	0215717	IFROS	Blenkinsop Lake	23.0	AF
C055336	0364959	IFROS	Farley Creek	90.0	AF
F020404	0254755	IFROS	Kennel Brook	20.0	AF
C065826	1000922	IFROS	Mure Brook	46.0	AF
			Total	179.0	AF
C105595	0364822	ISW	Meadlands Spring	2,500.0	GD
			Total	2,500.0	GD
C021328	0197864	IRR	Airport Creek	20.0	AF
C034309	0281460	IRR	Airport Creek	40.0	AF
C031446	0270039	IRR	Albert Swamp	2.0	AF
C024027	0217566	IRR	Anderson Brook	2.0	AF
F021190	0220991	IRR	Anderson Brook	2.0	AF
C046482	0329163	IRR	Andrassy Brook	1.0	AF
F017915	0224697	IRR	Ardmore Spring No.1	5.0	AF
C032804	0273460	IRR	Arne Ponds	20.0	AF
C047010	0329229	IRR	Bacon Brook	3.0	AF
C034240	0281800	IRR	Bartlett Spring	8.0	AF
C031763	0270391	IRR	Bear Hill Spring	2.0	AF
C049013	0330895	IRR	Beckwith Pond	4.025	AF
F011024	0129003	IRR	Bee Creek	17.0	AF
C047892	0330199	IRR	Benes Creek	0.5	AF
F016513	0188264	IRR	Blenkinsop Lake	10.0	AF
C053369	0188413	IRR	Blenkinsop Lake	6.0	AF
F039428	0193063	IRR	Blenkinsop Lake	8.0	AF
C107149	0194861	IRR	Blenkinsop Lake	25.0	AF
F016611	0194861	IRR	Blenkinsop Lake	25.0	AF
C047549	0214179	IRR	Blenkinsop Lake	4.25	AF
F017198	0214686	IRR	Blenkinsop Lake	17.0	AF
C023701	0215717	IRR	Blenkinsop Lake	23.0	AF
C053533	0233996	IRR	Blenkinsop Lake	4.8	AF
C047347	0251632	IRR	Blenkinsop Lake	5.8	AF

LICENCE NUMBER	FILE NUMBER	PURPOSE	SOURCE NAME	QUANTITY/UNIT
C048554	0340083	IRR	Blenkinsop Lake	4.6 AF
C047348	0340528	IRR	Blenkinsop Lake	4.2 AF
C053370	0346642	IRR	Blenkinsop Lake	4.0 AF
C053534	0346691	IRR	Blenkinsop Lake	10.0 AF
C042924	0317184	IRR	Bolton Swamp	0.5 AF
C055589	0146157	IRR	Burke Spring	0.3 AF
C062788	0277093	IRR	Butchart Creek	5.0 AF
C050343	0330748	IRR	Buys Ballot Swamp	5.0 AF
C035890	0290532	IRR	Central Creek	1.0 AF
C061371	0203390	IRR	Chalet Creek	2.7 AF
F020344	0246888	IRR	Chambers Spring	3.0 AF
C033189	0277084	IRR	Chew Spring	17.5 AF
F016425	0190257	IRR	Christmas Hill Sprg	5.0 AF
F017535	0140083	IRR	Colquitz River	0.5 AF
F015182	0143045	IRR	Colquitz River	0.5 AF
F016655	0192867	IRR	Colquitz River	1.0 AF
F053274	0346647	IRR	Colquitz River	0.13 AF
C106188	0221871	IRR	Colwood Lake	50.0 AF
C045128	0328435	IRR	Cub Spring	1.0 AF
C101144	1001362	IRR	Daisy Brook	30.0 AF
F046311	0254161	IRR	Daly Spring	1.5 AF
C048374	0135570	IRR	David Springs #1	5.0 AF
C048377	0341562	IRR	David Springs #1	10.8 AF
C101055	1001119	IRR	David Springs #2	4.9 AF
F012816	0078189	IRR	Dean Brook	39.0 AF
F016902	0078189	IRR	Dean Brook	8.0 AF
F014673	0191821	IRR	Dominion Brook	5.0 AF
C060783	0305896	IRR	Durrance Lake	15.0 AF
C069466	0341879	IRR	Durrell Creek	3.0 AF
C051476	0341463	IRR	Estate Brook	6.0 AF
C045127	0328434	IRR	Estate Spring	2.0 AF
C067928	0270865	IRR	Fairburn Springs	24.58 AF

LICENCE NUMBER	FILE NUMBER	PURPOSE	SOURCE NAME	QUANTITY/UNIT
C068146	0346360	IRR	Fairburn Springs	5.42 AF
F004988	0045735	IRR	Finlayson Spring	3.0 AF
C046274	0270274	IRR	Gardner Creek	0.33 AF
C035289	0285914	IRR	Glen Lake	1.0 AF
C047721	0330989	IRR	Glen Lake	0.25 AF
C047891	0340011	IRR	Glen Lake	0.25 AF
C054869	0365761	IRR	Glen Lake	0.25 AF
C043730	0190170	IRR	Goward Spring Creek	0.53 AF
C032522	0270921	IRR	Goward Spring Creek	1.0 AF
F014457	0150351	IRR	Graham Creek	3.5 AF
C070916	0157007	IRR	Graham Creek	1.39 AF
C070914	0179530	IRR	Graham Creek	3.09 AF
C020416	0190719	IRR	Graham Creek	90.0 AF
F044527	0197024	IRR	Graham Creek	0.9 AF
F046311	0254161	IRR	Graham Creek	1.5 AF
C035514	0290100	IRR	Graham Creek	5.0 AF
F044346	0290202	IRR	Graham Creek	5.7 AF
C045130	0328176	IRR	Graham Creek	1.0 AF
C046275	0328402	IRR	Graham Creek	0.25 AF
C070917	1000895	IRR	Graham Creek	0.66 AF
C070915	1000896	IRR	Graham Creek	1.46 AF
F020344	0246888	IRR	Green Spring	3.0 AF
F014454	0143410	IRR	Griffin Spring	2.5 AF
F015506	0158137	IRR	Hagan Creek	60.0 AF
F014828	0179528	IRR	Hagan Creek	10.0 AF
F015504	0191043	IRR	Hagan Creek	25.0 AF
F016170	0196567	IRR	Hagan Creek	10.0 AF
C053242	0263071	IRR	Hagan Creek	22.0 AF
C065717	1000714	IRR	Harrop Pond	4.0 AF
C065738	1000749	IRR	Harrop Pond	8.0 AF
C055117	0355797	IRR	Hollyridge Pond	1.0 AF
C057498	0367723	IRR	Holt Creek	10.0 AF

LICENCE NUMBER	FILE NUMBER	PURPOSE	SOURCE NAME	QUANTITY/UNIT
C057496	0367727	IRR	Holt Creek	5.0 AF
C045758	0329920	IRR	Irene Spring	3.1 AF
C044723	0317788	IRR	Island View Springs	4.5 AF
C044724	0317789	IRR	Island View Springs	3.0 AF
C044725	0317790	IRR	Island View Springs	2.5 AF
C068145	0267807	IRR	Jack Swamp	10.0 AF
C064733	0290357	IRR	Joann Brook	0.67 AF
C058755	1000035	IRR	Kathgar Brook	2.0 AF
C050341	0340055	IRR	Kennel Brook	13.5 AF
C058649	0368852	IRR	Kerry Brook	2.0 AF
F018337	0223305	IRR	Kingsberry Pond	1.0 AF
F016901	0078843	IRR	Knox Brook	4.5 AF
C061362	1000354	IRR	Lagoona Brook	0.25 AF
C061363	1000362	IRR	Lagoona Brook	0.25 AF
C047722	0330675	IRR	Laitinen Swamp	0.25 AF
C047723	0330676	IRR	Laitinen Swamp	0.25 AF
C053416	0364414	IRR	Laitinen Swamp	4.0 AF
F047921	0330668	IRR	Lamont Spring	1.0 AF
C036271	0220607	IRR	Lavern Brook	5.75 AF
C036353	0285886	IRR	Lavern Brook	1.25 AF
C036272	0290897	IRR	Lavern Brook	5.25 AF
F020344	0246888	IRR	Lawrence Spring	3.0 AF
F016629	0189977	IRR	Maber Springs	80.0 AF
F015489	0135845	IRR	MacKay Spring	0.65 AF
C058339	0207506	IRR	Mah Brook	4.5 AF
C058335	0370246	IRR	Mah Brook	7.0 AF
F016672	0208230	IRR	Mah Springs	6.5 AF
C039027	0309453	IRR	McCarthy Swamp	2.6 AF
C039028	0309453	IRR	McCarthy Swamp	2.6 AF
F015612	0053066	IRR	McHugh Ditch	2.25 AF
F015613	0053066	IRR	McHugh Ditch	7.75 AF
C054088	0182617	IRR	McHugh Ditch	19.0 AF

LICENCE NUMBER	FILE NUMBER	PURPOSE	SOURCE NAME	QUANTITY/UNIT
C020295	0189479	IRR	McHugh Ditch	5.0 AF
F016901	0078843	IRR	McMillan Brook	4.5 AF
C072280	1001189	IRR	Meadlands Spring	3.5 AF
F044026	0281176	IRR	Mikosch Spring	11.3 AF
C044028	0328533	IRR	Mikosch Spring	4.3 AF
C051454	0341374	IRR	Milko Spring	1.0 AF
F008349	0095442	IRR	Miller Brook	3.0 AF
F015203	0153358	IRR	Montrose Spring	1.7 AF
C059093	0367756	IRR	Munn Creek	1.5 AF
F018301	0232110	IRR	Mure Brook	25.0 AF
C065833	1000957	IRR	Mure Brook	20.0 AF
C042505	0317830	IRR	Newton Brook	0.5 AF
F020029	0217718	IRR	Nixon Spring	1.25 AF
F020029	0217718	IRR	Nixon Spring	2.5 AF
F015554	0188948	IRR	Noble Creek	20.0 AF
C033190	0277502	IRR	Noble Creek	0.5 AF
C050523	0305126	IRR	Noble Creek	5.0 AF
C050343	0330748	IRR	North Neaves Spr #1	5.0 AF
C050343	0330748	IRR	North Neaves Spr #2	5.0 AF
C050343	0330748	IRR	North Neaves Spr #3	5.0 AF
C049217	0241166	IRR	North Neaves Spr #1	6.0 AF
C049217	0241166	IRR	North Neaves Spr #2	6.0 AF
C049217	0241166	IRR	North Neaves Spr #3	6.0 AF
F016805	0198428	IRR	North Pond	30.0 AF
F018200	0204702	IRR	O'Donnel Creek	0.25 AF
F020029	0217718	IRR	Oud Spring	1.25 AF
C024159	0218981	IRR	Page Spring	10.0 AF
F020334	0227187	IRR	Paterson Spring	3.0 AF
C032841	0273461	IRR	Pedersen Pond	20.0 AF
C051098	0234087	IRR	Peel Brook	4.2 AF
C051102	0346258	IRR	Peel Brook	0.6 AF
C039532	0309355	IRR	Pleasance Brook	1.5 AF

LICENCE NUMBER	FILE NUMBER	PURPOSE	SOURCE NAME	QUANTITY/UNIT
C043835	0316910	IRR	Pleasance Brook	0.5 AF
C053348	0364347	IRR	Pleasance Brook	0.25 AF
F018275	0232161	IRR	Porters Creek	2.0 AF
F049561	0243540	IRR	Prospect Lake	0.03 AF
F049560	0245590	IRR	Prospect Lake	0.09 AF
F049885	0245909	IRR	Prospect Lake	0.3 AF
F049269	0247523	IRR	Prospect Lake	0.08 AF
C058482	0369486	IRR	Rainsford Spring	9.0 AF
C032254	0270177	IRR	Rashleigh Brook	10.0 AF
C049215	0340263	IRR	Rashleigh Brook	10.0 AF
C072278	1001122	IRR	Rendall Pond	5.0 AF
F008347	0071931	IRR	Rey Springs	60.0 AF
F008348	0074943	IRR	Rey Springs	24.0 AF
C072637	1000767	IRR	Riptide Pond	15.0 AF
C058340	0270985	IRR	Robbins Swamp	12.5 AF
C058336	0370248	IRR	Robbins Swamp	3.5 AF
F008408	0241167	IRR	Rosslyn Spring	8.0 AF
F020344	0246888	IRR	Ruth Spring	3.0 AF
F021187	0229022	IRR	Salmon Brook	1.0 AF
F014248	0143014	IRR	Sandhill Creek	4.0 AF
C103853	0184980	IRR	Sandhill Creek	2.5 AF
F015264	0185378	IRR	Sandhill Creek	1.0 AF
F016292	0186812	IRR	Sandhill Creek	5.0 AF
F016293	0186812	IRR	Sandhill Creek	10.0 AF
C021552	0199531	IRR	Sandhill Creek	3.5 AF
F017996	0199988	IRR	Sandhill Creek	1.66 AF
F018568	0202678	IRR	Sandhill Creek	25.0 AF
F017201	0211223	IRR	Sandhill Creek	1.5 AF
F018402	0232160	IRR	Sandhill Creek	4.0 AF
C027731	0244678	IRR	Sandhill Creek	5.0 AF
C027730	0246309	IRR	Sandhill Creek	1.66 AF
F017997	0246310	IRR	Sandhill Creek	1.66 AF

LICENCE NUMBER	FILE NUMBER	PURPOSE	SOURCE NAME	QUANTITY/UNIT
F018492	0255137	IRR	Sandhill Creek	1.5 AF
C052942	0341943	IRR	Sandhill Creek	5.3 AF
C065789	1000799	IRR	Sandhill Creek	11.0 AF
C065137	0365386	IRR	Sandowne Brook	2.5 AF
C055237	0365470	IRR	Sandowne Brook	4.0 AF
C049480	0340733	IRR	Sandys Spring	10.0 AF
F016951	0168144	IRR	Sayward Spring	2.0 AF
F005205	0241161	IRR	Selleck Creek	6.0 AF
F005206	0241161	IRR	Selleck Creek	3.0 AF
C063911	1000493	IRR	Shortt Spring	1.75 AF
C050341	0340055	IRR	South Neaves Spring	13.5 AF
F049271	0346008	IRR	South Neaves Spring	4.5 AF
C046726	0329173	IRR	Sparton Brook	3.0 AF
C054762	0365360	IRR	Sparton Brook	7.0 AF
C101071	1001282	IRR	Spence Spring	20.0 AF
F015429	0135127	IRR	Stokes Spring	4.5 AF
C044964	0323980	IRR	Storrs Creek	0.5 AF
C026753	0236206	IRR	Swan Lake	3.0 AF
F020385	0257314	IRR	Swan Springs	3.85 AF
C050343	0330748	IRR	Sylvia Spring	5.0 AF
F020382	0211064	IRR	Tapping Spring	1.5 AF
C039645	0309654	IRR	Tatlow Brook	0.25 AF
F021492	0222327	IRR	Thomson Brook	3.0 AF
C063549	0069709	IRR	Tod Creek	19.0 AF
C063550	0241168	IRR	Tod Creek	22.5 AF
C060783	0305896	IRR	Tod Creek	15.0 AF
C043141	0322458	IRR	Townsend Spring	2.5 AF
F015385	0182602	IRR	Travers Creek	27.0 AF
C106199	0317948	IRR	Trevlac Pond	0.5 AF
C054764	0355064	IRR	Tveita Pond	0.75 AF
C051105	0341944	IRR	Umpoola Swamp	8.0 AF
C059091	0367405	IRR	Verhagen Spring	2.5 AF

LICENCE NUMBER	FILE NUMBER	PURPOSE	SOURCE NAME	QUANTITY/UNIT
F017202	0189835	IRR	Wallace Ditch	5.0 AF
F017196	0208619	IRR	Wallace Ditch	15.0 AF
C064084	1000654	IRR	Waller Springs	4.0 AF
C023801	0216634	IRR	Waterfront Spring	0.5 AF
C030495	0263393	IRR	Wells Swamp	7.0 AF
C036634	0296910	IRR	West Brook	12.0 AF
C045128	0328435	IRR	Whiskey Ditch	1.0 AF
F016697	0199705	IRR	Wilfloma Pond	10.0 AF
F016698	0199705	IRR	Wilfloma Pond	5.0 AF
F019897	0193402	IRR	Woodcote Spring	10.0 AF
F016612	0199685	IRR	Wray Creek	0.3 AF
F016589	0193190	IRR	Young Spring	8.0 AF
			Total	1,751.215 AF
C065796	0305091	LDIMP	Beaver Lake	2,800.0 AF
C049841	0340734	LDIMP	Blenkinsop Creek	0.0 TF
C035286	0285308	LDIMP	Burnham Brook	0.0 TF
C101089	1001177	LDIMP	Burnham Brook	17.0 AF
C072292	1001292	LDIMP	Buxton Brook	0.1 AF
F060782	0263009	LDIMP	Chalet Creek	0.64 AF
C042929	0322143	LDIMP	Chalet Creek	100.0 GD
C045295	0305969	LDIMP	Colquitz River	100.0 GD
F053274	0346647	LDIMP	Colquitz River	500.0 GD
C054452	0355875	LDIMP	Colquitz River	100.0 GD
F051927	0323107	LDIMP	Dianne Ditch	1,040.0 GD
C041935	0317298	LDIMP	Dominion Brook	80.0 GD
C050522	0340965	LDIMP	Dominion Brook	0.0 TF
C053138	0364273	LDIMP	Dominion Brook	200.0 GD
C060785	0322253	LDIMP	Durrance Lake	209.0 AF
C044261	0322251	LDIMP	Eagles Lake	42.0 AF
C029482	0257399	LDIMP	Earsman Brook	0.0 TF
C055338	0364959	LDIMP	Farley Creek	0.0 TF
C058480	1000085	LDIMP	Foden Pond # 2	11.0 AF

LICENCE NUMBER	FILE NUMBER	PURPOSE	SOURCE NAME	QUANTITY/UNIT
C058480	1000085	LDIMP	Foden Pond # 3	11.0 AF
C061374	1000250	LDIMP	Gardner Creek	6.0 AF
C039026	0309198	LDIMP	Graham Creek	0.5 AF
C063903	1000419	LDIMP	Graham Creek	1.5 AF
F014741	0168568	LDIMP	Hagar Spring	0.0 TF
C057664	0369677	LDIMP	Herrington Spr #1	4.0 AF
F016871	0177206	LDIMP	Hobbs Creek	0.0 TF
C072644	1000869	LDIMP	Hobbs Creek	0.1 AF
C032521	0273030	LDIMP	Kingsberry Pond	300.0 GD
C065133	0305059	LDIMP	Lagoona Brook	0.1 AF
C061364	1000362	LDIMP	Lagoona Brook	1,000.0 GD
F015490	0135845	LDIMP	Mackay Spring	500.0 GD
F018237	0225518	LDIMP	Mill Rd Ditch	500.0 GD
C014943	0143252	LDIMP	Mill Stream	40.0 AF
C018495	0172037	LDIMP	Mill Stream	0.0 TF
F018235	0218818	LDIMP	Mill Stream	0.0 TF
C024312	0219603	LDIMP	Mill Stream	0.0 TF
C056802	0355910	LDIMP	Nordwall Spring	7.5 AF
C101089	1001177	LDIMP	North Burnham Brook	8.5 AF
C070685	0223976	LDIMP	Prentice Brook	0.5 AF
C101089	1001177	LDIMP	South Burnham Brook	8.5 AF
C064325	0365359	LDIMP	Sparton Brook	0.0 TF
F021628	0290928	LDIMP	Thetis Lake	1,285.0 AF
			Total	5499.0 AF
C061478	1000428	PONDS	Blenkinsop Lake	14,000.0 GD
C061475	1000244	PONDS	Brooks Spring	0.2 AF
C063957	1000565	PONDS	Busko Springs	0.6 AF
C065799	0231645	PONDS	Hudson Brook	4.0 AF
C032523	0270621	PONDS	Meadowbrook Spring	2.0 AF
C032523	0270621	PONDS	Travers Creek	0.6 AF
C064084	1000654	PONDS	Waller Springs	1.0 AF
			Total	8.400 AF

LICENCE NUMBER	FILE NUMBER	PURPOSE	SOURCE NAME	QUANTITY/UNIT
C030936	0266749	PROCE	Peatt Swamp	100,000.0 GD
			Total	100,000.0 GD
C034310	0281460	STONP	Airport Creek	20.0 AF
F020384	0233985	STONP	Allan Spring	18.0 AF
C046483	0329163	STONP	Andrassy Brook	1.0 AF
C047011	0329229	STONP	Bacon Brook	3.33 AF
C049014	0330895	STONP	Beckwith Pond	4.25 AF
C060678	0342389	STONP	Blenkinsop Creek	64.0 AF
C101089	1001177	STONP	Burnham Brook	13.5 AF
C062788	0277093	STONP	Butchart Creek	3.5 AF
C050344	0330748	STONP	Buys Ballot Swamp	1.5 AF
C035891	0290532	STONP	Central Creek	0.5 AF
C106188	0221871	STONP	Colwood Lake	50.0 AF
C045129	0328435	STONP	Cub Spring	1.0 AF
C101144	1001362	STONP	Daisy Brook	30.0 AF
C048373	0296193	STONP	David Spring #1	0.4 AF
C048378	0341562	STONP	David Spring #1	0.85 AF
C060784	0305896	STONP	Durrance Creek	30.0 AF
C069466	0341879	STONP	Durrell Creek	3.0 AF
C051477	0341463	STONP	Estate Brook	6.0 AF
C045133	0328434	STONP	Estate Spring	2.0 AF
C055337	0364959	STONP	Farley Creek	90.0 AF
C055526	0366322	STONP	Farley Creek	0.67 AF
C035515	0290100	STONP	Graham Creek	2.0 AF
C045131	0328176	STONP	Graham Creek	1.0 AF
C046276	0328402	STONP	Graham Creek	0.25 AF
F015505	0191043	STONP	Hagan Creek	25.0 AF
C054412	0355546	STONP	Hartley Pond	1.0 AF
C055118	0355797	STONP	Hollyridge Pond	1.0 AF
C057499	0367723	STONP	Holt Creek	10.0 AF
C057497	0367727	STONP	Holt Creek	5.0 AF
C065799	0231645	STONP	Hudson Brook	4.0 AF

LICENCE NUMBER	FILE NUMBER	PURPOSE	SOURCE NAME	QUANTITY/UNIT
C068145	0267807	STONP	Jack Swamp	5.0 AF
C064733	0290357	STONP	Joann Brook	0.5 AF
C058756	1000035	STONP	Kathgar Brook	1.6 AF
C058650	0368852	STONP	Kerry Brook	2.67 AF
C053417	0364414	STONP	Laitinen Swamp	4.0 AF
F047922	0330668	STONP	Lamont Spring	1.0 AF
C036354	0285886	STONP	Lavern Brook	6.0 AF
C072280	1001189	STONP	Meadlands Spring	3.5 AF
F044027	0238785	STONP	Mikosch Spring	3.6 AF
C044029	0328533	STONP	Mikosch Spring	1.4 AF
C059094	0367756	STONP	Munn Creek	1.6 AF
F018302	0232110	STONP	Mure Brook	6.0 AF
C065826	1000922	STONP	Mure Brook	32.0 AF
C065833	1000957	STONP	Mure Brook	20.0 AF
C042506	0317830	STONP	Newton Brook	0.5 AF
C101089	1001177	STONP	North Burnham Brook	6.75 AF
C050344	0330748	STONP	North Neaves Spr #1	1.5 AF
C050344	0330748	STONP	North Neaves Spr #2	1.5 AF
C050344	0330748	STONP	North Neaves Spr #3	1.5 AF
C030937	0266749	STONP	Peatt Swamp	40.0 AF
C051099	0234087	STONP	Peel Brook	4.2 AF
C051103	0346258	STONP	Peel Brook	0.6 AF
C061338	1000172	STONP	Penwell Springs	1.0 AF
C039533	0309355	STONP	Pleasance Brook	1.5 AF
C043836	0316910	STONP	Pleasance Brook	0.5 AF
C053349	0364347	STONP	Pleasance Brook	0.25 AF
F003408	0021066	STONP	Porters Creek	0.05 AF
C058483	0369486	STONP	Rainsford Spring	2.0 AF
C032255	0270177	STONP	Rashleigh Brook	10.0 AF
C049216	0340263	STONP	Rashleigh Brook	10.0 AF
C072278	1001122	STONP	Rendall Pond	5.0 AF
C072637	1000767	STONP	Riptide Pond	15.0 AF

LICENCE NUMBER	FILE NUMBER	PURPOSE	SOURCE NAME	QUANTITY/UNIT
C103853	0184980	STONP	Sandhill Creek	2.5 AF
C027732	0244678	STONP	Sandhill Creek	5.0 AF
C052943	0341943	STONP	Sandhill Creek	7.0 AF
C065789	1000799	STONP	Sandhill Creek	11.0 AF
C055238	0365470	STONP	Sandowne Brook	4.0 AF
C049481	0340733	STONP	Sandys Spring	5.0 AF
C063912	1000493	STONP	Shortt Spring	1.75 AF
C101089	1001177	STONP	South Burnham Brook	6.75 AF
C050342	0340055	STONP	South Neaves Spring	3.5 AF
C046727	0329173	STONP	Sparton Brook	3.1 AF
C054763	0365360	STONP	Sparton Brook	7.1 AF
C101071	1001282	STONP	Spence Spring	20.0 AF
C044965	0323980	STONP	Storrs Creek	0.5 AF
F020385	0257314	STONP	Swan Springs	3.0 AF
C050344	0330748	STONP	Sylvia Spring	1.5 AF
C062790	0241169	STONP	Tod Creek	22.5 AF
F019601	0193829	STONP	Travers Creek	27.0 AF
C054765	0355064	STONP	Tveita Pond	0.75 AF
C051106	0341944	STONP	Umpoola Swamp	8.0 AF
C059092	0367405	STONP	Verhagen Spring	2.5 AF
F017197	0208619	STONP	Wallace Ditch	10.0 AF
C064084	1000654	STONP	Waller Springs	1.0 AF
C036635	0296910	STONP	West Brook	12.0 AF
C045129	0328435	STONP	Whiskey Ditch	1.0 AF
			Total	749.92 AF
F020383	0233985	WTRNG	Allan Spring	18.0 AF
C101089	1001177	WTRNG	Burnham Brook	22.5 AF
F039430	0237106	WTRNG	Colquitz River	0.3 AF
C035964	0290299	WTRNG	Colwood Lake	32.5 AF
C101089	1001177	WTRNG	North Burnham Brook	11.25 AF
C101089	1001177	WTRNG	South Burnham Brook	11.25 AF
			Total	95.8 AF

LICENCE NUMBER	FILE NUMBER	PURPOSE	SOURCE NAME	QUANTITY/UNIT
23114	0209747	WWKLA	Brentwood Springs	300,000.0 GD
F021629	0290929	WWKLA	Elk Lake	1,536,000 GD
C027027	0236636	WWKLA	Quarry Lake	200,000.0 GD
			Total	2,536,000 GD

APPENDIX F

Applications for Water Licenses

LICENCE NUMBER	FILE NUMBER	PURPOSE	SOURCE NAME		QUANTITY/UNIT
Z105586	1001621	DOM	Eagles Lake		500.0 GD
Z105197	1001601	DOM	Waterfront Springs		500.0 GD
Z106745	1001678	DOM	ZZ Spring		500.0 GD
Z106834	1001693	DOM	ZZ Spring		1000.0 GD
				Total	2500.0 GD
Z101339	1001412	IRR	Niblick Swamp		0.5 AF
Z101087	1001150	IRR	Quarry Lake		48.0 AF
				Total	48.5 AF
Z103956	1001530	LDIMP	ZZ Brook		1.0 AF
Z104118	1001540	LDIMP	ZZ Brook		1.0 AF
Z105225	1001604	LDIMP	ZZ Creek		1.0 AF
Z101066	1001281	LDIMP	ZZ Pond		1.0 AF
				Total	4.0 AF
Z101043	1001059	WTRNG	Prospect Lake		40.0 AF
				Total	100.0 AF
Z101339	1001412	STONP	Niblick Swamp		0.5 AF
Z101087	1001150	STONP	Quarry Lake		48.0 AF
				Total	48.5 AF