

# Quarterly Oil and Gas Water Use Summary



First Quarter 2014 (Jan-Mar)



## PURPOSE

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This *Quarterly Oil and Gas Water Use Summary* presents short-term water use and water licence data from the Q1 January to March 2014 period.

Previous annual water use reports and quarterly water use summaries are available on the BC Oil and Gas Commission website at [www.bcogc.ca](http://www.bcogc.ca).

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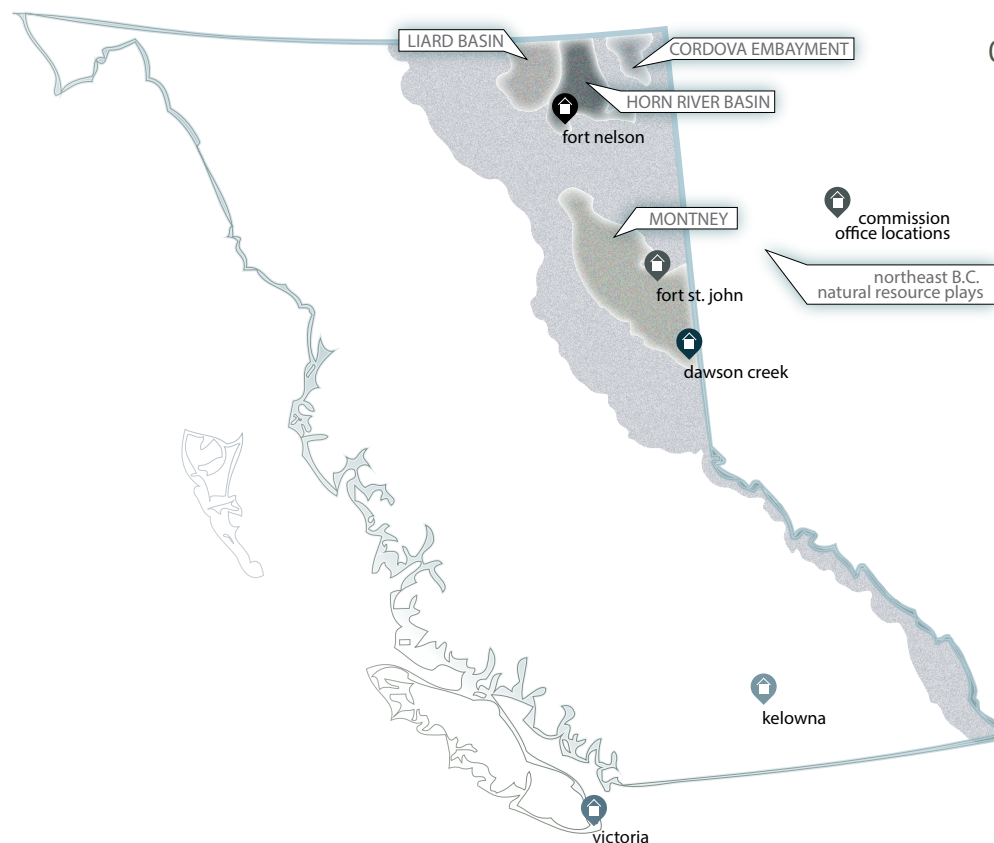
# BC OIL AND GAS COMMISSION

The [BC Oil and Gas Commission](#) (Commission) is a single-window Crown corporation that regulates oil and gas activity in the Province of British Columbia.

The Commission regulates industry by way of the administration of the [Oil and Gas Activities Act \(OGAA\)](#), the [Petroleum and Natural Gas \(PNG\) Act](#), and associated regulations. Specified enactments provide the Commission additional authorities to permit oil and gas activities related to forestry, heritage conservation, roads, land and water use, and other natural resources. This consolidated authority allows the Commission to monitor activity in a comprehensive and effective manner where oil and gas activities occur, including on Crown land, privately held land, and the Agricultural Land Reserve.

The Commission is responsible for reviewing, assessing, and making decisions on water authorizations from both surface and subsurface water sources. The Commission has the expertise and tools to make informed water allocation decisions; protecting and maintaining environmental and community water needs are its first priorities.

Where water authorization is granted, the Commission becomes responsible for regulating the permissions by which oil and gas companies operate.



Commission Office Locations  
Throughout B.C.

The Commission manages water use with a specific focus on environmental values at every opportunity, monitoring the water withdrawal and enforcing compliance with applicable legislation where required.

The Commission's workforce operates out of Fort Nelson, Fort St. John, Dawson Creek, Kelowna and Victoria, with the largest number of employees concentrated in Fort St. John, the heart of oil and gas activity in the province. The offices in Fort Nelson and Dawson Creek ensure the Commission's presence in communities of the Horn River Basin and Montney gas plays respectively.

## HOW WATER IS USED

Water is used for various purposes in the oil and gas industry.



The largest use of water for oil and gas activities is for hydraulic fracturing.

However, water is used for other purposes, such as:



Seismic or geophysical exploration



Drilling



Machine washing



Dust control



Water floods (to enhance oil recovery)



Ice road freezing



Hydrostatic testing of pipelines

## HOW WATER IS ACCESSED

There are different ways the oil and gas industry in British Columbia may access water. Some methods are managed through provincial legislation, including:

- **Water licences** issued under the Water Act. The Commission has staff designated as Regional Water Managers with authority for issuing and administering long-term water licences.
- **Short-term surface water use or diversion approvals** issued under Section 8 of the Water Act. Short-term water use is administered by the Commission.
- **Water source wells** authorized by the Commission under OGAA. Water source wells are a specific type of well where the water withdrawn is intended for the purpose of injection into an underground formation to enhance oil or natural gas recovery.
- **Flowback water** that returns to the surface after being injected for hydraulic fracturing.
- **Produced water** that flows to the surface as a by-product of oil and gas production.

The oil and gas industry can also access water by other means:



- **Private agreements** can be made with landowners or others who have a source of surface water supply such as a dugout or a groundwater well.
- **Groundwater wells** for oil and gas use where the activity does not involve water injection (hydraulic fracturing) into the subsurface. These purposes include road maintenance, geophysical exploration, and other possible uses.

## SHORT-TERM WATER APPROVALS AND USE

During January to March of 2014, there were a total of 281 short-term water use approvals in place, representing 1,197 withdrawal locations, held by 40 companies (Table 1).

The total water volume associated with short-term approvals that were active on the last day of the quarter was 13,096,294 m<sup>3</sup>.

A total of 1,134,761 m<sup>3</sup> was reported as used by oil and gas operators for the three-month period.

A break-down of short-term water approval and use by OGC Water Management Basin is listed in Table 3 on page 8.

TABLE 1 - WATER APPROVAL AND USE FOR OIL AND GAS ACTIVITIES IN Q1 2014

SHORT-TERM	Companies with Active Section 8 Approvals	40
	Active Section 8s	281
	Approved Withdrawal locations for Section 8s	1,197
	Volume Approved (m <sup>3</sup> ) for Locations Active on 3/31/2014	13,096,294
	Volume Reported Withdrawn for Section 8s (m <sup>3</sup> )	1,134,761
WATER LICENCE	Companies with Active Water Licences	9
	Active Water Licences	22
	Licensed Withdrawal Locations	36
	Annual Volume Available for Use for Water Licences (m <sup>3</sup> )	22,035,035
	Volume Reported Used for Water Licences (m <sup>3</sup> )	129,808

TABLE 2 - QUARTERLY WATER WITHDRAWALS (m<sup>3</sup>) FROM SECTION 8 APPROVALS, 2011 Q1 - 2014 Q1

	Q1	Q2	Q3	Q4	SUM
2011	782,388	662,767	1,266,317	1,100,613	3,812,085
2012	1,345,289	982,376	1,088,192	340,607	3,756,464
2013	1,061,417	482,054	605,408	747,986	2,896,865
2014	1,134,761				





## LONG-TERM WATER LICENCES AND USE

In the first quarter of 2014, there were 22 active oil and gas related water licences, representing 36 withdrawal locations, held by nine companies. The total annual licenced water volume was 22,035,035 m<sup>3</sup> (Table 1).

Mandatory reporting of water use under water licence has generally not been a requirement; in 2014, the Commission amended these licences to require water use reporting.

A total of 129,808 m<sup>3</sup> of licenced water was reported as used in the first three months of 2014.

Additionally, there were two water licences issued to oil and gas companies in the first quarter of 2014:

- Water Licence #C131230 was issued by the Commission to Progress Energy Ltd on Feb. 27, 2014 for the Upper Sikanni Chief River. It has a total annual licenced volume of water of 2,993,000 m<sup>3</sup>.
- Water Licence #C129170 was issued by the Ministry of Forests, Lands and Natural Resource Operations to Encana Corporation on Mar. 27, 2014 for the Middle Fort Nelson River. It has a total annual licenced volume of water of 3,000,000 m<sup>3</sup>.

Before these two water licences were issued, each company had an active Section 8 short-term approval at the withdrawal locations. The total volume of water reported as withdrawn through a Section 8 at these two sites for Q1 was 801,401m<sup>3</sup>, which represents 71 per cent of the total water withdrawn under short-term approval in northeast B.C.

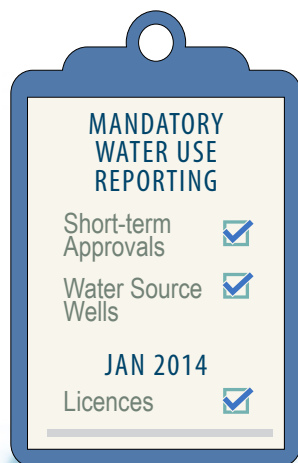


TABLE 3 - SUMMARY OF WATER APPROVAL AND USE FOR OIL AND GAS ACTIVITIES IN 2014, ORGANIZED BY OGC WATER MANAGEMENT BASIN (Page 1 of 4)

SECTION 8 WATER USE APPROVALS - BC OIL AND GAS COMMISSION						OIL AND GAS RELATED WATER LICENCES					
MAJOR and Sub-Basin Name	NUMBER OF APPROVED WITHDRAWAL LOCATIONS	TOTAL VOLUME APPROVED (m³) FOR LOCATIONS ACTIVE ON 3/31/2014	TOTAL VOLUME APPROVED as % of MEAN ANNUAL RUNOFF	TOTAL VOLUME WITHDRAWN (m³)	TOTAL VOLUME WITHDRAWN AS % OF MEAN ANNUAL RUNOFF	NUMBER OF LICENSED WITHDRAWAL LOCATIONS	TOTAL VOLUME LICENSED (m³)	TOTAL VOLUME LICENSED as % of MEAN ANNUAL RUNOFF	TOTAL VOLUME WITHDRAWN (m³)	TOTAL VOLUME WITHDRAWN as % of MEAN ANNUAL RUNOFF	MEAN ANNUAL RUNOFF (m³)
<b>BEATTON RIVER</b> (sub-basin of Peace River)											
Upper Beatton River	36	694,891	0.139%	50,545	0.010%	0					499,408,440
Middle Beatton River	12	54,850		270		0					249,152,995
<b>Middle Beatton Total (incl. Upper Beatton)</b>	<b>48</b>	<b>749,741</b>	<b>0.100%</b>	<b>50,815</b>	<b>0.007%</b>	<b>0</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0.000%</b>	<b>748,561,435</b>
Milligan Creek	15	235,854	0.123%	1,155	0.001%	0					191,536,686
Blueberry River	52	756,393	0.258%	17,547	0.006%	2	15,100	0.005%	0	0.000%	293,278,540
Doig River	6	48,549	0.015%	40	0.000%	1	2,321,800	0.719%	0	0.000%	323,069,523
Lower Beatton River	3	10,110		0		1	349,000		0	0.000%	138,262,629
<b>BEATTON TOTAL</b>	<b>124</b>	<b>1,800,647</b>	<b>0.106%</b>	<b>69,557</b>	<b>0.004%</b>	<b>4</b>	<b>2,730,900</b>	<b>0.161%</b>	<b>0</b>	<b>0.000%</b>	<b>1,694,708,813</b>
<b>HALFWAY RIVER</b> (sub-basin of Peace River)											
Chowade River	0					0					327,027,527
Upper Halfway River	7	150,000		0		0					795,962,409
<b>Upper Halfway Total (includes Chowade)</b>	<b>7</b>	<b>150,000</b>	<b>0.013%</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0.000%</b>	<b>1,122,989,936</b>
Graham River	5	1,279,900	0.149%	0	0.000%	0					860,627,172
Cameron River	23	688,509	0.308%	50,713	0.023%	0					223,679,567
Lower Halfway River	25	2,023,926		288		0					151,526,991
<b>HALFWAY TOTAL</b>	<b>60</b>	<b>4,142,335</b>	<b>0.176%</b>	<b>51,001</b>	<b>0.002%</b>	<b>0</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0.000%</b>	<b>2,358,823,666</b>
<b>MOBERLY RIVER</b> (sub-basin of Peace River)											
Moberly River	0					0					391,714,995
<b>MOBERLY TOTAL</b>	<b>0</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0.000%</b>	<b>391,714,995</b>
<b>PINE RIVER</b> (sub-basin of Peace River)											
Burnt River	1	2,800	0.000%	0	0.000%	0					737,930,022
Sukunka River	2	3,160		0		0					1,047,282,572
<b>Sukunka River Total (includes Burnt)</b>	<b>3</b>	<b>5,960</b>	<b>0.000%</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0.000%</b>	<b>1,785,212,594</b>
Upper Pine River	2	300	0.000%	0	0.000%	0					1,466,884,035
Murray River	39	490,898	0.018%	30	0.000%	7	25,000	0.001%	0	0.000%	2,698,285,017
Lower Pine River	37	349,281		9,670		0					137,619,889
<b>PINE TOTAL</b>	<b>81</b>	<b>846,439</b>	<b>0.019%</b>	<b>9,700</b>	<b>0.000%</b>	<b>7</b>	<b>25,000</b>	<b>0.000%</b>	<b>0</b>	<b>0.000%</b>	<b>6,088,001,535</b>



MAJOR and Sub-Basin Name	SECTION 8 WATER USE APPROVALS - BC OIL AND GAS COMMISSION					OIL AND GAS RELATED WATER LICENCES					
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<b>KISKATINAW RIVER</b> (sub-basin of Peace River)											
West Kiskatinaw River	13	98,000	0.083%	0	0.000%	0					117,515,115
East Kiskatinaw River	83	723,700	0.686%	0	0.000%	0					105,452,962
Middle Kiskatinaw River	22	202,836		0		0					56,347,972
<b>Middle Kiskatinaw Total (incl. West &amp; East)</b>	<b>118</b>	<b>1,024,536</b>	<b>0.367%</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0.000%</b>	<b>279,316,049</b>
Lower Kiskatinaw River	8	117,372		0	0.000%	1	400,000				89,659,847
<b>KISKATINAW TOTAL</b>	<b>126</b>	<b>1,141,908</b>	<b>0.309%</b>	<b>0</b>	<b>0.000%</b>	<b>1</b>	<b>400,000</b>	<b>0.108%</b>	<b>0</b>	<b>0.000%</b>	<b>368,975,896</b>
<b>PEACE RIVER</b>											
Peace Arm	0					2	7,300,000	N/A	3,327	N/A	N/A
Upper Peace River	0					0					36,423,413,429
Lynx Creek	0					0					30,436,635
Farrell Creek	1			0	0.000%	0					91,018,843
Cache Creek	2	2,500	0.003%	0	0.000%	2	185,000	0.248%	0	0.000%	74,603,546
Pouce Coupe River	2	6,400	0.003%	0	0.000%	1	2,000	0.001%	0	0.000%	255,686,202
Lower Peace River	1	300,000		0		2	2,717,469		0	0.000%	114,470,012
<b>PEACE TOTAL</b> (incl. Kisk/Pine/Moberly/Half/Beatton)	<b>397</b>	<b>8,240,229</b>	<b>0.017%</b>	<b>130,258</b>	<b>0.000%</b>	<b>19</b>	<b>13,360,369</b>	<b>0.028%</b>	<b>3,327</b>	<b>0.000%</b>	<b>47,891,853,572</b>
<b>SMOKY RIVER</b>											
Smoky River	54	386,250		0	0.000%	1	2,500	0.000%			2,669,506,123
<b>SMOKY TOTAL</b>	<b>54</b>	<b>386,250</b>	<b>0.014%</b>	<b>0</b>	<b>0.000%</b>	<b>1</b>	<b>2,500</b>	<b>0.000%</b>	<b>0</b>	<b>0.000%</b>	<b>2,669,506,123</b>
<b>MUSKWA RIVER</b> (sub-basin of Fort Nelson River)											
Upper Muskwa River	0					0					1,725,201,511
Middle Muskwa River	0					0					1,973,711,816
<b>Middle Muskwa Total (incl. Upper Muskwa)</b>	<b>0</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0.000%</b>	<b>3,698,913,327</b>
Lower Muskwa River	0	2,100				0					646,841,560
<b>MUSKWA TOTAL</b>	<b>0</b>	<b>2,100</b>	<b>0.000%</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0.000%</b>	<b>4,345,754,887</b>
<b>PROPHET RIVER</b> (sub-basin of Fort Nelson River)											
Upper Prophet River	5	67,190	0.005%	0	0.000%	0					1,470,271,289
Middle Prophet River	6	23,400		0		0					621,428,680
<b>Middle Prophet Total (incl. Upper Prophet)</b>	<b>11</b>	<b>90,590</b>	<b>0.004%</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0.000%</b>	<b>2,091,699,969</b>
Lower Prophet River	5	22,900		0		0					272,262,427
<b>PROPHET TOTAL</b>	<b>16</b>	<b>113,490</b>	<b>0.005%</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0.000%</b>	<b>2,363,962,396</b>

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<b>SIKANNI CHIEF RIVER</b> (sub-basin of Fort Nelson River)											
Upper Sikanni Chief River	5	69,820	0.009%	258,149	0.032%	1	2,993,000	0.371%	126,481	0.016%	807,771,692
Middle Sikanni Chief River	36	397,067		7,288		0					949,755,794
<b>Middle Sikanni Chief Total (incl. Upper Sikanni)</b>	<b>41</b>	<b>466,887</b>	<b>0.027%</b>	<b>265,437</b>	<b>0.015%</b>	<b>1</b>	<b>2,993,000</b>	<b>0.170%</b>	<b>126,481</b>	<b>0.007%</b>	<b>1,757,527,486</b>
Lower Sikanni Chief	43	14,173		9,992		0					875,678,142
<b>SIKANNI CHIEF TOTAL</b>	<b>84</b>	<b>481,060</b>	<b>0.018%</b>	<b>275,429</b>	<b>0.010%</b>	<b>1</b>	<b>2,993,000</b>	<b>0.114%</b>	<b>126,481</b>	<b>0.005%</b>	<b>2,633,205,628</b>
<b>FORT NELSON RIVER</b>											
Kahntah River	62	45,875	0.011%	10,975	0.003%	0					400,582,903
Fontas River	40	49,650		8,912		0					591,531,903
<b>Fontas Total (includes Kahntah)</b>	<b>102</b>	<b>95,525</b>	<b>0.010%</b>	<b>19,887</b>	<b>0.002%</b>	<b>0</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0.000%</b>	<b>992,114,806</b>
Klua River	7	21,000	0.005%	11,773	0.003%	0					402,135,448
Upper Fort Nelson River	15	58,800		10,828		0					276,181,026
<b>Upper Fort Nelson Total (incl. Sikanni Chief Total, Kahntah, Fontas, Klua)</b>	<b>208</b>	<b>656,385</b>	<b>0.015%</b>	<b>317,917</b>	<b>0.007%</b>	<b>1</b>	<b>2,993,000</b>	<b>0.070%</b>	<b>126,481</b>	<b>0.003%</b>	<b>4,303,636,908</b>
Snake River	22	70,200	0.023%	5,192	0.002%	0					310,763,522
Sahtaneh River	52	221,600	0.047%	11,257	0.002%	2	40,000	0.008%			474,904,729
Middle Fort Nelson River	24	607,450		555,513		1	3,000,000				515,348,901
<b>Middle Ft Nelson Total (incl. Upper Ft. Nelson total, Muskwa Total, Prophet Total, Snake, Sahtaneh)</b>	<b>322</b>	<b>1,671,225</b>	<b>0.014%</b>	<b>889,879</b>	<b>0.007%</b>	<b>4</b>	<b>6,033,000</b>	<b>0.049%</b>	<b>126,481</b>	<b>0.001%</b>	<b>12,314,371,343</b>
Kiwigana River	30	71,200	0.016%	685	0.000%	5	42,500	0.010%			441,657,543
Lower Fort Nelson River	11	74,600		797		0					312,768,938
<b>FORT NELSON TOTAL</b>	<b>363</b>	<b>1,817,025</b>	<b>0.014%</b>	<b>891,361</b>	<b>0.007%</b>	<b>9</b>	<b>6,075,500</b>	<b>0.046%</b>	<b>126,481</b>	<b>0.001%</b>	<b>13,068,797,824</b>
<b>LIARD RIVER</b>											
Muncho River	0					0					551,551,360
Upper Liard River	0					0					33,125,817,465
<b>Upper Liard Total (incl. Muncho)</b>	<b>0</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0.000%</b>	<b>33,677,368,825</b>
Grayling River	0					0					630,833,914
Upper Toad River	0					0					1,521,055,576
Racing River	0					0					1,488,336,681
Lower Toad River	0					0					419,472,722
Beaver River	0					0					10,862,659,426
Middle Liard River	0					0					463,652,312

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<b>LIARD RIVER</b> con't											
<b>Middle Liard (incl. Upper Liard Total, Grayling, Upper Toad, Racing, Lower Toad, Beaver)</b>	<b>0</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0.000%</b>	<b>49,063,379,456</b>
Capot-Blanc Creek	16	353,256	0.192%	10,136	0.006%	0					183,879,851
Dunedin Rlver	38	211,075	0.026%	1,021	0.000%	0					820,464,167
Lower Liard River	19	589,158		56,024		0					1,236,634,664
<b>LIARD TOTAL</b> (incl. Fort Nelson)	<b>436</b>	<b>2,970,514</b>	<b>0.005%</b>	<b>958,542</b>	<b>0.001%</b>	<b>9</b>	<b>6,075,500</b>	<b>0.009%</b>	<b>0</b>	<b>0.000%</b>	<b>64,373,155,962</b>
<b>PETITOT RIVER</b>											
Sahdoanah River	43	52,300	0.021%	1,140	0.000%	0					252,625,362
Upper Petitot River	59	365,490	0.025%	8,548	0.001%	0					1,476,579,488
Tsea River	46	72,166	0.017%	4,824	0.001%	4	2,540,000	0.585%	0	0.000%	434,062,484
Middle Petitot River	17	23,300		735		2	26,666		0	0.000%	698,562,753
<b>Middle Petitot Total (incl. Sahdoanah, Upper Petitot, Tsea)</b>	<b>165</b>	<b>513,256</b>	<b>0.018%</b>	<b>15,247</b>	<b>0.001%</b>	<b>6</b>	<b>2,566,666</b>	<b>0.090%</b>	<b>0</b>	<b>0.000%</b>	<b>2,861,830,087</b>
Lower Petitot River	12	439,400		2,150		1	30,000		0	0.000%	904,314,069
<b>PETITOT TOTAL</b>	<b>177</b>	<b>952,656</b>	<b>0.025%</b>	<b>17,397</b>	<b>0.000%</b>	<b>7</b>	<b>2,596,666</b>	<b>0.069%</b>	<b>0</b>	<b>0.000%</b>	<b>3,766,144,156</b>
<b>HAY RIVER</b>											
Upper Kotcho River	7	16,800	0.005%	3,510	0.001%	0					311,519,217
Kyklo River	29	112,365	0.077%	5,520	0.004%	0					145,897,691
Shekilie River	20	78,808	0.017%	0	0.000%	0					450,747,494
Lower Kotcho River	6	18,500		0		0					311,519,217
<b>Lower Kotcho Total (includes Upper Kotcho, Kyklo, Shekilie)</b>	<b>62</b>	<b>226,473</b>	<b>0.019%</b>	<b>9,030</b>	<b>0.001%</b>	<b>0</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0.000%</b>	<b>1,219,683,619</b>
Hay River	30	133,970		14,471		0					538,672,352
<b>HAY TOTAL</b>	<b>92</b>	<b>360,443</b>	<b>0.020%</b>	<b>23,501</b>	<b>0.001%</b>	<b>0</b>	<b>0</b>	<b>0.000%</b>	<b>0</b>	<b>0.000%</b>	<b>1,758,355,971</b>
<b>CHINCHAGA RIVER</b>											
Chinchaga River	29	165,869	0.151%	5,026	0.005%	0					109,492,680
<b>CHINCHAGA TOTAL</b>	<b>29</b>	<b>165,869</b>	<b>0.151%</b>	<b>5,026</b>	<b>0.005%</b>	<b>0</b>	<b>0</b>	<b>0.000%</b>			<b>109,492,680</b>
<b>OTHER (outside Northeast B.C.)</b>	<b>12</b>	<b>20,333</b>		<b>37</b>		<b>0</b>	<b>0</b>				N/A
<b>G R A N D T O T A L</b>	<b>1,197</b>	<b>13,096,294</b>	<b>0.011%</b>	<b>1,134,761</b>	<b>0.001%</b>	<b>36</b>	<b>22,035,035</b>	<b>0.018%</b>	<b>129,808</b>	<b>0.000%</b>	<b>120,568,508,464</b>



Previous annual water reports and quarterly updates  
are available on the Commission's website at:

<http://www.bcogc.ca/public-zone/water-information>

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