

**Salmon Habitat Indicator Monitoring Project  
Summary of Data, Methodology, Results, and Thresholds  
For Pressure Indicator: Drainage Density**

Drainage density is defined as the mean length of stream channels per unit area. Drainage density values reflect a balance between erosive forces and the resistance of the ground surface, and, as a consequence, is closely related to climate and lithology.<sup>1</sup>

Drainage density was an in-term calculation as part of the Accessible Stream Length Indicator. The results are summarized below as drainage density is also one of the GIS variables calculated for the Bioassessment of Streams work carried out by Environment Canada and the Ministry of Environment.<sup>2</sup>

**1. GIS Data**

- Fish Habitat Data (BC Environment Culvert Assessment Project)
- Freshwater Atlas streams and lakes
- Freshwater Atlas Assessment Watersheds (edited by K. Rabnett Nov 2012)
- Wet'suwet'en House Territory boundaries
- Morice Watershed Management Area

**2. Methodology**

The GIS System Manifold was used to generate area and stream length values. The resultant table was exported to excel where a pivot table was generated to summarize results.

**3. Results**

The results of the drainage density indicator are reported out by analysis units including the Morice Watershed, nineteen subwatersheds and face units within the Morice Watershed, the Morice Watershed Management Area (designated through the Morice LRMP), and the ten Wet'suwet'en house territories within or partly within the Morice Watershed.

	<b>Area (km<sup>2</sup>)</b>	<b>Total Stream Length (km)</b>	<b>Drainage Density (km/km<sup>2</sup>)</b>
<b>Morice Watershed</b>	4,378.87	8,315.15	1.90

<b>Morice Watershed Management Area</b>	3,403.51	7,049.77	2.07
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<sup>1</sup> Summerfield, Michael A. 1991. Global Geomorphology. John Wiley & Sons Inc.

<sup>2</sup> Bioassessment of Streams in North-Central British Columbia using the Reference Condition Approach. Final Report v.2a. March 31, 2007. Limnotek Research and Development Inc.

<b>Wet'suwet'en House Territory</b>	<b>Area (km<sup>2</sup>)</b>	<b>Total Stream Length (km)</b>	<b>Drainage Density (km/km<sup>2</sup>)</b>
Talhdzi Wiyez Bin (T01)	494.78	1,228.85	2.48
C'iniggit Nenikekh (G02)	1,293.94	2,563.81	1.98
Nelgi'l'at (L07)	387.11	977.98	2.53
Bikh C'idilyiz Ts'anli (W05)	142.48	304.70	2.14
Talbits Kwah (G06)	710.28	1,454.03	2.05
Lhudis Bin (W02)	989.37	1,609.94	1.63
C'idi To Stan (S03)	505.42	922.12	1.82
Bi Wini (W04)	883.29	1,382.85	1.57
Ts'in K'oz'ay (W06)	280.41	388.08	1.38
Nelgi Cek (L09)	214.98	364.13	1.69
<b>Total</b>	<b>5,902.06</b>	<b>11,196.49</b>	<b>1.90</b>

<b>Subwatershed Unit</b>	<b>Area (km<sup>2</sup>)</b>	<b>Total Stream Length (km)</b>	<b>Drainage Density (km/km<sup>2</sup>)</b>
<b>Gosnell Watershed</b>			
Crystal Creek	62.45	119.76	1.92
Shea Creek	194.98	456.51	2.34
Gosnell Creek	279.45	635.79	2.28
<b>Subtotal</b>	<b>536.88</b>	<b>1,212.06</b>	<b>2.26</b>
<b>Morice River Face Units</b>			
Atna River	283.95	520.61	1.83
Houston Tommy Creek	248.24	516.48	2.08
Lamprey Creek	240.26	348.38	1.45
McBride Creek	115.04	124.57	1.08
Nanika River	889.67	1,974.71	2.22
Owen Creek	212.37	262.79	1.24
Thautil River	422.97	1,057.68	2.50
Morice Lake	599.57	972.63	1.62
<b>Subtotal</b>	<b>829.94</b>	<b>1,322.97</b>	<b>1.59</b>
<b>Total</b>	<b>4,378.87</b>	<b>8,315.15</b>	<b>1.90</b>