

A watershed is a water catchment area. It is bounded by the height of land and drains to a point on a body of water. One watershed may be contained within another.<sup>1</sup> The watersheds that drain into PNCIMA are influenced by the coastal mountains. The mountains collect precipitation as snow and ice throughout the winter, to be released as melt water in spring and summer. Most freshwater input into the ocean comes from this melt runoff into mainland watersheds. The timing of this freshwater input is critical for phytoplankton blooms, which are the basis of the marine food web.<sup>2</sup>

PNCIMA contains many different hydrologic profiles, or water flow characteristics.<sup>2</sup> Stream discharge into PNCIMA can be classified into three types:

- large watershed streams (e.g. Skeena and Nass rivers) with high annual discharge peaking with snow melt in spring and early summer;
- small to medium watershed streams on the mainland coast influenced by glacial melt in summer and rainfall in late autumn and winter; and
- small watershed streams (e.g. on Haida Gwaii, Vancouver Island) with low annual discharge dominated by rainfall and characterized by low summer flow and peaks after storms in autumn and winter.<sup>3</sup>

The BC Watershed Atlas divides the province into a number of geographic regions called Watershed Groups, to help make the data more manageable. These groups are based on natural watershed boundaries that tend to correspond with aquatic management and planning regions. Each of these groups contains a number of other, smaller-order, watersheds.<sup>1,4</sup> In addition to the Nass and Skeena watersheds, the codes presented in the map correspond to the following Watershed Groups:

BELA: Bella Coala River	KNIG: Knight Inlet	NEVI: Northeast Vancouver Island
BRKS: Brooks Peninsula	KSHR: Kshwan River	NIEL: Niel Creek
CAMB: Campbell River	KTSU: Kitasu Bay	NIMP: Nimpkish River
COMX: Comox	KUMR: Kumowdah River	OWIK: Owikeno Lake
GRAI: Graham Island	LDEN: Lower Dean River	PORI: Porcher Inlet
HOLB: Holberg	LRDO: Laredo Sound	SALM: Salmon River
HOMA: Homathco River	MBNK: Middle Banks Island	SEYM: Seymour Inlet
KEEC: Keecha Creek	MORI: Morsby Island	TOBA: Toba Inlet
KHTZ: Khutze River	NASC: Nascall River	TSAY: Tsaytis River
KITL: Kitlope River	NBNK: North Banks Island	TSIT: Tsitika River
KITR: Kitimat River	NECL: Neclatsconay River	WORC: Work Channel
KLIN: Klinaklini River		

Certain rivers and watersheds dominate the freshwater discharge into each of the ocean basins within PNCIMA<sup>3</sup>:

Basin(s)	Dominant River (Watershed)	Mean Annual Discharge (m <sup>3</sup> /s)	Time of High Discharge
Dixon Entrance-Northern Hecate Strait	Skeena	913.0	May-June
	Nass	821.0	May-June
Queen Charlotte Sound	Wannock (OWIK)	330.0	June-Aug
	Dean (LDEN)	134.0	May-June
	Kitimat (KITR)	131.0	May-June
Queen Charlotte Strait-Johnstone Strait	Bella Coala (BELA)	93.9	June-Aug
	<i>Mainland:</i>		
	Homathko (HOMA)	293.0	June-Aug
	Klinaklini (KLIN)	284.0	June-Aug
<i>E. Vancouver Island:</i>			
Campbell (CAMB)	100.0	Nov-Feb	

Freshwater from the Kemano diversion project also flows into PNCIMA from the Nechako Reservoir via a tunnel to the Kemano River, and into Gardner Canal south of Kitimat, at an average rate of 115 m<sup>3</sup>/s.<sup>5,6</sup> This diversion is not displayed on the accompanying map.

Material presented is drawn from the following literature reviews, which include primary references:  
 1 Resources Information Standards Committee. 2004. User's guide to the British Columbia watershed/waterbody identifier system. Version 3.0. Province of British Columbia, 14pp.  
 2 Lucas, B.G., Verrin, S. and Brown, R. (Editors). 2007. Ecosystem overview: Pacific North Coast Integrated Management Area (PNCIMA). Can. Tech. Rep. Fish. Aquat. Sci. 2667: xiii + 104 p.  
 3 Crawford, W., Johannessen, D., Whitney, F., Birch, R., Borg, K., Fissel, D. and S. Vagle. 2007. Appendix C: Physical and chemical oceanography. In Ecosystem overview: Pacific North Coast Integrated Management Area (PNCIMA). Edited by Lucas, B.G., Verrin, S. and Brown, R. Can. Tech. Rep. Fish. Aquat. Sci. 2667: vii + 77 p.  
 4 BC Ministry of Environment, Lands and Parks. 1996. An introduction to the British Columbia watershed atlas. Province of British Columbia, 29pp.  
 5 Rio Tinto. 2010. Power operations/watershed management. <http://www.riotintoalcanincbc.com/pages/our-products/power-operations-watershed-management.php> (Accessed March 2011).  
 6 Environment Canada. 2004. Threats to water availability in Canada. NWRI Scientific Assessment Report Series No. 3 and ACSD Science Assessment Series No. 1, 128 p.



Robson Bight Ecological Reserve. Photo: Anuradha Rao

