

BC Environment

River Forecast Centre

Water Supply and Streamflow Conditions

Issued: July 24, 2009

Rivers in the South Interior and South Coast of British Columbia are currently experiencing low streamflow conditions for this time of year. In some areas, streamflows are very low. Areas of concern are:

- **Extremely Dry** – Nicola River and tributaries, and adjacent basins in the lower Thompson River and Fraser
- **Dry to Very Dry** – South Thompson/Shuswap, Okanagan, Kettle, Similkameen, Kootenay/Columbia (except south-east corner), South Coast, Vancouver Island
- **Normal** - Upper Fraser, Peace, Liard, Stikine, Skeena

The current low streamflow situation results from a number of factors. First, the 2008/09 winter produced well below normal snowpacks across the South Interior and South Coast. Snowpacks were variable, but were only about two-thirds to three-quarters of normal at the peak of the winter's accumulation at mid-April. Since the end of the winter, the spring and early summer across southern British Columbia (except for the East Kootenay) has been very dry, with extended periods of hot weather. Rainfall has been variable, but has been only about 40-60 percent of average for the April, May and June period. Rainfall in July has been well below average as well. Much of the rainfall that occurred resulted from convective storm cells, which produced localized rather than widespread rainfall. Along with the low rainfall, temperatures have been hotter than normal, generally in the 25-33 degree range in the South Interior from late May to the present. For Vancouver Island and the South Coast, temperatures have generally been in the low to mid-20's, with an extended period of hot weather in the 25-31 degree range in late May and early June, and for the first three weeks of July. The prolonged hot weather and abundant sunshine resulted in rapid evaporation of soil water and surface water, causing river levels to recede quicker than usual.

Most rivers throughout these areas are currently below their long-term median flows for this time of year. Some rivers are currently experiencing very low flows and are at record low flows for this time of year. River levels typically reach their absolute lowest levels of the year in late August and early September. The current low flow situation has a number of rivers on trajectories to approach or exceed these historic record low flows.

Central and northern British Columbia (North Thompson, Cariboo, Upper Fraser, Peace, Skeena, Liard) had normal or above normal snowpacks at the end of the winter, and has received periods of frontal rain during June and July. Rivers in these areas are near or above their median levels for the date and are not of concern at the present time.

Areas of Low Flow Concern:

South Thompson Basin: All gauged rivers are currently well below their median flows for the date.

- The Nicola River and Coldwater River are at or below their extreme low flows of record (40-50 year return period low flows). The extreme low flows on the Nicola and Coldwater rivers (and

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likely other ungauged streams in the Nicola basin) put them on a trajectory towards new record low flows in late August or early September.

- Other rivers in the South Thompson basin (e.g., South Thompson River at Chase, Chase Creek, Salmon River, Eagle River, Seymour River, Bonaparte River) are near 10-20 year return period low flows. This likely includes other ungauged Shuswap Lake and Shuswap River tributaries.

Similkameen River Basin: A drought was declared in May 2009 for Osoyoos Lake by the International Osoyoos Lake Board of Control, based on a forecast of well below normal runoff for the Similkameen River.

- The Tulameen and Similkameen river at Princeton are currently near 20-30 year return period low flows. The Similkameen River at Hedley is near a 15-20 year low flow.

Okanagan River and Kettle River Basin: Conditions in the Okanagan and Kettle basins are variable, but many gauged rivers are experiencing significant low flows, depending on local factors and locations of rainfall in early July. Inflows to Okanagan Lake have been well below normal for the past 12 months, and are ranked as the 5th lowest since measurement began in 1918. Inflows for the April-mid July period are lower than 2003, a significant drought year in the Okanagan valley.

- Most gauged rivers in the Okanagan basin are near 10-20 year return period low flows for the date. These include Camp Creek, Mission Creek, Trepanier Creek and Vaseux Creek.
- Coldstream Creek (near Vernon) and Shatford Creek (near Penticton) are somewhat better, and are near 2-year return period low flows, possibly as a result of receiving some localized rain.
- The Kettle River (Westbridge, Grand Forks) is at a 10-20 year return period low flow.

South Coast: Conditions across the South Coast are variable, but many gauged rivers are experiencing significant low flows, depending on local factors and locations of rainfall in early July.

- Many gauged rivers are near 10-20 year return period low flows. These include the Coquitlam River above Coquitlam Lake, the Chilliwack River, the Squamish River and the Coquihalla River.
- Other rivers are near 20-30 year return period low flows, and are near their low flow of record for the date. These include the Stave River and the Clowhom River.
- Low relief, valley bottom rivers in the Fraser Valley appear to be experiencing significant low flow. The Nicomekl River in Surrey and Langley is currently below its record low flow for the date

Vancouver Island: Conditions across the Vancouver Island are variable, but many gauged rivers are experiencing significant low flows, depending on local factors and scattered rainfall in early July.

- Some gauged rivers are near their low flow of record for the date, and are near 20-30 year return period low flows. These include: Tofino Creek, Harris Creek near Lake Cowichan, and the Oyster River near Campbell River.
- Other rivers are near 10-20 year return period low flows, including the Chemainus River, Browns Creek near Courtenay, and the Salmon River near Sayward.
- The Nanaimo River and Englishman River have higher flows relative to other rivers, and are near 2-4 year return period low flows.

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Outlook: Significant, widespread frontal rainfall is required to ease the low flow situation. That is not in the current weather forecast. Continued dry and hot weather (30-35 degrees) is expected for the next 7 days. River levels will continue to drop through to the end of July. With the absence of significant rainfall, many rivers in the South Interior and South Coast may approach or exceed absolute lows of record in 4-6 weeks.

Implications: The low water levels will likely result in such things as diminished water supply, lower than normal lake and reservoir levels, and reduced groundwater levels. There is potential in some areas and some rivers for significant effects on fish and aquatic organisms.