

Topic: EFN science and applications

Title:

A Strategic Assessment of Potential Temperature Sensitive Streams (TSS) in the Thompson Okanagan Region

Description:

In the Thompson-Okanagan Region (TOR), high stream temperatures have long been considered a key limitation on the fisheries productivity.

Recognizing that stream temperatures can change in response to land use and climate change, Reese-Hansen, Nelitz and Parkinson proposed a set of procedures for designating “Temperature Sensitive Streams” (TSS). Their objective was to provide decision makers with a regulatory tool to “protect critical fish-bearing streams that could be altered by stream heating” (Reese-Hansen, Nelitz and Parkinson, 2012).

In line with these proposed procedures, a “Strategic assessment of Temperature Sensitive Streams in the Thompson-Okanagan” has been initiated to: 1) increase our scientific understanding of stream temperatures in the TOR and 2) to identify streams that may be ecologically sensitive to changes in stream temperature.

The first phase of this project comprised of a geospatial analysis that systemically assessed 1884 watersheds in the TOR for their potential as TSS candidates. To overcome the lack of existing temperature data in the region, the watersheds were prioritized according to the relative risk of high stream temperatures occurring and temperature responsiveness to forest loss, as suggested by several climatic and landscape characteristics. These indicators included: 1) the presence of conservation priority fishes (e.g. Bull trout & Coho salmon), 2) glacial contributions, 3) solar radiation inputs; 4) forest cover; 5) August air temperatures; 6) lake coverage; 7) slope and 8) elevation.

Using these indicators, 533 conservation priority watersheds were identified and assigned a priority ranking for inclusion in a long-term stream temperature monitoring program. The majority of these high priority watersheds were found to be: smaller 3rd - 5th order, forested watersheds at mid elevations in the Shuswap and South Thompson watershed groups.

Starting summer 2018, 50 monitoring sites were established as part of the next phase of the initiative.

Author:

Alexander MacDuff

FLRNORD