

Topic: Methodologies for determining EFN values

Title:

Environmental flow determination in southern Quebec (Canada): actual and future hydrologic and climatic context

Description:

Faced with increasing demands for surface water and groundwater withdrawals, the Ministry of Sustainable Development and the Fight against Climate Change of Quebec (MDDELCC) is questioning its policy advocating the use of 7Q2.

The use of 7Q2 and its impact is not documented and some members of the scientific community suspect that it does not ensure the protection of lotic ecosystems (Caissie and El-Jabi, 1995, Belzile et al., 1997, Berube et al., 2002).

Studies and reviews of methods for assessing environmental low flows in Canada have been completed (Daigle et al., 2011, Linnansaari et al., 2012, Caissie J. et al., 2014) but validation studies are scarce.

Therefore, the MDDELCC commissioned the INRS to assess the relevance of the 7Q2 indicator and define and test the most appropriate method for assessing environmental flows.

Comparison of different hydrological indices at different spatio-temporal scales in seven hydrographic regions of Quebec is underway.

Climate change scenarios, used as input to a distributed hydrological model allowed to generate flow scenarios for the 2050 and 2100 horizon (Hydroclimatic Atlas of Southern Quebec, MDDELCC, 2015). The indices calculated for historical flow data will also be calculated for future scenarios. Impacts on water temperature will be investigated and finally, a conclusion will be made on the relevance of using the standard 15% of 7Q2.

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