productive capacity of fish habitats in RIVERS.

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Estimating the net loss or gain of the productive capacity of fish habitats requires methods to estimate and predict metrics of this variable. The general objectives of this project are to improve methods to estimate metrics of productive capacity of fish habitats, to contribute to the development of tools to predict the productive capacity of fish habitats, and to facilitate the implementation of the principle of no-net-loss. The metrics of the productive capacity of fish habitats in rivers that are considered in this project are fish abundance, biomass, and growth (estimated for few fish species). Specific studies that are parts of this project focus on the development of relationships between flow regime, thermal regime, and fish growth, on the exploration of the potential for physiological indicators of fish condition/stress to better identify the environmental factors that affect metrics of productive capacity of fish habitats, and the evaluation of the relative effects of key environmental conditions on metrics of the productive capacity of fish habitats. Comparison of sampling methods indicated that, even in wadeable rivers, it is important to sampling fish using both electrofishing and visual surveys. Statistical analyses indicated that 75% of the information found in 211 flow indices may be summarized by only 7 flow indices. One of these flow indices could explain 40-50% of total fish community abundance or biomass in 10 rivers studied by HydroNet. The results suggest that it may be possible to develop a tool capable of predicting the productive capacity of fish habitats from Québec to Alberta.