The behavioural, physiological and morphological responses of fishes to streamflow regulation and the consequent effects on population dynamics. \*Hards, A. R., Cunjak, R., Benfey, T. & Houlahan, J. (adrian.hards@unb.ca; presentation).

The Canadian hydropower industry accounts for nearly half of the country’s electricity generating capacity and is forecast to grow substantially over the coming decades. Yet, despite the prevalence of hydroelectric dams there remains a paucity of information regarding how fishes downstream of them are affected. Indeed, the majority of previous relevant studies focused on the response of a single species at a specific life-history stage during a particular season. Given the economic value of many of the species concerned it seems prudent to gain a more comprehensive understanding of the extent and means by which hydropower-induced streamflow regulation affects fishes.

The principal objectives of this research are to determine: which parameters are altered by regulation; the behavioural, physiological and morphological consequences of such alterations; and how these consequences in turn affect fish assemblage composition, age structure and abundance. More specifically, sampling will be conducted along the length of 3 regulated and 3 unregulated rivers in the Tobique River Basin, northwest New Brunswick, throughout the spring, summer, and fall to determine whether and to what extent regulation affects: the distribution, isotopic signature, growth rate, proximate composition, reproductive maturation, body form and size of fishes therein. A second field season will be conducted in the following year to estimate longer-term variation.

Understanding whether and to what extent regulation affects fishes is an essential step towards finding a balance between electricity production and fish conservation.