

COMMENTARY

Wither the Saint Lawrence River?

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The International Section of the St. Lawrence River, reaching from the head of the St. Lawrence River near Kingston, Ontario to the entry of the river fully into Canada just east of Cornwall, Ontario and Massena, New York (Fig. 1), once contained a 10 mile stretch of white water known as the Long Sault (International) Rapids. The International Rapids is no longer a barrier to navigation. The St. Lawrence River is forced through the 900 megawatt Moses-Saunders power dam (est. 1958) that spans the river between Cornwall, Ontario and Massena, New York, and the St. Lawrence Seaway (est. 1959) guides ocean-going vessels through a fluvial lake over the drowned rapids in what is now called Lake St. Lawrence.

Natural water level fluctuations in the river and upstream Lake Ontario have been subdued due to the power dam, and the St. Lawrence Seaway is responsible for many of the invasive species that have colonized the Great Lakes/St. Lawrence River ecosystem. The proximity of ample power provided by the dam stimulated industrial growth in the region, with the unfortunate result of environmental degradation, now identified by the Areas of Concern at Cornwall and Massena. Despite the economic attention bestowed on the International Section of the river, the current level of inattention to the ecology, limnology, and environmental issues of this river will lead to further deterioration of this system.

The International Section of the Saint Lawrence River is in a state of neglect; inattention to this system and bypassing real needs have jeopardized its integrity. The Great Lakes community must recognize that many troubles arriving in “our” lakes

come steaming up this river and many of our wastes go down its stream.

Compared to the Great Lakes, the St. Lawrence River, like other connecting channels in the Great Lakes, is not well studied (Fig. 1). The publication data in Figure 1 are used as a proxy of governmental funding for research and environmental monitoring objectives since interest alone in universities and citizen groups cannot support advancing knowledge fronts on the scale required in such a large river system. The Web of Science® survey shows greater apparent St. Lawrence River research over the past 12 years than does the *J. Great Lakes Res.* archive survey that spans 31 years. However, most of the manuscripts cited in the Web of Science® database reflect studies downstream of the International Section. Reavie and Smol (1997) note here in the *Journal of Great Lakes Research* that “Environmental quality measurements for the St. Lawrence River are relatively scarce for periods prior to the 1970s, yet long-term data are often required for effective ecosystem management.” Indeed, I have only found *three* references to chlorophyll-*a* measurements in the International Section of the St. Lawrence River (Mills and Forney 1982, Dobson 1990, Basu *et al.* 2000). Despite the impacts that the Great Lakes Water Quality Agreement (GLQWA), dreissenid mussel colonization, and proposed changes to managed water levels in the International Section (National Research Council of the National Academies 2006) have had or will have on this stretch of the St. Lawrence River, it is clear that our ability for effective ecosystem management is impaired if we lack simple information on basic ecosystem status such as the abundance of chlorophyll.

A comprehensive review of habitat changes in the International Section of the St. Lawrence River

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