

IN TUNE

Concerted action for sustainable marine navigation

The Shipping and Boating Harmonization Committee, which was set up a year ago, has a membership comprising many numerous governmental and nongovernmental players concerned with marine transportation. Its mandate is to develop a strategy for sustainable marine navigation addressing the environmental, social and economic issues related to the St. Lawrence.

Environmental and economic considerations: An integral part of marine navigation

Integrated management of dredging operations and sediments, protecting shoreline areas against ship-caused erosion and minimizing the adverse effects of ballast water discharges are some of the measures prioritized by the Harmonization Committee.

ZIP Chronicle

The Saguenay ZIP Committee is carrying out an innovative project to restore shoreline vegetation in Ha! Ha! Bay. Through its work, it has developed an effective, low-cost planting method which can eventually be applied in other wetland areas of the St. Lawrence.

Concertation Action for Sustainable Marine Navigation



Photo : Transports Québec

With the implementation of Phase III of St. Lawrence Vision 2000, a new area of action was initiated which centres on marine navigation, including both shipping and pleasure boating. This component embodies the desire of the federal and provincial partners of the St. Lawrence Action Plan to address the economic, environmental, social and political issues related to marine transportation. This article describes the activities of the Shipping and Boating Harmonization Committee, which during its first year of operation established a structure to promote constructive dialogue among the many players concerned with this use of the St. Lawrence River.

Ships navigating the St. Lawrence transport more than 100 million tonnes of cargo to and from 20 commercial ports on the waterway. The marine freight handled by the ports of the St. Lawrence makes up roughly a third of all marine

cargo traffic in Canada. Besides commercial ships, vessel traffic on the St. Lawrence comprises recreational boating, a popular activity providing opportunities to enjoy the many facets of the river environment.

The Shipping and Boating Harmonization Committee has a mission to prepare and implement, through joint action, a strategy for promoting sustainable navigation on the St. Lawrence. Since this is a new concept and a clear definition has not yet been drawn up, the Committee is currently working with Transport Canada's definition of sustainable transportation. Basically, sustainable transportation means providing safe modes of transport that meet the

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needs of society and the economy in a manner that is consistent with human and ecosystem health and that ensures equity within and between generations.

A Committee comprising nongovernmental players

The Harmonization Committee stands out on account of the prominent role it accords nongovernmental partners. In fact, five of its 18 members represent the shipping and pleasure boating sectors and three members are from community and environmental groups. They serve on the Committee alongside representatives from six federal and provincial departments. The Committee's activities are articulated around four broad aims:

- increasing knowledge of the environmental effects of the different types of marine transportation on the St. Lawrence;
- promoting discussions in connection with this knowledge base through a dynamic process aimed at formulating a common vision of sustainable navigation on the St. Lawrence;
- establishing ongoing and fruitful dialogue to devise solutions that are both feasible and consistent with the concept of sustainable navigation;
- implementing appropriate measures and following up on them.

The actions that have been prioritized with the aim of developing a sustainable navigation strategy are integrated management of dredging and sediments, protection of shoreline areas from vessel-caused erosion (from the wake generated by ships) and the development of tools and policies to minimize the environmental risks and dangers associated with marine transportation.



Photo : Transports Québec

A worthwhile exercise

To promote integrated research into all aspects of marine navigation, the Committee has formed working groups made up of departmental experts who will consult the universities and private-sector organizations whenever necessary to obtain information on issues related to marine transportation. "The committee members work in a wide range of fields and so do not have uniform knowledge of all aspects of navigation. The working groups' contribution is



Photo : Transports Québec

essential to help the Committee consider important issues from all angles in endeavouring to devise or analyse possible solutions," said Jérôme Faivre, of the Quebec Department of Transport, co-chair of the Harmonization Committee.

It goes without saying that the committee members' different perceptions and concerns may give rise to divergent views. Like any other process geared to the integrated management of uses within a region,

this concerted action approach is likely to present challenges. "However, consensus-building is a prerequisite for the successful accomplishment of our mission, and this process will be crucial during the implementation phase, because of the need to balance economic imperatives with the health of the St. Lawrence," Mr. Faivre noted.

The outcome: a sustainable navigation strategy

By the end of Phase III of the St. Lawrence Vision 2000 Action Plan, the activities of the Harmonization Committee will give rise to a sustainable navigation strategy that addresses the various environmental, social and economic issues related to the St. Lawrence.

Concrete results are expected well before the strategy is tabled in 2003. "For example, if in studying a given issue the committee members see a need to modify present practices, measures could be adopted right away to sensitize the players concerned," said Gervais Bouchard, of Fisheries and Oceans Canada, the other co-chair of the Harmonization Committee. "The committee members will then rally the key stakeholders in order to raise awareness of the situation, thus ensuring concerted action in keeping with the goal of sustainable navigation. The ZIP committees, for their part, may also play an important role by relaying information to the recreational boating community."

In view of the complexity of the issues involved, the large number of marine transportation players and the public's growing interest in the issues, efforts must be devoted to devising a coherent common vision of this use of the St. Lawrence. In line with the integrated approach adopted, the St. Lawrence Centre recently provided the Committee with a report on the

environmental issues related to marine transportation. A socio-economic portrait of marine transportation has also been prepared, by a consultant. These two documents will be made available to the general public to enable citizens to participate in carrying out initiatives that will help to achieve the goal of ensuring sustainable navigation, thereby fulfilling the Committee's mandate.

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Environmental and Economic Considerations: An Integral Part of Marine Navigation



Photo : Transports Québec

The St. Lawrence has characteristics that make it unique from the standpoint of biodiversity, geography and hydrology. This important waterway has played a central role in our society's economic development. The interdependence of the environment and the economy is something that has been emphasized repeatedly in the studies and other work done by the Shipping and Boating Harmonization Committee of St. Lawrence Vision 2000. Below we provide an overview of various marine navigation issues and challenges that are currently being addressed.

During earlier phases of the St. Lawrence Vision 2000 Action Plan, environmental studies were conducted to characterize contaminated sediments and evaluate shoreline erosion and other issues potentially associated with marine navigation. Some of the studies were connected with the Biodiversity thrust of the action plan. At present, the Shipping and Boating Harmonization Committee is striving to integrate all this environmental knowledge into a comprehensive approach to the different issues involved, which will encompass their social and economic dimensions.



Photo : Transports Canada

Dredging: a topical issue

Among the many issues addressed by the Harmonization Committee, dredging of river sediments is probably the one that has garnered the most public attention over the past few months. Riverside communities and environmental groups have raised concerns about the possible impacts of various projects planned by the marine industry, particularly the development of port areas and the proposed deepening of the shipping channel.

In keeping with the integrated approach characterizing its efforts, the Committee has mandated a working group to provide an overview of these activities, including dredging methods, disposal of dredged sediments and legal aspects. Depending on the positive and negative aspects that are identified, the committee members will be expected to come up with possible solutions, analyse them and, after reaching a consensus, adopt the requisite measures. In light of recent experiences and the complexity of the public consultation process, the Committee will also make recommendations for raising public

awareness and encouraging citizens to participate in the process.

Helping to protect sensitive areas along the St. Lawrence

The Harmonization Committee is also going to form a working group to study the problem of shoreline erosion caused by the wake from vessels navigating the St. Lawrence. Vessel operating speed is a topic that is bound to stimulate considerable discussion within the Committee. The force associated with the wave action (wake) generated by ships depends on several factors, including the ship's operating speed, tonnage, hull shape and distance from shore.

The Canadian Coast Guard already disseminates Notices to Shipping to encourage vessels to comply with speed limits that are likely to reduce the effects of wake from vessels. "In its analysis, the Harmonization Committee will explore the possibility of proposing a new approach for controlling vessel speed, which will strike a proper balance between the environmental effects of erosion and the economic repercussions that this measure might have on the industry," said Gervais Bouchard, of Fisheries and Oceans Canada, co-chair of the Harmonization Committee. "Before such a measure can be proposed, many parameters will have to be taken into account, such as the type of ship, its operating speed, the time of year and certain characteristics of the St. Lawrence. A monitoring procedure would also have to be



Photo : Transports Québec

established,” Mr. Bouchard stated further, emphasizing the complex nature of the research that the Committee will have to undertake in this regard. A further complication relates to deciding how to divide this task to cover both shipping and recreational boating.

Greenhouse gases on the agenda

The Shipping and Boating Harmonization Committee has also commissioned a study to compare the environmental impacts of the different modes of transport in terms of greenhouse gas emissions and other concerns¹.

Although commercial navigation is often perceived as a mode of transport with potentially adverse effects on the environment, studies suggest that it is the least polluting type of transportation. “The use of combined modes of transport in which the marine segment is maximized probably results in lower fuel consumption per tonne of cargo transported and hence less of an impact in terms of greenhouse gases,” said Jérôme Faivre, of the Quebec Department of Transportation, co-chair of the Harmonization Committee. “The Committee will discuss this matter in the report on marine navigation that it is drawing up. Reducing greenhouse gas concentrations is a crucial part of the ecosystem approach, and many stakeholders are concerned that climatic warming caused by the enhanced greenhouse effect will have a significant impact on water levels in the St. Lawrence and thus on marine transportation. The degree of reliance on maritime transportation worldwide and in the St. Lawrence is part of a global approach. The data that are collected will give decision makers a clearer picture of the effects associated with intermodal



Photo : Transports Québec

transportation and the implications with respect to reducing greenhouse gas emissions.”

Exotic creatures invading our ports

The Harmonization Committee will also look into the threat posed by harmful exotic species² that are transported by ships in their ballast water and then accidentally introduced to new ecosystems when the ships pick up or offload cargo at various ports.

The introduction of exotic species has effects on the environment, the economy and public health. The zebra mussel is a classic example. This bivalve native to the Caspian Sea was first introduced to the Great Lakes through ballast water discharges and has since spread rapidly. Serious economic impacts have resulted from the mussels’ habit of colonizing and eventually blocking municipal and industrial water intakes.

In conjunction with Transport Canada, the Shipping and Boating Harmonization Committee will hold a workshop on November 30 to discuss this issue and formulate recommendations for the Canadian Marine Advisory Council’s Standing Committee on Environment.

¹ Greenhouse gases: gases in the lower atmosphere that trap heat, thereby maintaining an average temperature essential for life on Earth. Increased concentrations of

greenhouse gases resulting from human activities have been blamed for the present global warming trend.

² Exotic species: plant or animal species introduced to an area outside its normal geographic range.

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Additional References

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Chronicle

ZIP Committees in
the Heat of the Action

Saguenay ZIP Committee

Shoreline restoration on Ha! Ha! Bay



Between 1993 and 1999, under the Area of Prime Concern Program, or ZIP Program for short, 13 regional ZIP committees were set up to carry out concerted action in an equal number of areas along the St. Lawrence River. Phase III of the St. Lawrence Vision 2000 action plan is dedicated to the implementation of the environmental remedial action plans (ERAPs) drawn up by the different riverside communities involved. A new ZIP committee will soon be joining the existing ones.

This article describes the activities of the Saguenay ZIP Committee, which has since 1996 been carrying out an innovative project to restore a wetland community originally composed of bulrush stands.

The Saguenay ZIP Committee will be celebrating its 10th anniversary this year. Its 3 535-km² territory is one of stark contrasts, as the home of large industrial concerns like Alcan and Abitibi-Consolidated and of numerous protected natural spaces, including the Saguenay–St. Lawrence Marine park and the provincial Saguenay Park. Le Comité ZIP.



Photo : Rémi Bouchard

In 1996, the ZIP Committee undertook to restore the riparian vegetation in a section of Ha! Ha! Bay, at the mouth of the river bearing the same name. This wetland—the second most important waterfowl observation site in the Saguenay—contained a bulrush community that had been severely degraded by log drives on the river. Thanks to financial assistance from many partners, including Environment

Canada, the Quebec Department of the Environment and Wildlife, the Fondation de la faune du Québec and the Town of La Baie, more than \$280,000 has so far been invested in restoring this site's ecological characteristics and value, an effort which has also provided the opportunity to develop an effective, low-cost method for planting stands of American bulrush.

The first planting... gone with the floods

The first phase of experimentation got under way in the spring of 1996, when bunches of bulrushes were collected from donor sites and transported to the mouth of the Ha! Ha! River, where they were replanted. The planting technique developed for the project proved to be effective, with the bulrush stems growing about 25 cm between June 10 and July 12, 1996.

Unfortunately, however, the torrential rains that struck the Saguenay region in July 1996 cut the project short. According to Charles Lesueur, the biologist in charge of Project Bulrush, said : "The floods destroyed all of the recently introduced plants, in addition to washing away the natural vegetation at the mouth of the Ha! Ha! River. In view of the success of the initial planting efforts, the ZIP committee decided to broaden the undertaking and rehabilitate the entire flood-impacted sector, which meant revegetating an area 10 times larger than originally planned."

When geese flock to the site...

Other plantings were carried out during the summer of 1997 in an effort to fine-tune the method developed and to identify the environmental factors (type of substrate, immersion period, fertilization, etc.) that influence the growth of bulrush communities. At the end of the growing season, the

survival rate of the planted bulrushes was 99.4 percent.

In the spring of 1998, a large-scale planting involving 20,000 plants was carried out, based on the knowledge acquired from the earlier experiences. Although the growing season was very satisfactory, severe damage was observed in the fall after a flock of Canada Geese raided the planted areas.

“These geese, which were part of a breeding population, generally do not feed on bulrushes. However, the lightly compacted soil around the new plants made the rhizomes easier to eat,” explained Mr. Lesueur. Another hypothesis put forward by some people was that the fertilizer used made the plants more palatable to the geese.



Photo : Ghislain Sylvain

A working group composed of various regional and provincial players was formed to address this problem of wildlife-induced damage. The solution they came up with, which was tested in the spring of 1999, was to install stakes with red ribbons tied to them. This low-cost structure proved effective for scaring the geese away and protecting the planted bulrush stands. A system of nets on the ground was also tested; however, it will not be used in future years because of the low cost-benefit ratio.

Expertise worth exporting!

Although the ZIP committee had to spread the work over a longer time period owing to the difficulties which plagued this innovative project from the start, the method developed for planting bulrush stands garnered a lot of interest. “Since the planting sites were located along the bike path, Project BULRUSH piqued the curiosity of many members of the community,” said Ghislain Sylvain, co-ordinator of the Saguenay ZIP Committee. “However, local residents were sceptical about our chances of getting anything to grow in this bare sector.”

A number of experts also expressed keen interest in the planting trials. “We are now planning to prepare a handbook so that our bulrush planting protocol can be shared with other stakeholders. Other shoreline communities will thus be able to apply the techniques we have developed—from collecting bulrushes and fertilizing the planting sites through regenerating donor sites and implementing measures to prevent damage,” Mr. Sylvain noted, stressing the importance of the collaborative efforts by the many partners involved, including the local bird-watching club and waterfowl hunters’ association (Club des ornithologues amateurs du Saguenay—Lac-Saint-Jean and the Association des sauvaginaires du Saguenay—Lac-Saint-Jean) along with the Town of La Baie.

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News *in* BRIEF



Underwater painting taking place at the Biosphère

From November 6th, the Biosphère presents the exhibition Water Reflections. Are presented behind a thin curtain of water, nearly 30 paintings from artists and some 540 drawings created by as many children aged 7 to 13 in a framework of an educational activity at the Biosphère.

Regards sur l'environnement, la Capitale reçoit

Within the framework of the event **Regards sur l'environnement, la Capitale reçoit**, the Ministère de l'Environnement du Québec, RECYC-QUÉBEC and the Musée de la civilisation propose from November 1999 to May 2000, at the Musée de la civilisation in Québec, a series of conferences by experts on environmental questions. Water will be the subject of a great conference by the engineer-geologist, Jean Margat, a celebrity in the field. This conference entitled **L'eau et l'Humanité au XXI^e siècle** (Water and Humanity in XXI^e century) will be presented Tuesday, December 14th 1999 at 7:30 p.m.

Reservations: (418) 643-2158

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