

LE FLEUVE

Newsletter

Saint-Laurent Vision 2000

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IN TUNE

SLV 2000's Protection Component differs somewhat from the one established by the SLAP, especially with respect to the virtual elimination of 11 persistent bioaccumulative toxic substances. However, it shares the same important goal; the reduction in toxicity of industrial effluents discharged in the St. Lawrence.

In order to reach this objective, 56 new establishments, including some located along 15 tributaries of the St. Lawrence River, are added to the 50 already targeted by the SLAP. In addition, the ministère de l'Environnement et de la Faune du Québec decentralizes its operations of interventions with the establishments, which contribute financially in the various components of the program.

SLV 2000 is two levels of government and many committed departments, it is a greatly publicized program with well-defined goals and structured response plans. SLV 2000 is a true catalyst which motivates and encourages active participation. The priority establishments see and understand the importance of following the environment-based trend proposed by the program. In fact, they are aware that interesting things are brewing and that these things are advantageous to all concerned.

The success of the Protection Component rests, for the most part, on the participation of the industrial establishments. The collaboration shown so far certainly makes this goal an attainable one.

The Protection Harmonization Committee

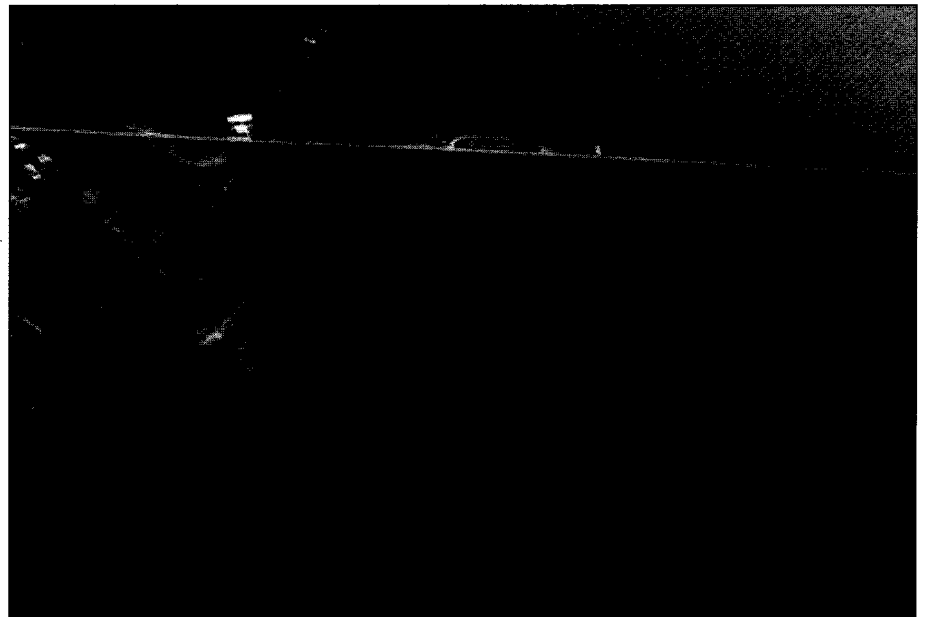
The Boyer River

Restoring a Spawning Ground for Smelts

Within the Upper Estuary, the Boyer River has been, for a long time, the principal spawning ground for the rainbow smelt. In the mid 1980s, this species had completely abandoned this spawning site. The complete disappearance is attributed to the Boyer River's deterioration caused by its eutrophication and by an increase in sediment uptake, two phenomena common to most rivers of Southern Québec. One must understand that the Boyer River basin covers

217 km², crosses two urban centers and accommodates approximately 300 agricultural producers.

The complete disappearance of the rainbow smelt in this spawning ground has people worried. Therefore, the ministère de l'Environnement et de la Faune du Québec (MEF, formerly known as MLCP) initiates, in 1990, a river restoration project. However, the question is complex, the targeted territory is large and there are many contributors involved.



The Boyer River, a tributary which was used in the past as a main spawning ground for the rainbow smelt.

Guy Trenché, MEF

In 1992, the Restoration Committee for the Boyer River becomes a reality. Today, this Committee includes several partners and concerned departments, such as the Bellechasse RCM, the Fédération de l'Union des producteurs agricoles of Lévis-Bellechasse, the Association Belle Chasse et Pêche, the Club Richelieu of Saint-Charles, the Comité de priorités environnementales de Bellechasse, the ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec (MAPAQ) and the MEF.

"To successfully regroup at the same table people who do not normally meet and interact together - the wildlife specialist with the agricultural producer or with the municipality representative for example - and above all, to successfully establish a joint method of action is very noteworthy and unusual", mentions Guy Trecia of the MEF's Québec regional office and member of the multipartite Committee.

On the Right Track

In 1993-1994, the Committee had focused its efforts on the creation of the document "La Boyer de long en large". This document characterizes the drainage basin. It describes the biophysical and socioeconomic profiles of the region and summarizes the actions undertaken up to date in matters pertaining to the municipal and agricultural clean up. According to Mr. Trecia, defining the environmental characteristics will allow for a more accurate description of the problem and consequently, for a better orientation of the subsequent activities.

At the same time and on a voluntary basis, important clean up work, embankment protection efforts, and valorization of animal fertilizers were carried out with a financial contribution from SLV 2000 (Biodiversity and Agricultural

Components), standard MAPAQ programs, the Canada-Québec Agreement on sustainable agriculture, the Programme d'aide à l'amélioration de la gestion des fumiers (PAAGF), and from the Fondation de la faune du Québec.

For example, 94 cattle-watering areas, far removed from the River, were fenced and organized, 50 or so erosion sites were restored, 82 km of riverbank were vegetated, eight farming enterprises now satisfy current cattle management guidelines, and corrective measures were carried out at the sewage plant in Saint-Charles de Bellechasse. In addition, the widespread distribution of the newsletter entitled "Au Courant" gives the community accessible information concerning the river restoration projects.

Furthermore, the Centre Écologique du Lac Saint-Jean has recently been granted, from SLV 2000's Community Involvement Program, financial assistance for operating a smelt egg incubation facility at the de l'Église Creek. This subsidy will, for the most part, be used to improve the facility and by doing so will support the restoration of the smelt population in the Boyer River.

"They are a number of worthwhile undertakings being realized in the river, but still much more needs to be done. The active participation of the riparian community in the various aspects of the clean up (close to \$500,000 already invested by farming enterprises) is an excellent indicator of just how successful the restoration project really is. Motivated by the important network established among the partners, the voluntary participation of the riparian community allows for an optimistic outlook on the realization of our goals", concludes Mr. Trecia.

READINGS

Analysis of Benthos Samples from Lake Saint-Louis

Jacquaz, B., 1995. Analyse d'échantillons de benthos provenant du lac Saint-Louis. A report written by the St. Lawrence Centre-Montréal. Environment Canada, Environment Conservation. 35 pp.

Within the framework of a project on the development of a biotic integrity index, the analysis of the specific composition and densities of benthic macroinvertebrates was conducted on 24 samples drawn, in 1991, along four stations in the Beauharnois region, in Lake Saint-Louis. This report deals with the various methods used to analyze the samples of benthic macroinvertebrates. It outlines the results of the specific composition and densities of the organisms identified from the 24 samples taken.

Water Quality Program Evaluation and Update

Houle, D., D. Dupras, and A. Sylvestre, 1995. Évaluation et bilan du programme de la qualité de l'eau. St. Lawrence Centre-Montréal. Environment Canada, Environment Conservation. 129 pp.

This report evaluates the water quality monitoring networks (Fleuve Saint-Laurent, Nouveau-Québec, Transfrontalier and Pesticides networks) and gives an update of all samples drawn. The evaluation deals mostly with the methods of analysis, the stations, and the sampling frequency. In all, 14 recommendations were formulated and 16 strategic stations in the St. Lawrence River were targeted. A complete revision of special projects of the Inlands Waters Branch is also presented and 33 projects are listed and described.

Rescuing a Rare and Threatened Species

Within the waters of the Richelieu River resides a very unique species of fish, the copper redhorse; distinctive for its name and appearance but especially for its uniqueness. In fact, the copper redhorse is endemic to the Province of Québec; it is found nowhere else in the world. Once present in the St. Lawrence, between Beauharnois and Nicolet, as well as in certain tributaries (Yamaska, les Mille Îles), this vertebrate is now only found in the Richelieu River, between Chambly and Sorel.

In 1992, the ministère de l'Environnement et de la Faune du Québec (MEF, formerly known as MLCP) has begun a three-year-long study on the copper redhorse. This study is being done in collaboration with the Université du Québec à Montréal (UQAM), the Fondation de la faune du Québec, the Biodôme de Montréal, Fisheries and Oceans Canada, the St. Lawrence Centre (SLC), the Restoration Fund for Fish Habitat, the World Wide Fund for Nature and the SLAP. This plan has considerably improved our understanding of this species' biology, its habitat needs, and its population status. Furthermore, it provided the pattern for the elaboration of methodologies for keeping it in captivity, for its

artificial reproduction, and its breeding. In Chambly, plans for building a hydro-electric power station located upstream of the only known spawning grounds were also cancelled.

Spotlight on the Researchers

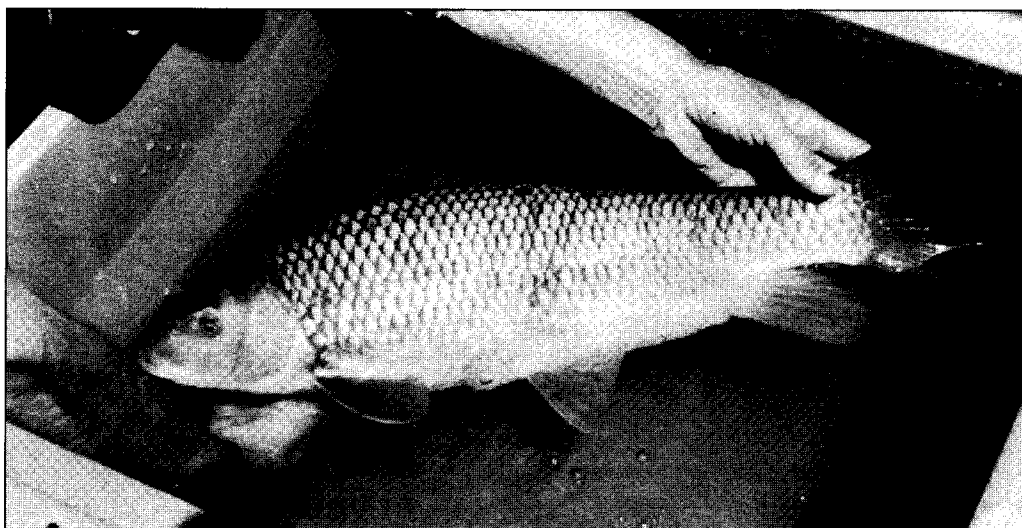
"The three years of research on the copper redhorse were three years of efforts focused on its safeguard, three years of collaboration among many researchers that have made possible the gathering of a great deal of scientific information", emphasizes Pierre Dumont, biologist at the MEF's Montréal regional office, Faune sector. On May 4, 1995, the MEF had organized a press conference at the Hôtel Des Gouverneurs in Montréal to make these scientific results known.

During three hours, current and potential partners, concerned municipalities, associations interested by the protection of species and journalists heard the following people: Alain Branchaud, researcher at the UQAM, Daniel Gagnon and Serge Pépin of the Biodôme, Pierre Dumont of the MEF in Montréal, and Yves de Lafontaine of the SLC. As an introduction, George Arsenault, Assistant Deputy Minister at the Ressource faunique et aux Parcs of the MEF, gave an historical review of the file, the MEF involvement, the partnership, and the conservation of the biodiversity in Québec. This species is rare and very vulnerable. The population status is precarious! These are the conclusions drawn by the researchers.

What Can Be Done to Protect the Species?

The Committee on threatened or vulnerable wildlife is now ready to recommend the motion making the copper redhorse a "threatened" species. It will become the first animal species to be protected under the Act respecting threatened or vulnerable species.

A response plan has been proposed, in the fall of 1994, and is now close to becoming a reality. "In the future, the most urgent matters need to be dealt with in order to get short term results", states Mr. Dumont. "Our goal is to formulate and execute concrete actions ensuring the survival of the copper redhorse until it is designated. Also, these actions will guarantee the preservation of a rare and threatened species in our waters".



Yves Chagnon, MEF

The copper redhorse: a rare and threatened species which is the subject of many research projects in Québec.

The Protection Component

Reducing Toxic Substances to Save Our River

The conservation, protection, and restoration of our river: a great task which demands the tackling of the real problems tied to the St. Lawrence; one of them being pollution. With the new SLV 2000 plan, the Governments of Canada and Québec will strive to continue the work undertaken in the SLAP (1988-1993) which is to reduce the toxic liquid discharge of industrial origin in our environment. This will be done, more precisely, by reducing the contaminants at the source and by evaluating the impacts of the discharge. Also, SLV 2000 has, as new objective, the long-term virtual elimination of 11 persistent bioaccumulative toxic substances.

The suggested approach is global or ecosystem-based, water-air-ground-wastes, where the emphasis is on the prevention of pollution. SLV 2000 has, therefore, targeted 56 establishments located along the St. Lawrence River and 15 of its tributaries. Since these establishments are likely to discharge toxic substances, they will soon be the subject of studies and of specific corrective measures. Adding these 56 establishments to the 50 already identified in the SLAP gives us a grand total of 106.

The Best Way to Say It

"Be careful! We must not say the 106 biggest polluters, but rather the 106 priority establishments. The Québec industrial picture has truly changed and the negative connotation associated with the word polluter could be detrimental", points out François Rocheleau, Québec's Protection Component coordinator. "However, we must admit that there are less and less major polluters that discharge, without restraint, their

contaminated effluents in the river. The major clean up efforts made are clearly visible", adds Gaétan Duchesneau, Canada's Protection Component coordinator.

In this respect, the Protection Component has initiated a process designed to implement a way of recognizing high-performance establishments which strive to reduce their toxic discharges. "Among the 106, many operate with proven processes. In fact, these plants have improved their environmental image considerably and want to be seen as "upstanding citizens" especially when dealing with international markets. They will be recognized, within SLV 2000, for their efforts and their investments realized toward a cleaner environment", mentions Mr. Duchesneau.

LIST OF THE 11 PERSISTENT BIOACCUMULATIVE TOXIC SUBSTANCES

- PCB
- DDT (+DDD +DDE)
- Dieldrin aldrin
- Toxaphene
- 2, 3, 7, 8 - TCDD
- 2, 3, 7, 8 - TCDF
- Mirex
- Mercury
- Alkyl leads
- Benzo(a)pyrene
- Hexachlorobenzene

The Best Way to Do It

The Protection Component Harmonization Committee, which has as copresidents MEF's Kathleen Carrière and Environment Canada's Jean Cinq-Mars, has a mandate to decentralize its operations and regionalize its activities. Instead of being realized by a joint and centralized team, the interventions implemented on the establishments are case managers divided among the 12 regional offices of the MEF.

MILIEUS

Centre Écologique du Lac Saint-Jean inc.

Ever since its creation in 1983, the Centre Écologique du Lac Saint-Jean has worked in the areas of wildlife and environmental management, development, conservation, and restoration. The CÉGEP of Saint-Félicien has always been favourable to the creation of this non profit organization. It was established in order to consolidate and develop the areas of environmental research and studies appropriate to this region.

The Lake Saint-Jean's landlocked salmon restoration project was the starting point for this organization. Following the feasibility study submitted in 1985, the Centre was granted recognition and support, by governments and regional organizations, for the construction of an aquaculture research, training, and production center. This aquaculture research center had, as its first mandate, the landlocked salmon restoration project, in concert with the ministère du Loisir, de la Chasse et de la Pêche (MLCP, known today as the MEF).

The Centre has acquired, through the many research projects done during the years, information and experience in the aspects of elaborating development and management methods for aquatic resources. For the last five years, the aquatic environment and aquaculture professionals and specialized technicians have been, among other things, involved in activities related to the restoration of the rainbow smelt in the St. Lawrence estuary and the Boyer River. In 1991, as requested by the MLCP and in order to decrease the smelt egg mortality rate, the Centre Écologique had developed, along the shores of the de l'Église Creek, an incubation station. This station is specially adapted to the physical characteristics of certain St. Lawrence tributaries. In 1992, after the first year of incubation, many worthwhile results were noted. This station has now been in operation for the years 1993, 1994, and 1995. The SLV 2000's Community Interaction program finances, in part, the operation and improvement of the station.

In order to link all the people scattered throughout this vast territory and to make them aware of the proposed approach, it was imperative to establish an adequate coordinating and training process. This task was assigned to François Rocheleau of the Montérégie regional office.

If the regional approach is considered an important challenge for the MEF, it represents, above all, sure-fire advantages for industrial establishments which dispose of a single access and a closer, more constant contact with government officials. The regional approach becomes the basis for a close collaboration and unique partnership, essential elements in a proactive action.

A Revealing Index!

The 106 priority plants selected were regrouped into four categories for which important goals were set. There are 11 plants which discharge

their wastewaters without adequate treatment, 22 plants that have implemented treatment technologies but are still likely to release toxic substances, 23 regulated plants (pulp and paper), and finally 50 plants already targeted by the SLAP.

The SLAP wanted to reduce by 90%, using important clean up work carried out on the 50 priority establishments, liquid toxic effluents released in the St. Lawrence. This 90% corresponds to a total value in the reduction of discharges applicable to all priority establishments selected. How to evaluate such a reduction? How can we say that the "1995-River" receives 90% less toxic substances than the "1988-River"? The answer: the CHIMIOTOX index. Chimiotox is an integrating toxic substances management model developed by the SLAP. It translates chemical analysis results into a

global index which is used as both an indicator of discharges and an indicator of efficiency. It takes into account the relative toxicity and the amount of each substance present in the discharge. It is because of the Chimiotox index that the Protection Component team is able to evaluate the magnitude of the discharge and to anticipate the reduction of 90% before the end of 1995.

In the SLV 2000 program, the toxic substances reduction objectives are

more specific because each plants category must meet precise reduction objectives. Furthermore, all must eliminate from their effluent 11 persistent bioaccumulative toxic substances. For this reason, the 50 SLAP establishments are still part of the SLV 2000 program. The clean up work endeavors and follow-up also explain the 50 establishments' ongoing involvement in the 1994-1998 Agreement.

The Major Objectives of the Protection Component

- Introduce corrective measures or negotiate water clean up programs with the 11 industrial establishments making up the first category of plant.
- Confirm the best possible reduction in liquid discharges originating from the 22 industrial establishments making up the second category of plants and introduce, if need be, corrective measures directed at the best possible reduction of discharges from these plants.
- Begin the evaluation of the impacts of toxic discharges from the 23 regulated industrial establishments making up the third category.
- Continue the necessary clean up work and produce an environmental follow-up of the 50 industrial establishments making up the fourth category.
- Continue the technological development regarding the environmental technologies in the industrialized sector, especially in the areas of hazardous waste management, dredging and treatment of contaminated sediments.

Six Important Stages, Six Important Challenges

The process whereby the toxic substances reduction objectives are reached is divided into six stages: the inventory, the initial characterization, the environmental objectives, the discharge guidelines, the clean up work, and the follow-up. The first two stages consist mostly in elaborating the curriculum vitae of the establishment. On the one

hand, the inventory helps determine, among other things, the type of activities, the manufacturing processes, the raw materials, the end products, the sewer configuration network, the type of treatment process used, the principal known contaminants present in the effluents, the location of effluent discharge, and its conformity to the

established guidelines. On the other hand, the characterization gives an update of the contaminants found in the discharge and evaluates the ecotoxicological effects.

"Following this complete overview, the establishment becomes very familiar to us. We now have all the essential data necessary to guide future

interventions", mentions Mr. Duschesneau. "We expect to complete the characterization of the effluents from 33 plants included in the first and second categories before the end of 1995", says Mr. Rocheleau.

In the following stages, specialists from MEF's Service d'évaluation des rejets toxiques determine

the tolerable limit of the effluents from the establishment in relation to the watercourse in which they are discharged, and its uses. The case managers establish the discharge standards in accordance with the best technologies. When current technologies do not allow to meet the environment protection objectives, it is often necessary to come up with new technologies that are better suited or more efficient. This is why the technological development programs of the Protection Component are so important (see side bar).

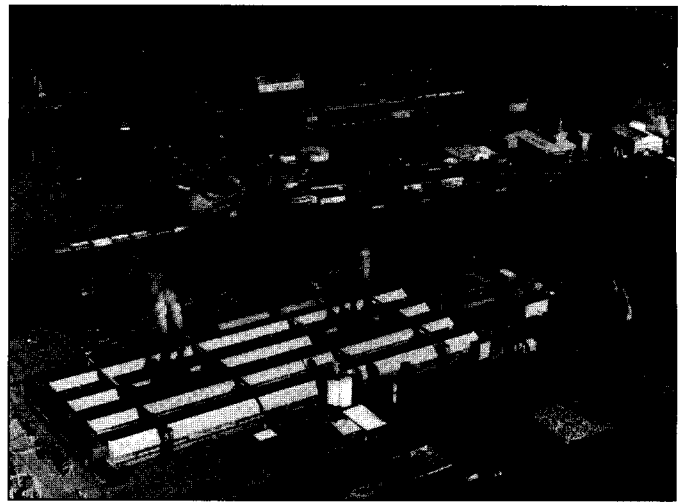
It is during the fifth stage that the heavy work begins. Corrective measures are carried out and many clean up programs are initiated. Currently, 38 pulp and paper mills have begun their work and about 10 establishments targeted by the SLAP, including QIT-Fer et Titane inc., Kronos Canada inc., as well as Reynolds Aluminium Company of Canada Ltd. of Cap-de-la-Madeleine

have completed the work. Tioxide Canada inc., has in fact closed the polluting section of its establishment. All these interventions contribute, on a large scale, to the realization of the toxic reduction objectives.

The very last stage consists of verifying the clean up work and to see whether it is in accordance with the permits, authorizations, or current environmental standards. Sampling stations located at precise points along the effluents have permitted, following monthly surveys done by the targeted establishments, the study of certain key parameters. According to Mr. Rocheleau, 12 plants from the fourth category have already been submitted to this kind of study and four more will be included shortly.

The Establishments Contribute

The Protection Component team can rely on an active participation from the establishments throughout the ongoing process. They not only



Three of the 106 priority establishments. From the St. Lawrence River to inland: ELKEM Métal Canada inc., PPG Canada inc., and SECAL, all located in Beauharnois.

cooperate but they are willing to assume all or part of the costs associated with the realization of the set objectives.

The average cost of the initial characterization is evaluated at \$50,000. From this amount, 75% is contributed by the establishment and 25% comes from SLV 2000. The follow-up characterization is covered, in its entirety, by the establishment. In order to validate the data, from the cost estimate to the final report,

SLV 2000 has implemented a rigorous quality control process. The industrial establishments will completely finance the clean up work. The plants can be granted a subsidy corresponding to 50% of the total cost when piloting a new technology project.

The dynamics created between the governments and the establishments is a guarantee of success. Our River, we have to save it.

The development of Environmental Technologies

The technological development section of Environment Canada's environment protection branch is associated to the pursuit of SLV 2000's objectives. It targets the marketing of new environmental technologies and the development of the environment industry in Québec. It contributes, through its scientific expertise and financial aid program, to the realization of partnership projects with both industrial and technology-promoting enterprises.

The technological Development targets, as a priority, the creation of pilot projects which lead to the implementation of cleaner technologies and technologies of virtual elimination of toxic discharges into the environment. Three areas are specifically targeted: the industrial technologies (reduction of toxic discharges), the clean up technologies (recovery, recycling, valorization of industrial wastes and contaminated soils), and the restoration technologies (dredging). In this respect, MEF's Fonds de recherche et de développement en technologie de l'environnement is also involved.

Since 1989, more than 70 development and pilot projects were conducted with the private sector. Examples of technologies include: the decontamination process (Décontaksolv) for PCB-contaminated capacitors, the versatile dredging equipment that allows for the control of sediment loss, a movable rotating press prototype for the dewatering of industrial sludge, a regenerating incinerator for the destruction of toxic emissions from tar paper establishments, etc. Until now, 23 of the 50 SLAP plants and 9 of the 56 from SLV 2000 have participated to the technological development program.

An information file is created by Environment Canada when a field-tested technique has a good market potential and is more likely to be sold. About 20 of those information files are currently available in a series entitled "St. Lawrence Technologies".

A Section to Restore

In the beginning of May, the governmental partners submitted a regional St. Lawrence River update for the Montréal-Longueuil section. This update deals with the most artificial section of the St. Lawrence between Lake Ontario and the Atlantic, highlights the obvious deterioration of the fluvial ecosystem.

"It is not surprising. We were aware of the river's poor condition", states Roger Laroche, the East of Montréal ZIP Committee coordinator. "On the other hand, we discovered that the river is still very much alive. It is, therefore, permitted to believe in its restoration and development."

This environmental update was designed to be, in reality, a tool, with which the ZIP Committee, the various concerned parties, and the community could use in the organization of a public consultation held in Montréal, near the end of May. The consultation had as main theme "Un fleuve s'ouvre à vous". The 15 or so priorities identified during this consultation were focused on two main subjects: the environmental contamination and the uses and habitats. This step is a prerequisite to the creation of the PARE (Plan d'action et de réhabilitation écologique - Ecological Rehabilitation Action Plan).

A Swim in the St. Lawrence River, Not for Tomorrow!

The Montréal-Longueuil section includes 26 hazardous waste sites and eight priority establishments

which are the object of an intervention in accordance to the SLV 2000 framework. The update has allowed us to observe that industrial, municipal, and port activities have led to a reduction in the quality of the aquatic environment. This reduction compromises the river's use as a swimming area and the consumption of certain species of fish drawn from it.

In the last 50 years, these activities have also contributed to the loss of 1600 hectares of habitat. "The dynamics for this section of the river differs from other regions which do not have to deal with such an intense level of urban development and industrialization", mentions Mr. Laroche.

An Area Full of Potential

The area studied consists of many rich and diversified habitats, such as 945 hectares of wetlands including high potential spawning grounds and high quality waterfowl nesting and rearing areas. The Boucherville Archipelago comprises the majority of the wetlands from the area studied.

There is also a tendency for the development and the reappropriation of the St. Lawrence surroundings resulting from the establishment, in the last decade, of several tourist attractions and tours related to the river. "Montrealers have forgotten that they are an island population. Therefore, they have to

realize just how important the river is, in their daily lives, in order to better benefit from it", adds Roger Laroche.



Submission of the environmental update. From left to right: Albin Tremblay, Marc Hudon, Roger Laroche, Yvon Labrosse, Guy Boucher.

CONTACTS

Restoring a Spawning Ground for Smelts

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The document "La Boyer de long en large" is available, for consultation, in the municipalities of the Boyer River drainage basin area and in all regional offices of the MAPAQ and the MEF.

Rescuing a Rare and Threatened Species

Pierre Dumont
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A Section to Restore

Roger Laroche
East of Montréal ZIP Committee
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Readings

The documents "Analyse d'échantillons de benthos provenant du lac Saint-Louis" and "Évaluation et bilan du programme de la qualité de l'eau" are available at the documentation center of the St. Lawrence Centre-Montréal.

Contact: Carmen Schwery
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Milieus

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du Lac Saint-Jean
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AGENDA

The following table represents, the dates of all public consultations listed in the ZIP program framework. The distribution dates of the information updates as well as

| ZIP Committee | Information update | Public consultation |
|-------------------|--------------------|---------------------|
| Québec | Fall 1995 | Fall 1995 |
| Alma-Jonquière | Winter 1996 | Winter 1996 |
| La Baie | Winter 1996 | Winter 1996 |
| Baie-Comeau | Spring 1996 | Spring 1996 |
| Baie-des-Chaleurs | Fall 1996 | Fall 1996 |
| Ville-Marie | Winter 1997 | Winter 1997 |

IN BRIEF

The fourth annual meeting technological transfer of the REPERE program was held at the Îles-de-la-Madeleine on the 1st and 2nd of March, 1995. This program has for main objective the gathering of scientific and technical information necessary for restocking the scallop population at the Îles-de-la-Madeleine. A discussion workshop on the different facets of a restocking

operation and its consequences on managing such a resource was also on the agenda. The organizations that participate in the REPERE program are the Association des Pêcheurs de Pétoncles des Îles-de-la-Madeleine, the ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec, Fisheries and Oceans Canada, as well as a few universities.

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