LE FLEUVE

St. Lawrence Action Plan Newsletter

Volume 1, No. 1, January 1990

Le Fleuve: a newsletter

WE ARE PLEASED TO PRESENT you with the first issue of "Le Fleuve", a newsletter designed to inform our partners and interested parties about the cleanup and conservation of the majestic St. Lawrence River. Nearly 18 months have passed since the federal government launched its ambitious program to protect, restore and conserve the river and its ecosystems.


Studio Henry

Several projects and studies have been undertaken since then and, in some cases, completed. Our goal in publishing this newsletter –however modest– is for you, as partners, to be regularly informed of the progress of these projects.

The St. Lawrence Action Plan was designed within a perspective of sustainable development, but it cannot be successful without your help. Please share your comments and suggestions with us.

I hope this initiative will help bring all those who care about protecting the St. Lawrence River closer together, and I invite you to watch for the next issue.

Jean-Pierre Gauthier
Director General, Quebec Region

FILE

Six months later:
The Canada-Quebec agreement

"A global vision of the governments' environmental activities has been presented. We have identified overlapping and redundant activities, problem areas, and the main objective of the agreement: joint action."

SIX MONTHS after the signing of the Canada-Quebec agreement, Albin Tremblay, secretary of the management committee for the St. Lawrence Action Plan (SLAP) federal-provincial agreement, feels it has already produced some results. "We now know what measures have been implemented by the governments, and this preliminary overview is the basis for coordinating future action."

Since the signing of a cooperation agreement June 8, 1989, each of the four coordination sub-committees (conservation, restoration, protection and state of the environment) has met on at least three occasions, while the management committee, which oversees the four sub-committees, has met five times.

Despite the short period the agreement has been in existence, these meetings have already resulted in concrete action in all four areas.

The Pivot

According to Albin Tremblay, the pivot of the agreement is the creation of a federal-provincial action group mandated to deal with the 50 industrial plants which SLAP considers to be the biggest polluters. "Herein lies the key to the plan's success, and an area in which the public demands immediate action." Moreover, the management committee is following up on this file daily. The action group is governed by the protection committee (see flow chart), which is responsible for coordinating federal and provincial activities and presenting them to the industries in concrete form. "The challenge is a considerable one," states Albin Tremblay, "because although we share the same motivation, ideas differ as to the specific action to be taken and the standards and deadlines to be enforced." Except for the action group, which is truly a joint tool, each partner oversees its own programs.

Environment Canada / Environnement Canada
Conservation and Protection / Conservation et Protection

The structure: two-headed, multidisciplinary and versatile

A CLEARLY DEFINED PARTNERSHIP is the structural basis for the Canada-Quebec agreement on the cleanup, protection, restoration and conservation of the St. Lawrence River. Each committee is alternately co-chaired by a representative from each component.

Two representatives from Quebec and two from Ottawa are responsible for the agreement's general administration. Jean-Pierre Gauthier, Director General of Environment Canada's Conservation and Protection Service for the Quebec Region, assumes the federal role along with Michel Lamontagne, Director of the St. Lawrence Centre. The provincial representatives are Germain Halley, Assistant Deputy Minister of Water Management and Treatment with the Ministère de l'Environnement du Quebec (MENVIQ), and Georges Arsenault, Assistant Deputy Minister of Wildlife Resources with the Ministère du Loisir, de la Chasse et de la Pêche (MCLP). The remaining members of the management committee are Albin Tremblay, Director of Analysis and Coordination for Environment Canada's Conservation and Protection Service, and Rolland Gosselin, from the office of the Assistant Deputy Minister of Water Management and Treatment (MENVIQ), who act as secretaries.

Four Sub-Committees

The same principles of equity and alternation are applied to the four coordination sub-committees, whose members are recruited from the three signatories of the June 8 agreement: Environment Canada, MENVIQ and the MLCP. The four components of the federal-provincial agreement reflect the program breakdown established for the St. Lawrence Action Plan (protection, environmental technologies, restoration and conservation). One committee, however, differs in its functions. Albin Tremblay explains: "For reasons of efficiency, it seemed advisable to combine certain less homogeneous files, such as those dealing with ecosystems, ecotoxicology, toxic inputs and the state of the environment, under the title "State of the Environment".

" Technological development, for its part, will be overseen by an advisory committee which is currently being created and which will include representatives from the Ministère de l'Industrie, de la Science et de la Technologie, and Quebec's main partners in this field. The advisory committee will answer directly to the management committee and will guide the technological development of the four coordination sub-committees, particularly the protection committee, whose aim is to reduce the amount of toxic substances poured directly into the river." According to the federal secretary for the agreement, it is essential that the structure remain lightweight.

The four sub-committees deal with concrete issues, and those for which no solution has been found are referred to the management committee. Each sub-committee must submit an annual activity report to the management committee. All the co-chairpersons of the management committee must themselves make an annual report to their respective ministers on the activities conducted under the agreement.

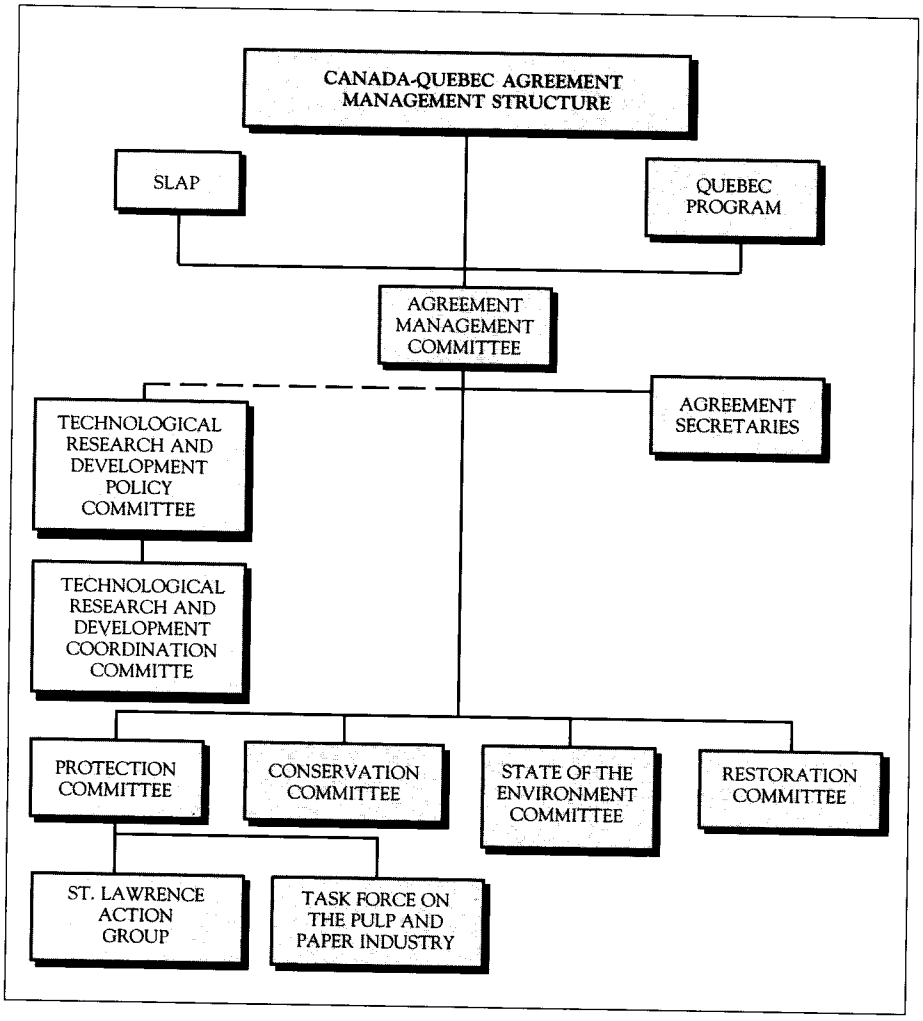
Efficiency and Coordination

The two secretaries, Albin Tremblay and Rolland Gosselin, ensure the coordination of the entire process and proper processing of the files. "Our role", explains Rolland Gosselin, "is to ensure that the coordination mechanism functions efficiently so that the specialists sitting on the committees are able to discuss current issues productively so as to find the best possible solutions. Our presence on all four sub-committees thus makes for more efficient coordination between the committees and the management committee."

On October 27, 1989, members from all four committees attended their first joint meeting to report on the various actions to be coordinated. Says Albin Tremblay: "Optimum results must be obtained from the $165 million invested by the two governments under the coordination agreement. The current auspicious economic conditions favour substantial, concrete progress toward an improvement in the state of the St. Lawrence River. All those working toward this end are investing an enormous amount of energy, creativity and cooperation, which is what this agreement aims to promote."

Studio Henry

Members of the management committee and the coordination sub-committees of the Canada-Quebec agreement.



Committee chairpersons

Management Committee

Jean-Pierre Gauthier, Director General, Quebec Region, Environment Canada
Germain Halley, Assistant Deputy Minister, Water Management and Purification, MENVIQ.

Restoration Sub-Committee

Raymond Perrier, Director, Environment Protection, Environment Canada
Gilles Brunet, Marine Environment Projects Coordinator, Environmental Assessment Branch, MENVIQ.

State of the Environment Sub-Committee

Michel Lamontagne, Director, St. Lawrence Centre, Environment Canada Denyse Gouin, Director, Water Quality, MENVIQ

Conservation Sub-Committee

Jean Cinq-Mars, Director, Canadian Wildlife Service, Environment Canada
Daniel Saint-Onge, Director, Wildlife Management, Species and Habitats, MLCP.

Protection Sub-Committee

Raymond Perrier, Director, Environment Protection, Environment Canada.
Maurice Masse, Director General, Water Purification, MENVIQ.

PARTNERS

Protecting, conserving and restoring the St. Lawrence River is a major undertaking involving a great many people. To carry out the Action Plan, the Canadian government's aim is to cooperate with several groups and agencies who share the same interests. The PARTNERS column introduces these agencies and their objectives, actions and achievements within the Action Plan.

STRATÉGIES SAINT-LAURENT

Brainchild of the Union québécoise pour la conservation de la nature (UQCN), this project took shape in 1988 under the title "Stratégies de protection, de conservation et de mise en valeur du Saint-Laurent" (St. Lawrence River protection, conservation and enhancement strategies). In May 1989, the UQCN, in conjunction with nine environmental agencies, launched "Stratégies Saint-Laurent".

Stratégies Saint-Laurent is a program of awareness and joint action which aims to involve the public in the river's conservation. Nearly half a million dollars will be invested to this end over the next three years. Regional reports on the biophysical and social aspects of this project are currently being compiled. A popularized regional portrait of the river will be published in June 1990. A tour, "Partners for the St. Lawrence", will follow in the fall of 1990. As well, the "Beluga" and "Pollution" awards will go to the public and private enterprises which have contributed the most...or least to cleaning up the river. Last summer, Stratégies Saint-Laurent also compiled an inventory for the St. Lawrence Centre of locations in which the water is safe for use (for drinking, recreation, etc.) within a five-kilometre area downriver from the 50 industrial plants targeted by the Action Plan. Moreover, a St. Lawrence Action Plan/Stratégies Saint-Laurent working group was set up to ensure information dissemination and exchanges, coordinate action and develop partnerships. Stratégies Saint-Laurent is a UQCN program carried out in cooperation with:

the Association québécoise des techniques de l'eau (AQTE)
the Conseil régional de l'environnement de l'Est du Quebec (CREEQ)
the Conseil régional de l'environnement du Saguenay/Lac Saint-Jean/Chibougamau (CRE)
the Corporation de protection de l'environnement de Sept-Iles
the Corporation pour la mise en valeur du lac Saint-Pierre (COLASP)
the Fondation des Grands Lacs
the Société linnéenne du Quebec
Save Tomorrow Oppose Pollution
the Société pour vaincre la pollution (SVP)

Joint task force on the 50 priority industrial plants

The Action Group Gets Down to Business!

THE MAJOR OBJECTIVE of the St. Lawrence Action Plan is to reduce by 90% the liquid toxic waste being discharged into the St. Lawrence River by 50 target industrial plants before 1993.

Field activities will be spearheaded by an action group. Its 25 members, who are highly experienced in environmental cleanup problems, come from the federal and provincial Environment departments and the private sector. Robert Tétreault, director of Quebec's industrial wastewater purification program, will supervise the group, whose mandate extends until 1993.

To respect the single-window concept and the provincial action mechanisms already in place, contact with the 50 industries will be made by experts who are already hired under existing programs, particularly MENVIQ's water purification program.

This means that specialists from each industrial sector (pulp and paper, metallurgy and petrochemicals) will establish mandatory cleanup programs for the 50 priority industrial plants.

"This group will be assisted by our technical staff, whose mandate is to ensure computer data management, conduct environmental studies and pinpoint technical solutions and technological research and development needs", explains Gaétan Duchesneau, technical director of the action group.

The environmental study group determines the objectives and standards regarding toxic waste, evaluates the localized impact and provides information on toxic discharge. The group works jointly with the technical staff, which decides what is technically and economically feasible as concerns cleanup measures and new manufacturing technologies to be set up.

The St. Lawrence Centre, for its part, provides the action group with the necessary assistance in research and development, laboratory analyses, quality control and ecotoxicological assessments.

A detailed portrait of the 50 priority industrial plants

THE SLAP ACTION GROUP'S FIRST STEP was to gather information on the 50 target industrial plants so as to learn as much about their activities as possible.

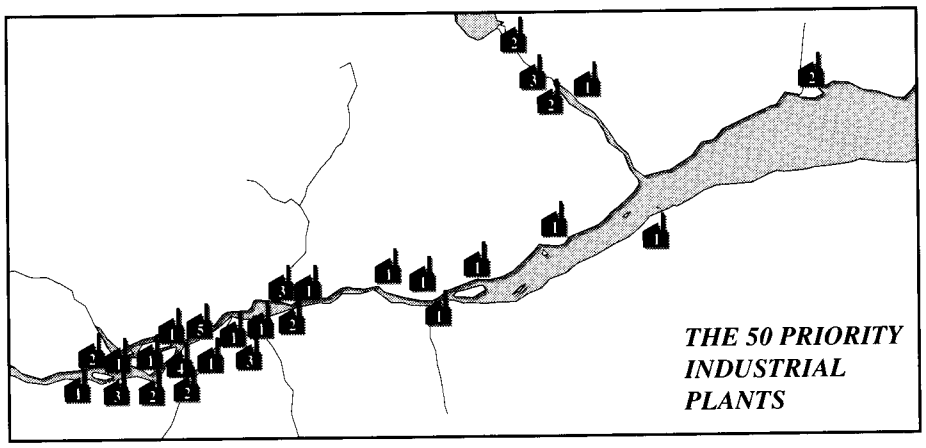
To do so, the group studied files from the various government departments concerned and the plants themselves to determine the industrial processes used and obtain information regarding sewer systems and wastewater, current treatment processes, previously signed draft agreements and authorization certificates.

The group has also pinpointed the needs and technical difficulties inherent in waste treatment. This information has been corroborated by the 50 plants in question.

In addition, the group has begun visiting the industries with a view to characterizing the effluents discharged by each of the plants. All toxic substances must be studied to include the new list of priority toxic substances (e.g., dioxins, furans and organochlorines) established by the federal Environment Protection Act.

This procedure involves three days of 24-hour-a-day sampling. Characterization is done by consultants for each type of effluent. The St. Lawrence Centre provides the necessary expertise to ensure stringent quality control of laboratory analyses. The action group's goal is to complete the characterization of 20 industries by March 31, 1990. The remaining 30 industries will be visited during the coming year.

The process is relatively long, as the group must conduct an ecotoxicological assessment of the waste's effects on the river. Living organisms in the waste are analyzed using bio-indicators, an advanced methodology developed by the St. Lawrence Centre. The Centre also provides the action group with research and development assistance.



THE 50 PRIORITY INDUSTRIAL PLANTS

Lac Saint-François contamination study

Since spring 1989, the toxic substances section of the St. Lawrence Centre Ecotoxicology and Ecosystems division has been conducting a study on the contamination of Lac Saint–François, under the supervision of Harm Sloterdijk.

A COMPREHENSIVE SAMPLING CAMPAIGN, which ended in November 1989 and covered the area between Cornwall and Valleyfield, provided valuable data on the water transport of toxic substances and bed sediments. The samples and the data gleaned therefrom will be analyzed over the winter.

"Our goal is to understand the dynamics of the system, rather than to present a static cartographic image of the areas of toxic concentration. We will be compiling a report on the mass of toxic substances, by evaluating the quantities of toxins accumulated in and dispersed by the lake", explains Mr. Sloterdijk.

The results of the studies done on Lac Saint-François will help establish a global data base on the lake's current contamination levels. Similar sampling will be carried out in other areas of the river at a later date. This information will serve as reference data for assessing the impact of cleanup activities conducted as part of the St. Lawrence Action Plan.

Lac Saint-François, which is the St. Lawrence River's entry point in Quebec, was selected because it is relatively easy to study, given that all the major sources of contamination are located upriver. There are no major industries on the lake's shores.

The toxic substances which are present in the St. Lawrence River can accumulate either in living organisms or in bed sediments. A substantial section of the study is devoted to these phenomena.

The Groups at Work

A group hired on a contract basis, under the supervision of Stéphane Lorrain, conducted sound coverage surveys and took samples using snappers and sediment samplers. Between August and October 1989, 155 sediment samples were collected for analysis of their geophysical characteristics.

An analysis of certain radioelements and the results of the sound coverage surveys should give a good idea of sediment stability and its potential for being reintroduced into suspension. This phenomenon is very important because, if found to be contaminated, the sediments may in turn become a source of contamination for the river. To evaluate the degree of contamination in Lac Saint-François, some 50 samples will be analyzed for toxic substance content.

The study of the water transport of toxic substances and hydrodynamics is being conducted in cooperation with the Canada Centre for Inland Waters in Burlington. Every month from May to October last year, Claire Lemieux's team submerged a piece of tubing for 72 hours to assess the concentration of toxic substances in the water. The results will serve to compile a report on the substances accumulating and dispersing in the sector under study.

At the same time, Jacques Bureau has been conducting a study on young fish to evaluate the influence of toxic substances from Massena, Lake Ontario and Cornwall. This study will, in part, confirm the results of the studies on sediments and water transport of toxic substances.

As well, a study on certain enzymes found in the liver of young fish will help determine the presence of toxic substances which do not bioaccumulate, such as PAHs, for example. Another research component is devoted to studying macrophytes. Within this component, special attention is given to toxic bioaccumulation in macrophytes and macrophytes as sediment stabilization agents. Lucie Veilleux has conducted a preliminary study on macrophytes to evaluate their levels of toxic accumulation. The results will determine the future course of the research project.

In general, field work was largely carried out by consulting firms. INRS-Eau and the Canada Centre for Inland Waters are both partners in the research project

Carole Pinsonneault

READING

ST. LAWRENCE ACTION PLAN

Annual Report 88-89

There are still a few copies of the St. Lawrence Action Plan's Annual Report 88-89, published in June 1989. The report discusses the stages completed after the first months of activity and provides a glimpse of the projects planned for Year II. The report is divided according to the Plan's main components: protection, environmental technologies, restoration, conservation and the St. Lawrence Centre. For each sector, the completed activities are detailed (studies, contracts, organization, etc), along with the federal funds committed to the Plan, as well as the activities planned for the following year. A budget breakdown detailing sources of funding, contracts awarded to private companies and the names of the 50 priority industrial plants complete the report. A bilingual version of the report can be obtained from the St. Lawrence Centre, 105 McGill Street, suite 400, Montreal, Quebec, H2Y 2E7 (514) 283-7000.

ST. LAWRENCE CENTRE

The St. Lawrence Centre, a new, permanent component of Environment Canada's Conservation and Protection Service (Quebec Region), is a specialized entity created to support the St. Lawrence Action Plan. The Centre manages 50% of the total Action Plan budget and oversees 60% of the Plan's activities. The Centre recently published a brochure detailing its action philosophy and operational structure. It describes the aims and fields of activity of the Centre's three divisions: technological development, ecotoxicology and ecosystems, and knowledge of the state of the environment. The St. Lawrence Centre's offices are located in Montreal and Quebec City, while its laboratories are in Longueuil. A bilingual version of the St. Lawrence Centre brochure is available at the following address: 105 McGill Street, suite 400, Montreal, Quebec, H2Y 2E7.

Joint decontamination project

IN MARCH 1989, the St. Lawrence Centre joined forces with the Biotechnology Research Institute (BRI) to conduct a project aimed at developing strategies for decontaminating waste from contaminated soils.

The joint project, which requires an investment of $1.8 million over two years, is aimed at developing and upscaling biological processes for the decontamination of soil, sludge and waste which has been contaminated with toxic chemical substances. The target contaminants are found on a number of sites belonging to the petrochemical and pulp and paper industries, to name only two.

This is the first major joint project between the St. Lawrence Centre and a research institute.

Paving the Way for Industrial Site Decontamination

In the medium term, the results of this research could have repercussions on the decontamination of industrial and orphan sites in Quebec which have been contaminated by hydrocarbons and other toxic waste. The project could also be applied to the cleanup of areas contaminated by organochloric pesticides or biocides of the chlorophenol family.

The agreement signed by the two parties covers every stage of the project, from basic research to effective implementation of technology, applied research and technological development. The Institute provides material resources, particularly its laboratories, while the Centre contributes its consulting services and industrial application expertise.

Neutralizing Molecules

In this process, the contaminant is neutralized to be made more easily biodegradable. The project is divided into five secondary projects involving advanced microbiology and reactor engineering.

Biotechnology uses microorganisms placed in a controlled environment, such as a reactor or a cell, that provides them with favourable growth conditions including nutritive elements, humidity, organic matter and so forth. The first phase of the project is aimed at developing microbiological stock culture, that is, specialized microbes which, when injected into the reactor, can survive and break down PCB and PAH molecules or other toxic substances.

The second phase involves the identification, selection and combination of the specialized microbes so as to make toxic molecules digestible.

Chemical and photochemical preprocessing of organochlorine–contaminated solids will be perfected to break down the molecules and make them more accessible. For biotechnology to be applied effectively, biological and other techniques must be developed.

Finally, two specific PAH and organochlorine biodegradation projects will be developed from other activities. Once these technologies have been developed in the laboratory, the researchers will test them and the technico-economic report on a pilot scale before testing research results in the field. In a later phase, the procedure will be used in a commercial scale in industrial site decontamination.

Those responsible for the project, Dr. Ronald Zaloum of the St. Lawrence Centre and Dr. Réjean Samson of the Biotechnology Research Institute, presented their research project at the 12th International Symposium on Wastewater Treatment held in Montreal in late November 1989.

Environmental atlas of the St. Lawrence

THE ST. LAWRENCE CENTRE commissioned Laval University's geography department to draft a series of 36 maps which will make up an environmental atlas of the St. Lawrence River. The agreement, with a total budget of $900 000, will be carried out over a period of three and a half years. Laval University is to submit the first five plates to the St. Lawrence Centre, which will print the posters, in late March 1990.

The first plates will cover the St. Lawrence's hydrological system, the physical characteristics and dynamics of bed sediment, river ecosystems, toxic substances and occupation of the land from colonization until the early 20th century. The University is to deliver 11 plates in March 1991, 12 in March 1992 and 8 in March 1993. Another of the Centre's mandates under the St. Lawrence Action Plan is to obtain and provide knowledge about the current state of the river environment.

The objective of the environmental atlas is to sensitize people to the river's ecological components through illustration of the spatial distribution of biophysical and socioeconomic elements of the St. Lawrence and its shores, along with their multiple interactions. The atlas is further being published with a view to disseminating knowledge about various aspects of the river environment for the benefit of the general public. However, it could also serve as a tool in providing valid solutions to the river's restoration, protection and conservation.

The colour, poster-form maps will measure 60 x 100 cm, with each plate devoted to a particular theme. Four large groups of plates will be presented in separate cases, according to the themes dealt with. Some of these themes will be the physical environment, flora and fauna, land occupation, navigation, various commercial and recreational uses of the river, and toxic discharge.

Marc Robitaille

"Given that these maps are intended for a large public, their content will have to be easy to understand, yet detailed enough to paint an accurate picture; the technical data usually found on maps will serve as the basic framework for the posters", explains Michel Guénette, scientific and technical coordinator of the project for Laval University. Information on a given environmental subject will be included in this framework to offer the reader an historical overview, complete with illustrations. Sketches, photographs, drawings, diagrams and text will also be included to provide the best possible synthesis for each theme.

The University's geography department already possesses a solid grounding in the creation of these types of maps. It is equipped with all the necessary micro-computer equipment for data processing and desktop publishing for graphic map design. Members of the department have already published the "Inter Atlas", in which each map combines several elements.

"We will be devoting our efforts chiefly to the processing, popularization and attractive display of the data", explains Benoît Robitaille, head of the geography department and administrative supervisor of the project for Laval University. An external scientific committee will ensure thematic coherence within the atlas and will orient the general content of the plates. Michel Melançon, scientist-administrator at the St. Lawrence Centre, will represent Environment Canada for this project.

The atlas will be produced mainly using computers; in fact, it may be one of the first atlases created almost entirely using electronic methods. According to Benoît Robitaille, this is a major graphic and scientific challenge.

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Contaminated sediment databank

THE ST. LAWRENCE CENTRE information bank on dredging projects and contaminated sediments in the St. Lawrence River will soon be ready for use. Both the general public and any bodies interested in the river's environment will have access to this bank.

This practical, easy-to-use information tool will allow for the management of all data regarding dredging and the quality of sediment in the St. Lawrence.

The task consists in using the two existing data banks to generate a computerized bank of physicochemical data on the quality of river sediments. The bank will also include maps, tables and lists of dredging volumes and sites which have been drafted since 1977.

DATAPAC Makes For Easy Consultation

The data bank has been designed for 24-hour consultation using the DATAPAC network and for easy user-computer interaction.

A map component included in the program will make it possible for users to retrieve data sources with the help of maps and tables. It also offers direct access to physicochemical data on dredging, volume and location through querying of the map.

There are further possibilities, such as thematic mapping of the data, research in a given sector, and entering physical and chemical parameters or a combination of parameters for a given sector.

The information and its graphic representation will be classified by year, river sector, locality and contaminant. For example, it will be possible to obtain tables on dredging volumes for a specific sector and year.

The data bank covers the entire St. Lawrence River region, from Cornwall to the Iles-de-la-Madeleine, including the Baie des Chaleurs and the Saguenay River. Graphic data are accessible on scales of 1/250 000 for the representation of more than one sector and 1/50 000 for a single sector.

Besides serving as an information tool, the data bank will assist the St. Lawrence Centre in presenting a detailed report on sediment quality as part of its annual report on the state of the environment of the St. Lawrence River.

IN BRIEF

Recent nominations to the St. Lawrence Centre,

Michel Provencher: head of the Knowledge of the State of the Environment division at the St. Lawrence Centre since November 1989. Mr. Provencher was formerly director of the Laval-Laurentides regional office for the Ministère de l'Environnement du Quebec.

Jean Burton: assistant director of scientific coordination and planning at the St. Lawrence Centre since October 1989. Mr. Burton was director of human resources at the Canadian Manufacturers' Association for two years. He was also employed with SOQUEM and holds a doctorate in biology.

Hélène Boyer: information agent for the St. Lawrence Action Plan since December 1989. Ms. Boyer will also assist the Direction régionale des communications in the area of conservation and protection. She was formerly head of communications for the Lakeshore community health department for several years and was involved in several public information projects pertaining to the environment.

These people can be contacted at the St. Lawrence Centre at (514) 283-7000.

COMING EVENTS

January 29-February 2, 1990

76th Annual Conference of the technical workers of the Canadian Pulp and Paper Association (CPPA)
Palais des congrès, Montreal
Telephone: (514) 866-6621

March 19-23, 1990

Globe 90: Trade show and conference on international opportunities for business and the environment.
Trade and Convention Centre, Vancouver
Telephone: (604) 681-6126

April 4 and 5, 1990

4th Symposium on toxic substances by Environment Canada, MENVIQ, CSST and APCA.
Queen Elizabeth Hotel, Montreal
Telephone: (819) 953-1199

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