Fisheries and Oceans Canada
Pêches et Océans Canada

INFOCEANS

THE QUEBEC REGION BULLETIN — AUGUST – SEPTEMBER 2010/VOLUME 13/NUMBER 4

UNDERWATER IMAGERY ON A SLED...

LEARNING MORE ABOUT THE SEABED

For some years now, the scientists at Maurice Lamontagne Institute have been using an innovative tool to see and better understand what's happening deep beneath the surface of the St. Lawrence. The optical imagery system, updated and improved over the years as technology advances, provides highly precise information about the biology and geology of the seabed.

Benthic habitats can be characterized much more easily than in the past using the exceptional quality photos and the videos that are produced. The selected photos are meticulously analyzed to identify all the invertebrates that can be seen and the nature of the seabed (sand, clay, pebbles, shells, boulders and bedrock). As for the videos, they more generally help to identify fish and other mobile organisms such as crabs. In this way, scientists can evaluate their density and verify the particular associations that might exist between some marine species and the type of seabed. The video is also used to see the transition from one substrate to the next, from sand dunes to gravel, for example.

These data are all tied to a precise geographical position. They can therefore be used for a variety of research projects; examples include studies to learn more about the ecosystem in a given area, the species that live there and the type of sediments present there. Furthermore, physical and chemical data such as the temperature, depth, salinity, and oxygen concentration associated with each location examined can be recorded.

» CONTINUED ON PAGE 3

DFO C. NOZÈRES

RECORD LOW WATER LEVELS

IN THE ST. LAWRENCE

The monthly mean water levels in the St. Lawrence were exceptionally low last spring. Such low water levels are generally recorded at the end of the summer, making the 2010 season exceptional.

In the Port of Montréal, the Canadian Hydrographic Service (CHS) recorded mean water levels of 0,60 m in April, -0,15 m in May and -0,22 m in June with reference to chart datum. The level for the month of May was the lowest ever recorded for that month since records were first kept (1913-2010). As for June, the only year lower levels were recorded was in 1965.

The impact of low water levels is felt primarily in the section of the St. Lawrence River between Trois-Rivières and Montréal as well as in Lac Saint-Louis. The tide has no influence in this portion of the river. Farther downstream, the tide compensates for low water levels during part of the day, and offers shipping a margin for manoeuvre.

This situation is the result of mild temperatures and low snow accumulation last winter. These conditions reduced the spring freshet, which had a direct impact on water levels in streams. However, since water level is closely tied to weather conditions, consistent rainfall over the Great Lakes and Ottawa River watersheds could change the forecast and restore the situation in the St. Lawrence to normal.

Monthly mean water levels below chart datum affect both recreational boaters and mariners, and can pose hazards to the safety of people and the environment. For commercial mariners, low water levels also mean that they must reduce their cargo weight. As for recreational boaters, they must make sure they stay in the deepest channels.

The CHS is responsible for measuring water depth, monitoring and predicting water levels, establishing chart datum and mapping waterways.

Denis Lefaivre
Science

TIPS FOR SAFE BOATING

Safe boating begins with proper preparation. Before setting out, you should:

- Obtain information on water levels by dialing the toll-free number **1-877-775-0790** or from the Internet at: www.tides.gc.ca;
- Keep the most recent nautical charts on board and use them;
- Update your nautical charts using the notices to shipping posted at www.marinfo.gc.ca (under the tab *Notships*) and the notices to mariners posted at www.notmar.gc.ca;
- Check water levels in the area where you are navigating to make daily corrections to the depths indicated son the charts. The water level value must be added to or subtracted from (when it is negative) the depth indicated on the chart;
- Take into account that low water levels affect the position of buoys. In such conditions, buoys may not be sufficient for accurate identification of a navigation zone or a channel that is safe for certain vessels;
- Do not venture into unfamiliar areas without obtaining information about obstacles and obstructions; and
- Reduce your vessel's speed where the current permits.

PROTECTING THE SPRING CISCO TO PRESERVE QUEBEC'S BIODIVERSITY

Fisheries and Oceans Canada is currently studying the possibility of adding the only known population of Spring Cisco (*Coregonus sp.*) to the species at risk list as an endangered species. This small freshwater fish is found only in Lac des Écorces in the Laurentians.

This particular cisco is unique because it is the only one that spawns in the spring; all the other cisco populations reproduce in the fall. The temperature conditions of the lake (relatively high summer temperatures, late cooling in the fall) may explain why this population has evolved to spawn in the spring in Lac des Écorces.

A DECLINING POPULATION

According to the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) this population, which exists nowhere else in Canada, may face extirpation. The status and size of the population are unknown, but fish survey catches have fallen drastically over the last fifteen years.

Lac des Écorces has experienced numerous disturbances for over 50 years. Human presence has intensified since the 1970s as new areas on the shores of the lake have gradually opened to housing (principal and secondary residences). In addition, the lake has been stocked with fish of many species in order to promote recreational fishing. The Rainbow Smelt's recent colonization of the lake, observed in 1999, appears to have become the main threat to the Spring Cisco's recovery.

MRNF M. HÉNAULT

A POPULATION TO PROTECT

If the Spring Cisco is added to the species at risk list, it will automatically be protected since it is prohibited to catch or kill any species recognised by the *Species at Risk Act*. A recovery program will then be drawn up by Fisheries and Oceans Canada, in collaboration with concerned stakeholders interested in participating in the recovery of the Spring Cisco.

For more information, you can consult the Species at Risk Registry at www.sararegistry.gc.ca.

Andréanne Demers
Oceans, Habitat and Species at Risk

A CAREER WITH THE CANADIAN COAST GUARD

The Canadian Coast Guard offers some interesting career opportunities. Here are just a few of them:

- Electronics technician
- Engine room rating
- Deckhand / Helms (man/woman)
- Marine communications and traffic services officer
- Marine engineer
- Navigation officer

For more information:
www.marinfo.gc.ca
1-866-660-6948 (toll free)
info-carrieres-RQ@dfo-mpo.gc.ca

DECLINE IN THE EEL POPULATION

IS THE MATERNAL TRANSMISSION OF CONTAMINANTS THE CAUSE?

American eels reproduce in the Sargasso Sea, near Bermuda. The young eels then begin their transatlantic migration to reach fresh water where they mature for several decades before returning to the Sargasso Sea, where they die after spawning. In the mid 1980s, for no apparent reason, the number of American eels returning to Lake Ontario experienced a serious decline. Because of this decline, eel fishing was prohibited in Lake Ontario and the St. Lawrence River, and the eel was designated a species of Special Concern by the Committee on the Status of Endangered Wildlife in Canada.

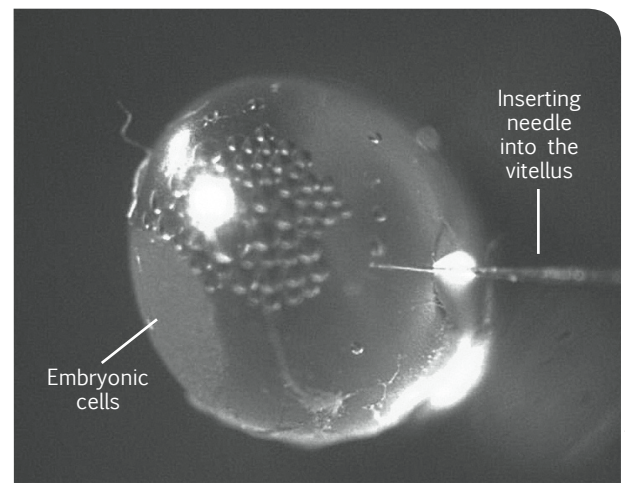
Because of their longevity, unique spawning behaviour and diet, eels are vulnerable to the accumulation of persistent pollutants. For example, very weak concentrations of dioxins may cause cardiovascular problems and even death in fish larvae. These factors contributed to the failure of Lake Ontario lake trout to reproduce in the 1970s. Could they also be responsible for the decline of the eel population?

Do female eels transfer sufficient amounts of contaminants to their spawn to cause their premature death, before returning to the St. Lawrence? The hypothesis is being studied by a team of researchers from Queen's University, Fisheries and Oceans Canada, Environment Canada, the University of Waterloo and the Université du Québec à Rimouski. American eels cannot be reproduced in captivity, so scientists from the Maurice Lamontagne Institute will use the embryos of a model fish species, namely, the mummichog. The contaminants will be extracted from the tissue of eels captured in various lakes and rivers in 2008, and in Lake Ontario from 1980 to 2008. The tissue will then be injected into mummichog eggs to simulate maternal transmission, allowing researchers to monitor the effects of these contaminants on the larvae's behaviour, growth and overall survival

This project will serve to evaluate the role of contaminants in the decline of the eel population and to determine whether certain lakes or rivers offer more favourable conditions for its re-introduction. The American eel is a precious legacy as well as an important ecological and economic resource. The quality of its habitat must be maintained to give it the best possible chances to reproduce and replenish the St. Lawrence eel population.

NWRI CHAD BOIKO

American eels



DFO/UQAR C. RIGAUD

Injecting a contaminant into a mummichog egg

Catherine Couillard
Science

2010 CANADIAN HYDROGRAPHIC CONFERENCE

MISSION ACCOMPLISHED

The 2010 Canadian Hydrographic Conference, which took place in Québec City in June, was a resounding success. Thanks to a balanced technical program that dealt with the three themes central to the conference, *Hydrography: Science, technology and people dedicated to the maritime world*, participants were able to find what they were looking for in the presentations, poster sessions, workshops and trade show, where networking was particularly intense. In addition to the activities held at the Québec City Convention Centre, the visits of some Fisheries and Oceans Canada hydrographic vessels, the Interdisciplinary Centre for the Development of Ocean Mapping (CIDCO), the CCGS *Amundsen* and the Maritime Simulation and Resource Centre (MSRC) nicely rounded out the already well-packed program.

A visit back in time revealed the essential role hydrographic knowledge played in the outcome of such historic events as the Battle of the Plains of Abraham. Participants took numerous opportunities to discuss a host of issues, most notably, business development, training, the non-traditional use of hydrographic data and future technologies. The conference brought together not only the active hydrographic community, but also former hydrographers who, although no longer actively involved, continue to keep an attentive eye on what's happening in the field.

The participants went home with renewed energy and the latest knowledge, ready to take on the many challenges facing the hydrographic world. The next conference will be held in two years, in Niagara Falls.

Robert Dorais, Conference Chair
Science

IMPROVING FISHING HARBOURS
THROUGH CANADA'S ECONOMIC ACTION PLAN

Via Canada's Economic Action Plan, Fisheries and Oceans Canada has invested several million dollars since 2009 to repair or build infrastructure for fish harvesters. Here is an overview of projects carried out in each of Québec's three maritime areas, the Gaspé Peninsula, the Magdalen Islands and the North Shore.

TOURELLE, GASPÉ PENINSULA

Given the very rough water on the north side of the Gaspé Peninsula, the existing breakwater at the Tourelle harbour was insufficient to protect structures and vessels from waves and ice.

Consequently, the Small Craft Harbour Branch extended the main breakwater by 65 m. This improvement to Tourelle harbour installations facilitates use of the harbour and harbour activities associated with fishing, which are crucial to the regional economy.

DFO F. LABRECQUE

L'ÉTANG-DU-NORD, MAGDALEN ISLANDS

It was very hard for fish harvesters to navigate the rough waters in the area near the Fougère wharf in L'Étang-du-Nord. The existing infrastructure was therefore extended by adding to the spur breakwater so that it intercepts the waves, thus reducing disturbance at the Fougère wharf.

Project planning called for a comprehensive study of the wave behaviour to optimise the design of the breakwater, its angle, length, and armouring. The extension lies at a 30-degree angle to the existing structure and is 120 m in length. The Co-op wharf also benefits from this new infrastructure. New pontoons will be installed to concentrate fishing activities in this protected area.

LES ESCOUMINS, NORTH SHORE

The existing ramp used to launch fishing boats at Les Escoumins had been in poor condition for several years. It was located in an area subject to strong erosion and relatively far from fishing activities. A new ramp with a 7 m drop was built in spring 2010 near the fishers' pontoons in Anse aux Basques. The new ramp is composed of 30 prefabricated embedded concrete slabs, making the structure very solid and long-lasting.

GENIVAR G. BOUCHARD

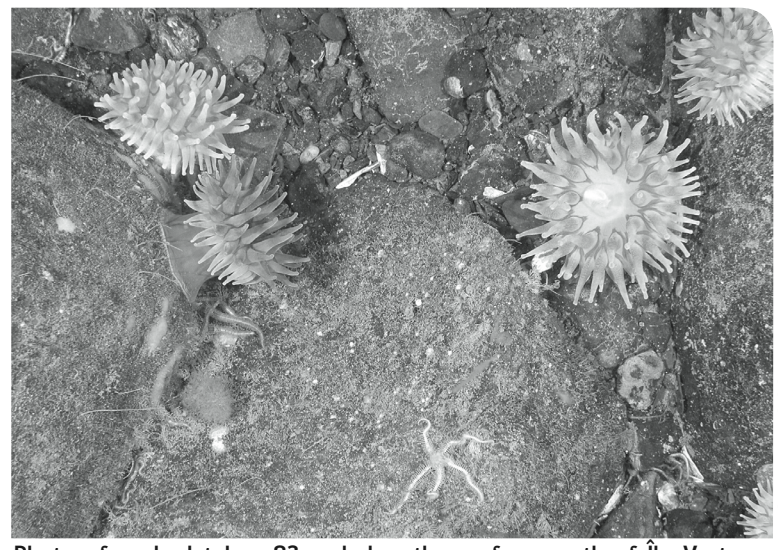
Élisabeth Marceau
Small Craft Harbours

CONTINUED FROM PAGE 1

UNDERWATER IMAGERY ON A SLED...

THE TECHNOLOGY

An Institute team designed and developed the equipment used, a sled that is dragged along the seabed at a constant speed by a research vessel. This sled is equipped with a vertical camera, which takes photos at regular intervals, a high-definition video camera facing forward which records continuously, high-efficiency lighting, and a device that records depth, temperature and dissolved oxygen. Other measurement devices can be added to the benthic sled as research needs dictate.



DFO R. LAROCQUE

Photo of seabed taken 83 m below the surface north of Île Verte

The results are obtained rapidly, and they provide more detailed information about larger areas at depths not accessible to scuba divers. For instance, the information on sediments is complementary to that obtained using a dredge. Moreover, this technique causes little damage to the seabed under study.

IMAGES WITH MANY USES

So far, seabed imagery has been used particularly in the St. Lawrence estuary, in the Saguenay fjord and along the Gaspé Peninsula, notably to characterise beluga habitat, spot natural gas vents and study habitats suitable for the wolffish.

The images are analyzed, compiled and made available to document other research work dealing with the seabed in the areas covered. The some 10,000 photos obtained to date constitute a significant data base on the ecosystem, and bear witness to the current state of the environment and biological diversity of the St. Lawrence.

Richard Larocque
Science

Dispatches

EXPEDITION IN THE ARCTIC
A WIDE-ANGLE VIEW

DFO P. VALLIÈRES

Do the activities of the Canadian Coast Guard in the Arctic interest you? From August 20 to September 8, you can follow the expedition of the CCGS *Des Groseilliers* through the eyes of Gracia Bahati, winner of Radio-Canada's *Gagnez le Nord* contest.

Throughout her three-week stay in the Arctic aboard the Canadian Coast Guard icebreaker, Bahati will be discussing her discoveries in radio interviews and a blog that she will update daily at www.radio-canada.ca/gagnezlenord (in French only). Delivering supplies to military personnel as well as to Aboriginal and scientific communities in the North, meeting Inuit communities, visiting weather stations, providing assistance to vessels in distress, intervention training exercises, work aboard a vessel... these are just a few of the things on the program.

Gracia Bahati will also play the starring role in a documentary relating her experience that is to be aired this winter on Radio-Canada television.

FOLLOW US ON TWITTER!

The Quebec Region of Fisheries and Oceans Canada and the Canadian Coast Guard now has its own Twitter profile.

Follow us at the following address: http://twitter.com/MPO_GCC_Quebec. You will be informed about what's happening at the Department, our public activities, new publications, Web updates, media releases and much more.

Twitter is a subscribable microblogging platform that allows users to follow a variety of groups, organizations and individuals. The published messages (known as *tweets*) are very short and can redirect readers to more detailed information, photos or videos located elsewhere on the Web.

WRITE US!

We are always delighted to receive your comments, questions and suggestions regarding the content of *Infoceans*.

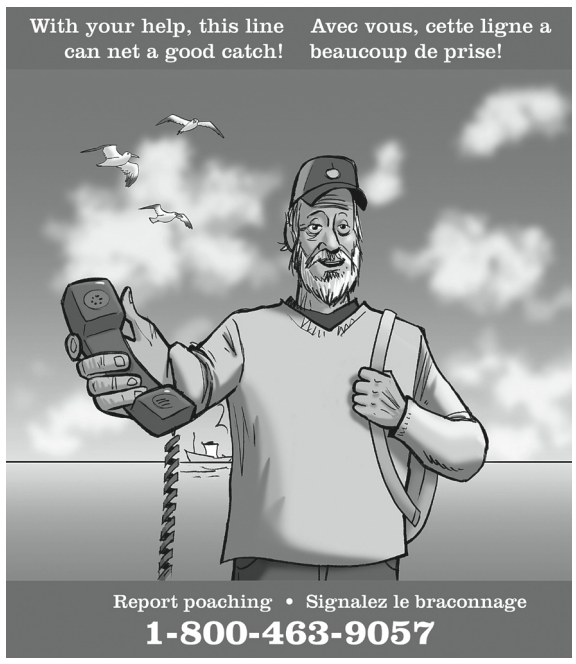
You can reach us by e-mail at infoceans@dfo-mpo.gc.ca, or by mail at *Infoceans*, Communications Regional Branch, 104 Dalhousie Street, Québec, Quebec G1K 7Y7.

The *Infoceans* team

THE FIGHT AGAINST POACHING IS EVERYONE'S BUSINESS!

Some people would say that poaching is stealing. In fact, poaching has a direct impact on the ocean's resources and the economic livelihood of fish harvesters. You can help fishery officers protect the fisheries by reporting any illegal acts you see. Protecting our resources is everyone's business.

Convicted poachers must pay fines. In addition, fishery officers can seize the catches and any material that was used in the commission of an offence against the *Fisheries Act*.



RESULTS THAT COUNT

Over the last two years, DFO has received 422 reports about poaching incidents in Quebec's three maritime areas. Of these, 46 were made using the Poaching Alert line. As a result of these reports, fishery officers were able to lay 75 formal charges, in addition to the charges brought against offenders who were caught red-handed. In all, 352 poaching charges were laid in the area over the last two years, leading to 205 convictions.

You can report poaching incidents by calling the toll-free line **1-800-463-9057** or by contacting a fishery officer directly. Calls are anonymous and confidential.

POACHING ALERT CAMPAIGN

Fishery officers toured the three maritime areas in July to raise public awareness about the importance of the fight against poaching. They used the opportunity to present the fisheries surveillance plane, one of the numerous tools available to fishery officers in their fight against poaching.

Visit our Web site; we've posted a few awareness-raising videos prepared as part of the Poaching Alert campaign at www.qc.dfo-mpo.gc.ca–click the *Report poaching* tab.

Michel Plamondon
Communications

New publications

NEW SCIENCE ADVISORY REPORTS ON THE INTERNET

The following science advisory reports are now available on the Canadian Science Advisory Secretariat's Web site, www.dfo-mpo.gc.ca/csas, in the *CSAS Publications* section, *Science Advisory Reports (2005+)* for 2009 and 2010:

- Assessment of Atlantic Surfclam Stocks in the Coastal Waters of the Îles-de-la-Madeleine in 2009 (2010/016)
- Assessment of the Greenland Halibut Stock in the Gulf of St. Lawrence (4RST) in 2009 (2010/028)
- Assessment of the Estuary and Northern Gulf of St. Lawrence (Areas 13 to 17, 12A, 12B, 12C and 16A) Snow Crab Stocks in 2009 (2010/029)
- 2010 Canadian Marine Ecosystem Status and Trends Report (2010/030)
- Assessment of the West Coast of Newfoundland (Division 4R) Herring Stocks in 2009 (2010/032)
- Assessment of Redfish Stocks (*Sebastes fasciatus* and *S. mentella*) in Units 1 and 2 in 2009 (2010/037)

CONVICTIONS FOR *FISHERIES ACT* VIOLATIONS

Fisheries and Oceans Canada (DFO), Quebec Region, has released the names of fish harvesters who have received fines for violations of the *Fisheries Act*. DFO continues to strictly enforce its zero tolerance policy for violators. The Department has a mandate to protect and conserve fishery resources and is ever vigilant in its efforts to prevent poaching of marine resources. **Fisheries and Oceans Canada encourages the public to report poaching incidents by calling 1-800-463-9057. All calls are confidential.**

OFFENDER/ RESIDENCE	OFFENCE/FINE
Marcel Arbour **Ghislain Arsenault** **Guillaume Arsenault** **Mathieu Arsenault** Bonaventure **Donald Arsenault** Montréal	Clam harvesting in a closed area. **$300 each**
Dereck Condo **Alex Morrison** **Ronald Swasson** **Dale Vicaire** Listuguj **David Charles Godin** Eel River Bar, New Brunswick	Possession of lobster under the minimum legal size. **$2,300 (D. Condo); $2,300 (A. Morrison); $200 (A. Morrison); $3,300 (R. Swasson); $2,300 (D. Vicaire); $3,300 (D. C. Godin)**
Dereck Condo **Alex Morrison** **Dale Vicaire** Listuguj	Possession of egg-bearing female lobsters. **$2,500 each**
Marc Diotte Grande-Rivière **Denis Duguay** Lachenaie	Refusal to have an observer aboard. **$1,000 (M. Diotte); $3,000 (D. Duguay)**
David Charles Godin Eel River Bar, New Brunswick	Use of non-regulation–size lobster traps. **$1,600**
Kirby S. Journeaux Port-Daniel	Possession of a notched female lobster. **$1,100**
Normand Keats Rivière-Saint-Paul	Failure to comply with the conditions of his cod licence for the 2009 season by not providing a copy of his logbook. **$300**
Bernard Labbé Percé	Exceeding the authorized Atlantic halibut quota. **$500 + forfeiture of the proceeds of the sale in the amount of $6,954**
Rendal Laroque Listuguj	Use of lobster traps without escape vents. **$1,600**
Jean-Joseph Lepage Cap-Chat	Shellfish harvesting in a closed area. **$250**
Baptiste Nadeau La Tabatière	Failure to comply with the conditions of his herring licence for the 2009 season by setting his net less than one fathom below the water surface. **$500**
Ronald Swasson Listuguj	Use of lobster traps without valid tags. **$1,600**
Michel Turbide Cap-d'Espoir	Allowing an unauthorized person to use his vessel. **$3,500**
Donald Walker Shigawake	Possession of an egg-bearing female lobster. **$750**
Vincent Wellman Old Fort	Exceeding the daily quota for cod in the recreational fishery. **$500**

Martin Bourget
Communications

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