



# INFOCEANS

THE QUEBEC REGION BULLETIN — FEBRUARY - MARCH 2010/VOLUME 13/NUMBER 1

## PROMISING FUTURE IN CHINA FOR THE CANADIAN FISHING AND SEALING INDUSTRY

Last January, the Honourable Gail Shea, Minister of Fisheries and Oceans, visited the People's Republic of China to discuss issues of common interest in the area of international fisheries and ocean management.

"Our Government is proud of Canadian fish, seafood and seal producers and products and will continue to help expand markets at home and abroad," said Minister Shea. "Through these successes, the Government is creating economic opportunities for our industries and coastal communities."

The Minister also used her visit to promote the sustainability and quality of Canadian seal products and to remind people that this commercial activity is the result of humane practices.

"We know China is a strong potential market for seal products," said Minister Shea. "Our meetings with Chinese senior officials resulted in a commitment to work together towards lifting current restrictions on the import into China of seal products."

China is Canada's second largest trading partner and the world's largest consumer of fish and seafood.



Minister Gail Shea at the 36th China Fur & Leather Products Fair.

## A WILY REDFISH

Redfish in the Gulf of St. Lawrence belong to two closely related species, the deepwater redfish (*Sebastes mentella*) and the Acadian redfish (*Sebastes fasciatus*). As its name suggests, the deepwater redfish predominates in deep water and its range lies farther north than that of the Acadian redfish. Historically, redfish and Atlantic cod were the most abundant groundfish in the Gulf. Following intensive fishing, the population collapsed in the early 1990s which led Fisheries and Oceans Canada (DFO) to impose a moratorium on the Gulf groundfish fishery in 1995, one that is still in effect today.

Since the beginning of the moratorium, DFO has closely monitored fluctuations in this reduced population by means of the bottom trawl survey conducted each summer aboard a research trawler. For several years, the redfish showed no signs of recovery. Then in 2005, surprise: the survey detected strong recruitment by small redfish born in 2003. Obviously, these small redfish stirred the hopes of biologists and the redfish fishing industry. But this wave of optimism was unfortunately cut short since in 2008 and 2009, the abundance of these small redfish fell dramatically: they apparently disappeared from the Gulf before reaching the minimum commercial fishing size. In fact, this was not the first time the redfish played a trick of this kind on biologists. The redfish born in 1988 also appeared to be very abundant, but they disappeared from the Gulf after a few years before reaching the size permitted for fishing. What happened?

The first hypothesis that springs to mind is that these young redfish died. Although this hypothesis cannot be rejected entirely, it is not the explanation that most scien-

tists put forward since there are a variety of indications that lead them to believe that these small fish simply left the Gulf. In fact, genetic analyses indicate that they were not born in the Gulf so it is possible that they returned to their spawning grounds after growing in the Gulf for several years. Indeed, it seems that the typical Gulf species that supported the fishery prior to the moratorium was the deepwater redfish, while the two strong recruitment episodes in 1988 and 2003 involved the Acadian redfish, which feels less *at home* in the Gulf than in the Atlantic.

The biology of the redfish still holds many mysteries in store; the work and analyses done by Maurice Lamontagne Institute researchers will perhaps help solve some of them.

Martin Castonguay  
Science Branch



DFO R. LAROCQUE

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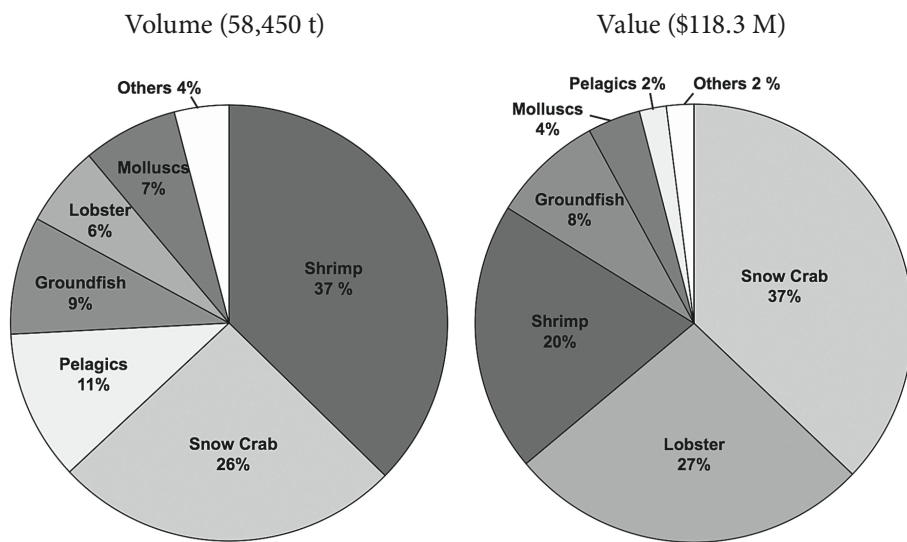


## 2009 COMMERCIAL FISHERIES SEASON PRELIMINARY RESULTS

The preliminary results for the 2009 commercial fishing season in Quebec show total landings of 58,450 t with a value of \$118.3 M. It is important to point out that the landing value does not yet take into account supplementary purchase slips\* and year-end discounts granted to some buyers. These data will be compiled within the next few months.

Shrimp, snow crab and lobster continued to be the main species landed, accounting for 69 percent of the volume and 84 percent of the value. Groundfish catches ranked fourth in 2009 representing 9 percent of the volume and 8 percent of the value.

### BREAKDOWN OF LANDINGS BY SPECIES



Landings break down as follows: 65 percent on the Gaspé Peninsula, 23 percent on the North Shore and 12 percent on the Magdalen Islands. Landing value totalled \$58.9 M on the Gaspé Peninsula (50% of all landings), \$31.9 M on the Magdalen Islands (27%) and \$27.2 M on the North Shore (23%).

Shrimp and snow crab are the principal species landed on the Gaspé Peninsula. Lobster is the main species landed on the Magdalen Islands while snow crab dominates catches on the North Shore.

It is important to point out that 2009 was marked by a significant drop in landing prices for snow crab (-22%), lobster (-21%) and shrimp (-8%), which explains why the landing value is so much lower.

\* Supplementary purchase slips (SPS) include all landings that were not reported on the general purchase slips. This information is based on estimates drawn from four different sources: direct sales to the public, personal consumption (fish harvesters and their families, sport fishing), fish processed by fish harvesters and fish used as bait.

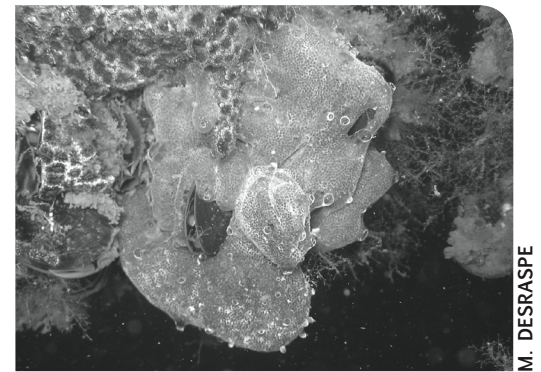
Martial Ménard  
Policy and Economics Branch

## INVASIVE SPECIES UNDER HIGH SURVEILLANCE

In summer 2008, a private-sector diver observed an unknown aquatic species at the Havre-Aubert marina on the Magdalen Islands. This experienced and knowledgeable diver, able to detect the presence of non-native species, immediately reported his discovery to the biologists at the Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec (MAPAQ) and the Department of Fisheries and Oceans (DFO) involved in monitoring invasive species on the Magdalen Islands.

Analyses showed that they were dealing with a new invasive species, the sea squirt *Diplosoma listerianum*, an invasive colonizing sessile tunicate. Sea squirts are filtering organisms that feed primarily on phytoplankton, bacteria and organic particles suspended in the water. Colonies of this particular *Diplosoma* form thin gelatinous layers that can cover up to 20 cm.

*Diplosoma* has been observed along the American east coast since 1993 and is now present from Cape Cod, Massachusetts to Casco Bay, Maine. This was the first time this species was observed in Canadian east coast waters. Although it is nearly impossible to affirm with any certainty how this tunicate was introduced to the Islands, fouling on ships' hulls is the most plausible introduction vector.



*Diplosoma*, the only time this species was observed on the Islands, in summer 2008.

Because of the major ecological and economic impacts associated with invasive tunicates, this discovery was of considerable concern to scientists. To measure the scope of the situation, a 14-member joint DFO and MAPAQ scientific team conducted an evaluation of the Havre-Aubert marina, fishers' wharf and harbour in summer 2009. Divers equipped with underwater cameras surveyed *Diplosoma listerianum* and characterized the site (other species present and environmental conditions).

### NO OBSERVATIONS IN 2009

No *D. listerianum* specimens were observed in Island waters in 2009. This may mean that the specimens observed in 2008 failed to survive the winter and that the species is no longer present or that there are not enough individuals present to be detected by means of the sampling methods used so far. During the next few years, regular monitoring and the use of new detection methods should allow us to learn more.

In fact, genetic detection tools are being developed at the University of Prince Edward Island. A genetic probe could be used as early as the summer of 2010 to improve our detection capability, strengthen our ability to take action quickly and thus, prevent the establishment of new invasive species on the Magdalen Islands.

Nathalie Simard, Science Branch  
Selma Pereira, Magdalen Islands Area  
Madeleine Nadeau, MAPAQ, Magdalen Islands

## 2008 RED TIDE OUTCOME AND CONCLUSIONS

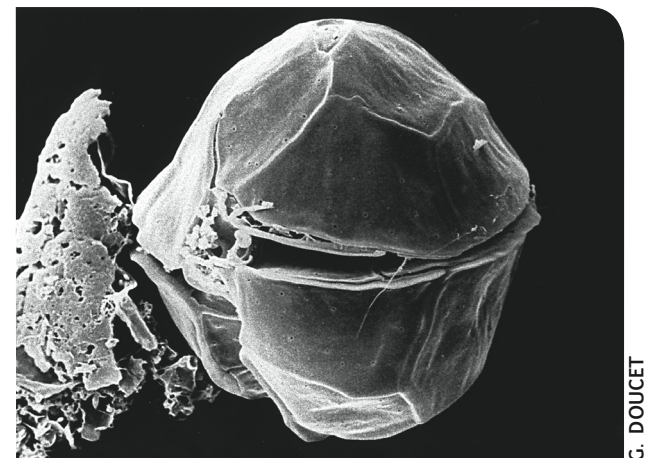
From August 5 to 21, 2008, people living along the St. Lawrence estuary witnessed an unusual and worrisome incident. Massive mortalities of marine animals, including mammals, were reported along several kilometres of the St. Lawrence estuary. Suspicion quickly fell on *Alexandrium tamarense*, a microalgae well known in the estuary for its ability to produce paralyzing toxins. Mortalities associated with the 2008 red tide stand as follows: thousands of seabirds, some one hundred seals, eleven belugas and numerous fish of various species.

The spread of *A. tamarense* is a recurrent phenomenon in the St. Lawrence estuary. The Lower Laurentian strain is recognized as being one of the most toxic in the world. Bloom is generally localized and has limited consequences. However, massive bloom can result when certain conditions occur simultaneously. These conditions include such things as lower salinity and the presence of humic substances (dissolved matter derived from decomposing soils) carried into the gulf by river water. In fact, these were the prevailing conditions in 2008 when heavy rains in late July were followed by some ten days of fine, sunny weather in early August.

The 2008 *A. tamarense* outbreak was the most devastating one in terms of marine animal mortality since the Maurice Lamontagne Institute (MLI) was established in 1987. The most recent massive mortalities were recorded in 1996 and 1998 and at the time, affected primarily birds and fish.

This exceptional occurrence has allowed researchers – for the first time – to see the direct connection between *A. tamarense* and marine mammal mortality. For the beluga, a threatened species in the St. Lawrence, the presence of *A. tamarense* adds a new hazard that must be taken into account as a factor affecting mortality within the population.

At present, there are no effective techniques for eradicating toxic algae bloom. However, toxic algae monitoring as it is done at MLI allows researchers to detect and follow its evolution. The analyses conducted during the 2008 outbreak were an opportunity to learn more about the effects of paralyzing toxins on the organisms involved. The development of models could also serve to predict bloom and issue alerts to concerned stake-



holders and the industry (fishing, aquaculture) early enough so that people can take the appropriate measures to prevent or mitigate the socio-economic impacts of toxic algae bloom.

Michael Scarratt, Sonia Michaud and Michel Starr  
Science Branch



# IDENTIFICATION GUIDE FOR MARINE FISHES

## A TOOL TO STUDY BIODIVERSITY

Every year, Fisheries and Oceans Canada conducts a major biological survey aboard the large trawler CCGS *Teleost*. The data gathered in the estuary and northern Gulf of St. Lawrence are a valuable source of information on the status of harvested marine resources. They are used to estimate the abundance and biomass of five commercially important species – the Atlantic cod, Greenland halibut, redfish (Acadian and deepwater redfish) and northern shrimp.

In recent years, biologists have sought to more fully integrate information on the status of these stocks and the ecosystems in which they live; to do so, the many other fish species captured needed to be described in greater detail. It quickly became clear how hard it is to properly identify the dozens of species captured. Although the staff are familiar with the most common species, identifying many others can be problematical. For instance, one must observe spines, any barbels or tubercles that might be present, peritoneum colour, the position of light organs... all within the space of a few minutes.

To make this work easier, Fisheries and Oceans Canada has just published the *Identification guide for marine fishes of the estuary and northern Gulf of St. Lawrence*. Using identification sheets and colour plates, it describes

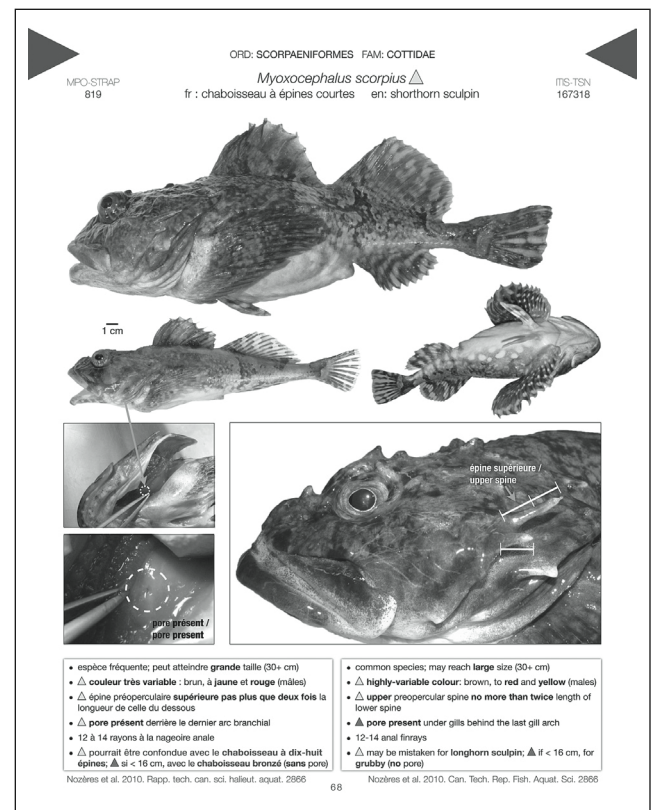
The United Nations has declared 2010 International Year of Biodiversity. To salute this special year, the Infoceans team will be including texts on the topic of aquatic biodiversity. Have an excellent year of biodiversity!

115 marine fish species. The guide has been incorporated into *Canadian technical report of fisheries and aquatic sciences*, Number 2866, which also presents the sampling protocol and a summary analysis of the fish caught during surveys conducted aboard the CCGS *Teleost* between 2004 and 2008.

In addition to being an essential companion volume for DFO biologists and technicians, this guide will be a valuable aid for sailors, observers at sea and people who make their living from the sea or are interested in the marine world. It is available in PDF format on the Fisheries and Oceans Canada Web site (see the Web version of *Infoceans* for the link, or in paper version with the accompanying CD at the Maurice Lamontagne Institute Library at [biblioIML@dfo-mpo.gc.ca](mailto: biblioIML@dfo-mpo.gc.ca) or 418-775-0500.

Improved knowledge about marine biodiversity and habitats translates into informed decisions, and improves the Department's capacity to fulfil its legal obligations, whether they stem from the *Fisheries Act*, the *Oceans Act* or the *Species at Risk Act*.

Jean-Denis Dutil  
Science Branch



## ICEBREAKING OPERATIONS ON THE SAGUENAY RIVER

Every year, at the very beginning of the winter season, the Canada Coast Guard deploys an icebreaker in the Saguenay River sector. This winter, the task of escorting commercial vessels transiting through the area has been assigned to the CCGS *Amundsen*.



DFO N. LETENDRE

Because of the usual cold temperatures in this sector, particularly in February and March, icebreaking operations become more intense and complicated to take into account ice conditions and the manoeuvrability limits of escorted vessels.

Around Mid-march, the Canadian Coast Guard will free and clear the ice in the Saguenay River. Day and night, the CCGS *Amundsen* will be assigned to break up the ice pack so unescorted commercial vessels can reach the ports of Saguenay (Grande Anse) and Port-Alfred (La Baie) – two major ports for the transit of raw materials, including bauxite and alumina. Icebreaking activities will continue upriver as far as Saint-Fulgence.

The coordination of icebreaking activities here is crucial: the crew aboard the icebreaker assigned to this area must be able to finish their tasks quickly so they can respond to requests for icebreaking services from around Quebec. During this busy period, there are many overlapping icebreaking needs and requests. Consider, for instance, the need to provide assistance to shipping in the Gulf of St. Lawrence, supervise the seal hunt, open the seaway, clear the ice from small harbours on the Lower North Shore and to monitor the movement or disappearance of shoals, etc.

Through its icebreaking activities, the Canadian Coast Guard assures the safety and efficiency of marine traffic and prevents the flooding that could be caused by ice conditions in flood-prone areas. To find out more, visit [www.marinfo.gc.ca](http://www.marinfo.gc.ca).

Nathalie Letendre, Communications Advisor  
Captain Sylvain Bertrand, Canadian Coast Guard

## INNOVATIVE COLLABORATION ON THE NORTH SHORE

The North Shore stretches along 1,280 km of coast. For Fisheries and Oceans Canada (DFO) fishery officers, protecting marine resources throughout such a vast territory calls for collaboration with a variety of partners.



Shared surveillance with the MRNF

In recent years, the Conservation and Protection Branch has been increasing its joint efforts with North Shore organizations – government partners and community organizations – that have similar mandates.

### A FEW EXAMPLES...

A pilot project currently underway and involving Environment Canada's Canadian Wildlife Service Enforcement Branch and Fisheries and Oceans Canada aims to foster collaboration in the application of the *Fisheries Act and the Migratory Birds Convention Act, 1994*. In fact, a memorandum of understanding has been prepared so that DFO fishery officers and Environment Canada game wardens can carry out their duties pursuant to these two acts in reciprocity.

Fisheries and Oceans Canada also counts on joint efforts made with the Ministère des Ressources naturelles et de la Faune du Québec (MRNF), most particularly during the salmon migration and to protect fish habitat in rivers, lakes and watercourses.

There are also many collaborative endeavours in partnership with fishers' associations, municipalities, band councils and coastal committees. These partners are often consulted to find ways to better integrate their concerns and needs into Fisheries and Oceans Canada planning tools. An example of this was the participation of coastal committees in the mollusc bed conservation file.

The St. Lawrence is a major crossroads where many activities requiring surveillance take place: ice fishing, whale watching, seal hunting and the protection of species and essential, sensitive habitats are just a few examples. Fisheries and Oceans Canada's North Shore Area works closely with its clientele and partners to offer a quality service. It intends to stay its course by continuing to establish cooperative projects, thus setting the example for this type of collaboration.

Andrew Rowsell  
North Shore Area



## RECOGNITION AWARDS FOR HARBOUR AUTHORITIES

Last November, Roger Arsenault, Administration portuaire du havre de pêche de Matane President, received the Harbour Authority Environmental Stewardship Award with great pride. The award was presented by the Honourable Gail Shea, Minister of Fisheries and Oceans, at the annual harbour authority recognition awards ceremony.



Roger Arsenault with Minister Shea (left) and Michaela Huard, Assistant Deputy Minister, Human Resources and Integrated Services.

DFO B. BAZIUK

Thanks to Arsenault's initiative, the Administration portuaire du havre de pêche de Matane designed and had built a new drip tray model suitable for oversized oil filters and put into place a safe storage system for 20-litre waste oil containers. The company that collects waste oil products can now recover and recycle them more easily.

This initiative has led to a significant improvement in the on-site management of waste oil and other related products and has contributed to the sound environmental management of this fishing harbour. The new, more adapted equipment has even been put into use at other fishing harbours confronted with the same problem.

Our sincerest congratulations to Mr. Arsenault!

**Lyne Beaumont**  
Small Craft Harbours

## HYDROGRAPHIC CONFERENCE IN QUEBEC



The Canadian Hydrographic Association will be holding the 2010 Canadian Hydrographic Conference in the city of Québec from June 21 to 23, 2010. The Canadian Hydrographic Service, Quebec Region, is the lead organizer of this event.

The conference will bring together nearly 400 members of the hydrographic community from some fifteen countries to explore the theme **Hydrography: A science, technology and people dedicated to the maritime world.**

This international event is a forum for discussion on the most recent scientific and technological developments in the area of hydrography, marine cartography and electronic navigation.

## 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](http://www.dfo-mpo.gc.ca/csas), in the *CSAS Publications section, Science Advisory Reports (2005+)* for 2010:

- Science Advice on Harvesting of Northwest Atlantic Grey Seals (*Halichoerus grypus*) on Hay Island (2009/067)
- Advice Relevant to the Identification of Critical Habitat for St. Lawrence Beluga (*Delphinapterus leucas*) (2009/070)

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ISSN 1485-6069

## 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/HOME	OFFENCE/FINE
Oneil Bond Rivière-au-Renard	Hail not compliant with licence conditions. <b>\$1,500</b>
Pierrot Bouchard Les Escoumins	Clam harvesting in a closed area. <b>\$300</b>
Israel Boudreau Magdalen Islands	Possession of egg-bearing female lobsters. <b>\$1,500</b>
Gérald Carrier Grosses-Roches	Fishing for groundfish using nets with a mesh size under the legal limit. <b>\$200</b>
Carl Chevarie Havre-Saint-Pierre	Fishing for scallops with a malfunctioning Vessel Monitoring System. Exceeding the number of fishing days. <b>\$1,500 + confiscation of scallops worth \$750</b>
Jean-François Cyr Jean-Charles Thériault Magdalen Islands	Possession of lobster under the minimum legal size. <b>\$500 (J.-F. Cyr) \$1,500 (J.-C. Thériault)</b>
Marius Doucet Rimouski	Non-compliance with 2009 whelk licence conditions by keeping whelks under the legal size of 70 mm. <b>\$400</b>
Lisa Dumont Trois-Pistoles	Possession of whelks under the minimum legal size. <b>\$1,500</b>
Normand Dupuis Saint-François-de-Pabos	Possession of an egg-bearing female lobster and of a mutilated female lobster. <b>\$1,000</b>
Clyde Fequet Old Fort	Recreational fishing for cod during a closed time. Exceeding the daily quota for cod in the recreational fishery. <b>\$250 each</b>
Claude Gionest Pabos Mills	Hail-out not compliant with licence conditions. <b>\$1,500</b>
Nelson Langford Magdalen Islands	Failure to bleed seals for one minute before skinning. <b>\$250</b>
Edwin Quinn Magdalen Islands	Fishing Atlantic halibut during closed time. <b>\$1,000</b>
Rosaire Richard Magdalen Islands	Failure to palpate a seal's cranium to confirm that it has been crushed. <b>\$500</b>
Guy Thibault Havre-Saint-Pierre	Failure to hail out before 8:00 pm the day before a snow crab fishing trip. <b>\$575</b> Non-compliance with licence conditions by failing to have all the landed crab weighed. <b>\$1,400</b>
Benoît Tremblay Forestville	Possession of softshell clams smaller than the minimum legal size of 51 mm. <b>\$400</b>

**Martin Bourget**  
Communications