RESEARCH IN THE SPOTLIGHT

Former Québec-Océan student becomes full member

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Since February 2013, Frédéric Maps has held the position of assistant professor of biology at U. Laval, specializing in the digital modelling of arctic marine ecosystems. According to Prof. Maps, “The U. Laval environment makes it possible for me to remain in Québec and develop my research activities on globally important issues, while continuing to profit from the close ties that I have established over the years with my colleagues in Québec and elsewhere in North America.” Frédéric began his career by studying alpine biology in Grenoble, France, but decided to continue his training in ocean sciences, he then pursued graduate and postgraduate studies in oceanography at UQAR-ISMER, specializing in boreo-arctic zooplankton and numerical methods. He then sharpened his skills during two postdoctoral studies at the U. of Maine (U.S.), in collaboration with Prof. Jeffrey Runge and Andrew Pershing, and later during a contract at the Maurice Lamontagne Institute (Fisheries and Oceans Canada).

Dr. Maps is interested in physiological impacts, population dynamics and zooplankton diversity on the ecology of the temperate and arctic oceans. “The close relationship between plankton and its physical environment, the large amplitudes of the temporospatial scales involved and the difficulty in observing this essential element of marine ecosystems makes the use of digital models particularly relevant,” he says. Furthermore, models are the only tools currently available for predicting changes in marine ecosystems subjected to increasing external pressures. He wants to improve the predictive capacity of pelagic ecosystems in arctic environments. Currently, he is studying the individual and populational mechanisms responsible for the structure and dynamics of zooplanktonic communities, particularly arctic copepod assemblages. In the long term, his laboratory will be developing end-to-end models to integrate the physical environment, primary producers and upper trophic levels of zooplankton up to fish or marine mammals. He adds, “My interdisciplinary work depends a lot on the relationships that I develop with my colleagues in the fields of biology and oceanography to collect the observations needed to implement useful and effective models”.

A completely new course in ecosystem modelling will be offered next year at U. Laval and will give Frédéric Maps the opportunity to share his passion with interested students. In addition, in February 2014, he will go to Hawaii to discuss modelling as a co-organizer of the session entitled “Scaling up individual processes to ecosystem levels in an era of global change” at the Ocean Sciences Meeting. To find out more about the meeting, go to the official Internet site: http://www.sgmeet.com/osm2014/sessionschedule.asp?SessionID=022
When sea urchins consume silver nanoparticles

Juvenile sea urchin (oral region). Note the tumours following the migration of pigmentation cells on the spines.

In addition to the risks associated with chemical pollutants that have been discharged in the environment for many years, the arrival of new, potentially dangerous substances is a new challenge for marine animals and is a current topic in ecotoxicology. With the increase in silver nanoparticles (AgNPs) released into aquatic environments, the assessment of their potentially harmful effects has become necessary. They have not been much studied up to now, especially with respect to their consequences on the early stages of the development of marine invertebrates. Adriano Magesky is a doctoral student in oceanography at UQAR-ISMER, under the supervision of Émilien Pelletier. He is working on the effects of xenobiotics on the developmental stages of echinoderms and particularly of green sea urchins. As part of his project carried out under controlled experimental conditions, juvenile green sea urchins seem to exhibit a defense mechanism against necrosis caused by AgNPs. This mechanism resides mainly in the action of anti-oxidizing pigmentation cells on necrotic lesions. New analyses will be made to test the mechanism’s effectiveness throughout the juveniles’ developmental period.

Manganese in all its aspects: a study of sediments in the St. Lawrence Estuary

Manganese is the second most common metal in the earth’s crust and exists in three forms in the environment, depending on the oxidation level of the surroundings: manganese(II), manganese(III) and manganese(IV). Manganese is an essential nutrient for most organisms; it participates in the production of oxygen by plants during photosynthesis. Up to now, scientists have believed that solid manganese(II) and dissolved manganese(III,IV) were predominant forms in aquatic environments. That leaves the question of dissolved manganese(III). Suspecting that it might be present in the sediments of the St. Lawrence Estuary, Alfonso Mucci (McGill U.) and Bjørn Sundby (retired UQAR-ISMER professor) collected samples to the east of the Saguenay Fjord, in the upper centimetres of the sedimentary layer characterized by a desoxidation gradient from the surface toward the depths. “The estuary’s sediments are particularly rich in iron and manganese oxides,” points out Prof. Mucci, “[…] and we have available to us 30 years of geochemical data, including manganese in the St. Lawrence Gulf and Estuary.” Seeking answers to their new questions, the researchers therefore decided to concentrate their work in the large coastal region, which they sampled in 2009 and 2010 while on board the research vessel Coriolis II. Their results show that manganese(III) is present in all the regions sampled in the St. Lawrence marine estuary and consists of up to 90% of the total dissolved manganese per region in the sediments’ interstitial waters. This new knowledge lifts the veil on the manganese cycle and makes it possible to revise the conceptual model for sedimentary oxidation-reduction by including dissolved manganese(III). The degradation of organic matter, to which highly oxidized manganese contributes, will therefore be better understood and estimated.

The four senior researchers taking part in the mission (l. to r.): George Luther III, Alfonso Mucci, Bjørn Sundby and Brad Tebo.

https://www.mcgill.ca/newsroom/fr/channels/news/le-mangan%C3%A8se-dans-tous-ses-%C3%A9tats-230043
A new parameterization of snow thermal properties on sea ice

Florent Dominé is a professor-researcher at U. Laval and is interested in snow physics and chemistry in relation to climate change, and to ice floe and permafrost degradation. The growth of sea ice is limited by the insulating effect of snow, which blocks the heat flux from the ocean to the atmosphere. Snow thermal conductivity is the physical parameter that determines its insulating power and it is highly variable because snow properties evolve according to factors such as temperature and wind speed. Numerous studies of snow thermal conductivity, including during the Tara transpolar mission in 2006-2008, have revealed a good correlation between average wind speed and snow thermal conductivity. This is explained because wind compacts snow and increases its thermal conductivity. The use of this correlation in a new parameterization of snow's physical properties has allowed an improved simulation of sea ice thickness in the Arctic and Antarctic. Because the new parameterization depends on an environmental variable, wind speed, it is expected to better predict future sea ice changes.


 Québec-Océan in Spain

Irene Schloss of UQAR-ISMÉR and associate researcher at the Instituto Antártico Argentino had a very active summer on the international stage. First, she presented her results to the Scientific Committee on Antarctic Research (SCAR), in Barcelona (Spain). Based on 20 years of research in the region to the west of the Antarctic Peninsula, her work, entitled "Climate and phytoplankton development in an Antarctic coastal area", was carried out in collaboration with researchers from Argentina, Germany, Poland and Québec, and included Dany Dumont and Gustavo Ferreyra of Québec-Océan at UQAR-ISMÉR. Irene also contributed to another project at the symposium by way of a presentation and three posters, as well as a presentation for the Association of Polar Early Career Scientists (APECS), entitled “Tips and tricks on how to write your first paper”. Finally, Dr. Schloss was invited to sit on the steering committee for the Antarctic Thresholds – Ecosystem Resilience and Adaptation (AnT-ERA) program.

 Researcher Lyne Morissette receives another funding grant from Disney for her research on whales

Lyne Morissette recently received a grant from the Disney Worldwide Conservation Fund (DWCF) for a project that brings together research, conservation and education. Entitled “The Great Whales Journey”, her project focuses on North Atlantic whales and is aimed at creating an educational program that will connect primary schools in Québec with schools in the West Indies. The coastal waters of Québec and of the West Indies are natural feeding and reproduction grounds for whales. The summer of 2014 will be an important time for the project. An expedition on board the Roter Sand, the EcoMaris sail-training vessel, will sail along the St. Lawrence from Îles-de-la-Madeleine to the Saguenay – St. Lawrence Marine Park to follow the return of the whales. The expedition will be a veritable floating symposium bringing together international experts who will make stops in various towns for presentations and educational events.

The DWCF works to protect species and habitats, to bring young people closer to nature and for the
adoption of values for environmental protection. Since its founding in 1995, it has given its support to more than 1,000 conservation programs in 112 countries. Lyne Morissette’s project is the only one in Québec to receive recurring DWCF grants, which is an acknowledgment of the efforts made by the researcher and her team to promote the study and protection of whales.

Lyne Morissette during the 2013 scientific expedition to the Agoa Marine Sanctuary in the French West Indies.

IN THE FIELD

Expedition to study acidification of the St. Lawrence

From June 10 to 15, 2013, fourteen Québec-Océan scientists, from UQAR-ISMER, U. Laval and McGill U. and Maurice-Lamontagne Institute, Fisheries and Oceans, under the direction of Michael Scarratt boarded the Coriolis II to study acidification of the waters in the St. Lawrence Estuary. The stations sampled between Rimouski and Île-aux-Lièvres made it possible to identify a deepwater upwelling zone rich in CO₂ near the surface. During 48 hours, the team not only monitored pH levels, but also the dynamics of the planktonic community and several chemical variables. The expedition was part of a three-year project funded by FRQNT, NSERC and DFO.

The expedition will be the topic of a report on Télé-Québec’s Code Chastenay program. Québec Océan will publish a link to the program when it becomes available.

Québec-Océan in Argentina

A large-scale research project is being prepared in Québec and Argentina to study the current status of the San Jorge Gulf ecosystem. A large number of researchers from Québec-Océan, including the expedition’s leader, Gustavo Ferreyra (UQAR-ISMER), will board the Coriolis II, to work together and with complementarity in different disciplines. In collaboration with various Argentine institutions, the expedition is the first step in a larger program aimed at understanding the impacts of global change and off-shore and coastal oil production in Patagonia. The expedition’s results will make it possible to select sites suitable for placing two oceanographic buoys developed in Rimouski for long-term monitoring of the main oceanographic parameters of the San Jorge Gulf. Thereafter, an experimental study will be made in ISMER’s mobile mesocosms.

The Coriolis II will set sail from Canada in early January 2014 for the San Jorge Gulf and begin its activities in February. During the ship’s passage in the Atlantic Ocean, the researchers on board will be able to take samples useful for other research projects. The underway sampling will thus a unique opportunity for researchers in January and March 2014.

San Jorge Gulf (Argentina).
Amundsen: from Québec to Pond Inlet

In Québec city, on July 26, 2013, 40 scientists boarded the CCGS Amundsen, Canada’s celebrated icebreaker, for voyages of three or six weeks. After reaching Tadoussac, the research vessel headed for Île d’Anticosti, where several whales witnessed the first experiments. After visiting the Nachvak and Okak fjords (Newfoundland and Labrador), the ship had to break ice in Cumberland Bay to reach Pangnirtung, where the operators of a remotely operated vehicle (ROV) came on board. For 17 days, up to Pond Inlet, some thirty stations were sampled for research on microbial genetics, nutrient availability, primary production, zooplankton and fish. Multiple oceanographic instruments were deployed for sample taking, and a variety of experiments and measurements were carried out.

The 2013 expedition of the Amundsen: an exciting and productive first three weeks in Baffin Bay

“After one year in dry dock to replace its power plant, the Amundsen is back on duty” says Chief Scientist Louis Fortier (U. Laval). The first 3 weeks of the 84-day 2013 ArcticNet expedition was filled with exciting new science operations. In addition to the standard monitoring of the marine ecosystems, the Remotely Operated Vehicle (ROV) of the ship was deployed on 4 occasions to study methane venting along the continental margin, to collect cold-water corals at 900 m depth, and to map the face of Peterman Ice Island. The crossing of the Arctic Circle was marked by the initiation of several tenderfoots and a surreal encounter with a dead sperm whale *Physeter macrocephalus* (a.k.a. Moby Dick) that was insonified with the new SX90 sonar to estimate its acoustic target strength (photo). Overall, an enthusiastic science team, a dedicated crew, and a formidable ship to conduct cutting-edge research in the changing Arctic Ocean.

Science with a woman’s touch in the Russian Arctic Ocean

Scientists from the Takuvik UMI participated in the Tara Oceans Polar Circle expedition. On a sailing vessel accommodating seven scientists, two Québec-Océan members from U. Laval, Joannie Ferland and Claudie Marec, criss-crossed the Russian Arctic Ocean during the summer to take bio-optic and taxonomic measurements of phyto- and zooplankton. They participated in the development of imagery of the phytoplanktonic communities that they had sampled using a Rosette unit. They were able to observe plankton in real time and share images using a FlowCAM, a video profiler, an Imaging Flow Cytobot and a Continuous Plankton Recorder (CPR). In addition, they measured the propagation of light in the water with a Compact-Optical Profiling System (COPS).
Where are the blue whales hiding?

Blue whales are among the most iconic and, at the same time, most enigmatic marine mammals. Nomadic in nature and often solitary, these creatures, which are the largest animals now living on the planet, spend all summer feeding on very small organisms.

On board the CCGS Frederick G. Creed, during the month of August, the researcher in marine ecology and expedition leader Ian McQuinn (Maurice Lamontagne Institute, DFO) criss-crossed the St. Lawrence Gulf and Estuary with a team that included oceanographers Jean-François St-Pierre and Stéphane Plourde, and marine mammal observers Alexandra Leclerc and Sébastien Lemieux. The ship was equipped with a multi-frequency acoustical system to increase their knowledge of the blue whales’ feeding grounds by studying the role of foraging species in their distribution. These giants of the sea are particularly fond of krill, whose composition promotes their fattening. The expedition is part of the federal program on endangered species.

AWARD AND RECOGNITION

Congratulations go to Armelle Simo (UQAR-ISMER) who was a first round winner in the ACFAS competition “Your Thesis Examination in 180 seconds” at her university. During the finals in Québec City, she was in competition with some 20 students, all fields included. Her presentation was entitled “Spatial and seasonal variabilities of the phytoplanktonic and bacterial communities of the subarctic fjords on the east coast of Canada”. You can see her performance at the following address:

http://www.youtube.com/watch?v=maOLntr-e7c&feature=player_embedded
SHORT TRAINING AND CONFERENCES AROUND THE WORLD

Eleven destinations: Davos (Switzerland), Paris and Plouzané (France), Estoril (Portugal), Vancouver and Kelowna (British Columbia), Reykjavik (Iceland), Halifax (Nova Scotia), Moss Landing (California, U.S.), Xiamen (China), Fairbanks (Alaska, U.S.)

Two students of Québec-Océan under the supervision of Bruno Tremblay (U. McGill) participated in the Davos Atmosphere and Cryosphere Assembly that was held in Davos (Switzerland) July 8-12, 2013.

LINE BOURDAGES

Line Bourdages (U. McGill) is a PhD student of Atmospheric & Oceanic Science. Her poster “Impact of cryospheric changes on the Arctic surface-based inversion and radiative balance” had for topic the stability of the Arctic atmospheric boundary layer. It is characterized by the quasi-permanent presence of an enhanced temperature inversion over cold surfaces (snow and ice), and maximal during the cold season. In the context of a decreasing snow and ice cover, a decrease in atmospheric stability is expected with numerous potential repercussions for the Arctic climate. For example, heat and steam exchanges at the ocean-atmosphere surface could increase. Cloud distribution and phases, as well as precipitation could change. The preliminary results describe the atmospheric stability in the Arctic using radiosonde and reanalysis data (Arctic System Reanalysis). Over continents, inversion height is mostly correlated to surface temperature whereas over the oceans, it is correlated to ice cover. The temperature inversion height was also shown to be generally higher over the ocean, with potential implications for radiative transfer in the Arctic atmosphere.

ALEXANDER SLAVIN

Alexander Slavin (McGill U.), postdoctoral fellow under the supervision of Bruno Tremblay, presented a conference entitled “Vertical heat advection below shear lines: a mechanism for rapid sea ice decline in the Arctic”. The presented results, stemming from modeling evidence supported by observations, showed strong Ekman pumping velocities beneath active sea-ice leads where ice drifts and the ice-ocean interface stresses momentum transfer. The anomalous vertical velocities beneath these leads extend hundreds of meters below the surface, well into the Atlantic Layer, and bring up a large amount of ocean heat into the mixed layer. According to this young researcher, this process is important in controlling the Arctic sea-ice mass balance and an important player in the recent sea-ice decline in the Beaufort Sea.

MATHIEU ARDYNA

Mathieu Ardyna (U. Laval) participated in the French Arctic Initiative symposium, in Paris, France, which was held from June 3 to 5, 2013. His poster, entitled “Parameterization of vertical chlorophyll a profiles in the Arctic Ocean: Impact of subsurface chlorophyll maxima on regional, seasonal and annual primary production estimates”, presented the results of his doctoral project in oceanography, carried out under the supervision of Marcel Babin (U. Laval) and the co-supervision of Jean-Éric Tremblay (U. Laval) and Michel Gosselin (UQAR-ISMER). Based on an unpublished compilation of more than 5,000 stations across the Arctic Ocean, the study made it possible to obtain a regional and global portrait of the Arctic Ocean’s productivity. Furthermore, the importance of subsurface chlorophyllous maximums in the uncertainties present in the calculation of primary production was documented.

ANNE-CLAIRE TASSEL

From September 1 to 5, 2013, Anne-Claire Tassel(UQAR-ISMER) travelled to Portugal to participate in the European Corrosion Congress, held in Estoril. Her poster presented several results from her doctoral project in oceanography under the supervision of Karine Lemarchand (UQAR-ISMER). It covered the use of snow crab peptide extracts (SCPEs) as inhibitors of steel corrosion in sea water.
SCPEs, whether crude or fractionated, inhibit corrosion for at least 10 days. Steel protection results not only directly from SCPE activity, which creates a protective film on the steel surface, but also indirectly from modification of the biofilm, which stabilizes the protective layer formed by the SCPEs.

**SOPHIE CHARVET**

Sophie Charvet is a doctoral student in biology at U. Laval, under the co-supervision of Connie Lovejoy and Warwick Vincent. At the International Congress of Protistology, held in Vancouver, Canada, July 28 to August 2, 2013, she made a presentation entitled “Seasonal changes and DNA preservation in a high arctic meromictic lake”. She gave the results of a study on the Protist communities in the water column of Lake A, on the northern coast of Ellesmere Island. The lake is characterized by a layer of oxygenated fresh water resting on a mass of anoxic salt water. This perpetual stratification creates a physicochemical gradient along which the protistes are subjected to large environmental changes. Lake A has been sampled three times: in May 2008, under the spring ice; in August 2008, during a period of abnormal warming and loss of ice; and in July 2009, under the summer ice cover. The results suggest an active community limited to surface fresh water and sensitive to environmental conditions that change, depending on depths and seasons.

**KATRINE CHALUT**

Katrine Chalut, a master’s student in oceanography at UQAR-IMER, under the supervision of Philippe Archambault and the co-supervision of Christian Nozais, was in Iceland for the International Council for the Exploration of the Sea (ICES), which was held in Reykjavik in September 2013. She presented a poster entitled “Using the bivalve *Portlandia arctica* as an indicator of environmental variations within fjords (Labrador, Canada)” detailing her initial results. The increasing accessibility of the Arctic to commercial and industrial activities requires effective management of the region’s development from the environmental point of view. Consequently, understanding and predicting the dynamics of arctic marine communities by using past climate variability are of great strategic importance. Bivalves can be used as marine archives (skeletochronology) to determine the variability of marine ecosystems, over a period covering a single decade or up to a century, to estimate the potentially combined effects of climate change and increasing human-induced activity. In her study, carried out in two Nunatsiaqut fjords, Katrine showed the presence of a spatial variability (between fjords) and a temporal variability (over a 20-year period) in the level of the growth dynamics of the bivalve *Portlandia arctica*. In addition, her analyses showed a similar pattern of growth decline in the two fjords, which appears to be in phase with certain regional climate mechanisms, in particular the North Atlantic Oscillation (NAO).

**MAELLE SEVELLEC**

The annual meeting of the Canadian Society for Ecology and Evolution (CSEE) was held in Kelowna, British Columbia, May 12-15. Maelle Sevellec, a doctoral student in biology at U. Laval, under the supervision of Louis Bernatchez, presented a conference entitled “Divergence of the microbiome in lake Whitefish sympatric forms”. In the course of her project, the infection rate and the bacterial communities present in the kidneys of two sympatric forms of lake Whitefish (*Coregonus clupeaformis*) were compared using double-nested PCR, followed by 454 Sequencing. According to the results, 52% of fish are infected by 579 different bacterial genera. In spite of the fact that some pathogens specifically infect one form in a given lake, there is no parallelism, at the level of infection rates and bacterial communities, between sympatric forms. In fact, depending on the lake, the forms are not infected by the same bacteria. Nevertheless, a pathogenic pressure difference was detected between the two forms. This first analysis of bacterial communities infecting kidneys at this level of sensitivity could be applied to marine species.

**KIM DOIRON**

Kim Doiron carried out a postdoctoral practicum at UQAR-IMER in Karine Lemarchand’s laboratory. From September 9 to 12, 2013, she participated in the 4th BioMarine International Business Convention in Halifax (Nova Scotia). She was there as an expert to moderate a session entitled “Marine Natural Products and Environment” during which she presented her research results and answered participants’ questions. The subject of her presentation was the potential of anti-microbial peptides from the marine biomass to reduce the biofilms that cause the corrosion of metallic surfaces immersed in a marine environment. The purpose of the session was to point out future opportunities to use non-food grade marine products.
ROBIN ACCOT

September 2 – October 13, 2013. Robin Accot (UQAR-ISMER) went to Moss Landing (California, U.S.) to attend training on the distribution and origins of thin layers (TL) of phytoplankton. He was received by Dr. John Ryan, at the Monterey Bay Aquarium Research Institute (MBARI), and Dr. Raphael Kudela, at the U. of California at Santa Cruz, where they worked together to study phytoplanktonic TL composed of toxic algae, by locating blooms and then observing their changes over time, their size and their thickness. Robin was thus able to develop his expertise through discussions with specialists and by becoming familiar with new, state-of-the-art scientific equipment. He participated in an expedition on board the scientific research ship R/V Rachel Carson. The operations included the deployment and recovery of various instruments used to rapidly take samples and make molecular analyses. Robin is a master’s student in oceanography at UQAR-ISMER, under the supervision of Cédric Chavanne. He is co-supervised by Daniel Bourgault, Dany Dumont, Suzanne Roy and Gustavo Ferreyra.

ANNE FONTAINE

Anne Fontaine is a doctoral student in oceanography at U. Laval, under the supervision of Ladd E. Johnson. She is studying the concepts, methods and limits of ecological maps for the management of marine ecosystems, more specifically in the St. Lawrence Gulf and on the continental shelves of Newfoundland and Labrador. She participated in a summer school program entitled “Innovative Approaches in Marine Environment Modelling”, organized by LabexMER, in Plouzané near Brest (France), from August 19 to 23, 2013. Five themes were covered: functional biodiversity; relations between individuals and populations; adaptation and evolution; trophic interactions; complexity and emergence. This intensive training made it possible to compare various approaches and discuss the solutions best adapted to the complexity of the systems under study, particularly in the context of global change. Doctoral students, postdoctoral students and young professionals from 17 countries participated in the intensive training program, which also encouraged exchanges among the participants.

SOPHIE RENAUT

Sophie Renaut is a doctoral student in oceanography at U. Laval, under the supervision of Marcel Babin. She is studying the regulation of phytoplankton blooms on the edges of the pack ice and the implications for the Arctic Ocean’s biological carbon pump in the context of climate change. She participated in the SOLAS international summer school, held at Xiamen University (China), from August 23 to September 2, 2013. She attended several courses and practical activities under the guidance of highly qualified professors in the fields of biology, biogeochemistry and remote sensing. The program gave her tools for analysing her biochemical data on ocean-atmosphere interactions and on biogeochemical cycles in relation to climate change. She also met some 70 students from various countries, with whom she was able to develop collaborations and explain her doctoral project. Additional training periods made it possible for her to improve her skills with a view to successfully completing her dissertation (ethics, oral defence and authorship of scientific articles). “The training was dynamic, and the courses offered were varied. I was able to become familiar with new disciplines, and now I am considering other approaches for my doctoral research,” Sophie said.

VIRGINIE ROY

Virginie Roy (UQAR-ISMER) is pursuing doctoral studies on the diversity and environmental control patterns of benthic mega- and macrofauna in the Canadian Arctic. She has received a grant from FRQNT for her program of international training. During the Winter 2013 term, she was received by Dr. Katrin Iken at the University of Alaska’s School of Fisheries and Ocean Sciences (SFOS) in Fairbanks. “Spending a winter in Alaska is certainly cold but oh so rewarding!” exclaimed Virginie. The university is known for its work in arctic oceanography, benthic ecology and on stable isotopes. During her training, Virginie participated in a weekly discussion group on benthic ecology with researchers and graduate students, in laboratory sessions, seminars and a course on the use of stable isotopes in ecology given by Dr. Matthew Wooller. Those activities enabled her to better interpret the results of her research and to share her “Canadian” vision of the Arctic with American colleagues. “I encourage students to go abroad during their graduate studies,” declared Ms. Roy.
IN THE MEDIA

A few words about the Amundsen’s 2013 mission

Louis Fortier (U. Laval) points out the two objectives of the Amundsen’s 2013 arctic expedition: continue to monitor changes in the Arctic Ocean and discover why elevated levels of methane are found in Baffin Bay.


The dramatic helicopter crash on September 9, 2013, which caused the death of Marc Thibault, Daniel Dubé and Klaus Hocheim, marked the tragic end of the scientific expedition. The Beaufort Sea was not sampled as previously planned, because the Amundsen was called on to support recovery efforts for the helicopter, which had gone down in the M’Clure Strait.

http://www.dfo-mpo.gc.ca/media/npress-communique/2013/hq-ac50-eng.htm

Émilien Pelletier’s comments on SEA2 in the Gulf of St. Lawrence

Expected by many for several months, the final version of the strategic environmental assessment (SEA) of the Gulf of St. Lawrence in anticipation of petroleum production was released on September 13, 2013. Émilien Pelletier (UQAR-ISMER) believes that this version is much better than the preliminary version, which was severely criticized by the scientific community. According to him, the problems raised by the report really should be studied before any petroleum production activities are undertaken.


You can read the Évaluation environnementale stratégique sur la mise en valeur des hydrocarbures dans les bassins d’Anticosti, de Madeleine et de la baie des Chaleurs (EES2) (Strategic environmental assessment on petroleum development in the Anticosti, Madeleine and Chaleur Bay Basins, SEA2) at the following address:

http://hydrocarburesmarins.gouv.qc.ca/documents/091-51078-00_EES2_VF_130910_authentifie.pdf

Yearly expeditions on board the Amundsen may soon be ancient history

In spite of receiving replacement engines and generators in 2012-2013, the icebreaker Amundsen’s role in research may be reduced because of cuts to the vessel’s maintenance budget. The elimination of the support program for major resources at Canada’s Natural Sciences and Engineering Research Council (NSERC) in 2012 reduced by 20% the annual maintenance budget. Several positions for technicians assigned to the maintenance of scientific equipment had to be eliminated. The technical team has been restructured and its tasks redistributed. If no new source of funding is found, the Amundsen’s arctic expeditions may be possible only once every two years. That means that the changes in the Arctic Ocean resulting from global warming will not be as closely monitored and not be as well understood. Obtaining funding from the Gouvernement du Québec and the private sector is now being considered.


EVENTS

...UPCOMING

48e congrès de la SCMO – Le Nord vulnérable; implication des changements climatiques dans les environnements froids

June 1-5, 2014, Rimouski, Québec, Canada


2014 Ocean Science Meeting

February 23-28, 2014, Honolulu, Hawaii, United States


The organizers of session 118, on “Extreme oceanographic events: windows to the climate future?”, are currently calling for speakers on the topic of events in 2012 in the Gulf of St. Lawrence and the Atlantic Ocean.

Canadian Conference for Fisheries Research 2014

January 3-5, 2014, Yellowknife, Northwest Territories, Canada

http://www1.uwindsor.ca/glier/ccffr/
20th Biennial conference on the Biology of Marine mammals
December 9-13, 2013, Dunedin, New Zealand
http://www.marinemammalscience.org/index.php?option=com_content&view=article&id=549&Itemid=65

Non-indigenous species in the North-East Atlantic
November 20-22, 2013, Ostende, Belgium

Annual General Meeting of Québec-Océan
November 13-15, 2013, Rivière-du-Loup, Québec, Canada

Monitoring and Management of Red Tide/HABs Conference: Understanding and Managing an Emerging Threat to Public Health and Coastal Resources in the Middle East
November 10-11, 2013, Dubai, United Arab Emirates
http://www.icmevents.in/conference/Monitoring_and_management_of_Red_Tides_and_HABs_Conference

13th International Estuarine and Coastal Modeling Conference
November 4-6, 2013, San Diego, California, United States
http://www.uri.edu/meeturi/ecm13/index.html

United Nations International Conference on Disaster Risk Identification, Assessment and Monitoring
October 23-25, 2013, Beijing, China
http://www.un-spider.org/beijingdisasterrisk

3e Congrès international des aires marines protégées
October 21-27, 2013, Marseille and Ajaccio, France
http://www.aires-marines.fr/Evenements/IMPAC3

12th International Conference on Cohesive Sediment Transport Processes (INTERCOH)
October 21-24, 2013, Gainesville, Florida, United States
http://plaza.ufl.edu/khareyogesh1/intercoh.html

Ocean Innovation 2013: Ocean Smart
Monitoring, Data Management and Decision-Making
October 20-23, 2013, Rimouski, Québec, Canada
http://www.oceaninnovation.ca/fr/ThemesFR/2013/ContentFR/Accueil/

PICES 2013 Annual Meeting
October 11-20, 2013, Nanaimo, British Columbia, Canada

A LOOK BACK...

Accident involving the CCGS Amundsen’s helicopter

It is with great sadness that the management of Québec-Océan learned of the tragic helicopter accident that took the life of Klaus Hochheim, Daniel Dubé and Marc Thibault, on September 9, 2013, in the M’Clure Strait, during an ArcticNet expedition.

Mr. Marc Thibault, commanding officer of the CCGS Amundsen, Mr. Daniel Dubé, pilot of the icebreaker’s helicopter, and Dr. Klaus Hochheim, climatologist and research associate at the Centre for Earth Observation Science (CEOS), at the U. of Manitoba, were completing an ice survey flight when the helicopter went down.

The thoughts of all Québec-Océan members are with the families, friends and colleagues of these three Arctic companions in this trying time. Marc, Daniel and Klaus were appreciated not only for their professionalism and long experience, but also for their human qualities.

An inquiry is underway to determine the causes of the accident. For more information:

ON THE BULLETIN BOARD

New members
Collaborator: Alexander Culley (U. Laval)
Associate Members (postdoctoral fellows): Marti Gali Tapias (U. Laval), Daniele Bianchi (McGill U.)
Student Members: Habiba Bouakba, Houssem Gaaloul, Valérie Massé-Beaulne, Maria Giulia Muti, Kevin Osterheld (UQAR); Melissa Cook, Yukie Hata, Lucas Kavanagh, Liangliang Kong (McGill U.)
Employee Member: Eric Rehm (U. Laval)

Accelerating ocean exploration
The August 30, 2013 issue of the prestigious journal Science reports on ocean observation priorities, as identified during the Ocean Exploration 2020
meeting held in Long Beach, California (U.S.) last July. At the top of the list are the use of autonomous survey platforms, the study of the Arctic Ocean and the development of the “citizen-scientist” concept.  
http://www.sciencemag.org/content/341/6149/937.full

SLGO: A tool for reaching Québec-Océan’s research priorities

During the 10th anniversary symposium of Québec-Océan, the members identified six priorities for Québec oceanographic research, beginning with the maintenance and development of survey networks and data management systems. The St. Lawrence Global Observatory (SLGO) is a major tool for improving data management and sustainability. Its diverse applications, interactive maps and environmental observatory projects are also a showcase for St. Lawrence River research. The SLGO’s mission (http://ogsl.ca/fr.html) is to promote data circulation in order to facilitate exchanges, and the sharing and enhancement of the expertise of its researchers and members.

Tara: the French scientific research sailing vessel to visit Québec City

After touring the Arctic Ocean for seven months, the Tara, a two-masted, 36 metre, aluminum-hull sailing vessel, will drop anchor in the provincial capital during the week of November 11, 2013. The Tara’s visit will be an opportunity for the Takuvik UMI, ArcticNet and the Consulate General of France to receive scientists and organize media events. The program includes a series of presentations on navigating the Arctic Ocean, a press conference, visits to the sailing vessel for school children and the general public, and an interactive exhibit at the Musée de la civilisation.

Test beds for integrated management of challenges related to coastal erosion – Phase II

Last year, in Îles-de-la-Madeleine, three zones were identified for testing flexible structures aimed at reducing the effects of beach erosion. The follow-up work by the Îles-de-la-Madeleine ZIP Committee shows promising results. Most of the installations are very effective. Upgrading of the installations, based on the committee’s recommendations, is under way. A survey of vacationers who own cottages located behind a foredune was made to find out their perceptions about erosion and to discuss with them measures needed to minimize erosion.

Among activities still to come, we can mention a joint process of reflection with official bodies with respect to improving signage to indicate certain access points, work to be carried out for Phase III, in 2014, and a campaign to raise awareness among the population.

To consult the final report on Phase I:  
http://www.zipdesiles.org/documents/Rapports%20finaux%20 %28de%20projets%29/Rapport%20final_Erosion%202012.pdf

To consult news about the test beds and other projects:  
http://www.zipdesiles.org/nouvelles.htm

For all other information, go to the Internet site (http://www.zipdesiles.org) and the Facebook page (https://www.facebook.com/ComiteZipDesiles)
Creation of the Réserve aquatique de Manicouagan

Québec has no marine protected area (MPA) in the Gulf of St. Lawrence and only 1.3% of the Québec marine environment is protected. In comparison, Australia protects 35% of its marine territory, California 15%, and France will protect 20% by 2020. The recent announcement of the creation of an aquatic preserve is the culmination of a process that lasted more than 15 years. The objective is to give protection to an exceptional marine environment located at the mouth of the Manicouagan River, off shore from Parc Nature de Pointe-aux-Outardes. “After many years of stagnation, there has finally been progress in the conservation of Québec marine environments. We hope that the enthusiasm generated by this project will encourage decision makers to continue the progress already made,” said Patrick Nadeau, the administrative director of CPAWS Québec.

With thousands of visitors each year, the Saguenay-St. Lawrence Marine Park is proof that marine protected areas not only protect biodiversity, but that they are also important tools for economic development. To achieve similar results in the new Réserve aquatique de Manicougan, the Gouvernement du Québec will continue its collaboration with regional stakeholders with respect to environmental management. For the objective of biodiversity protection in a marine protected area to be met, it is indispensable for ecological monitoring in situ to be carried out by qualified scientists. The latest St. Lawrence Action Plan provides for the creation of three new MPAs.