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Master of Marine Management *Class of 2012*

Congratulations and best wishes to the MMM class of 2012.



Sarah Wilkin, Brennan Daly, Mirjam Wirz-Held, Paola Cisneros, Sam Hamilton, Amy Ryan, Sarah Deller, Jana Aker, Mike Reid & Tim Hayman at graduation in October, 2012.

Making Waves 2012

The 6th annual Making Waves Graduate Project presentation event took place on August 28 at Dalhousie University. Thirteen students presented information on their internship experiences and research findings to an audience of faculty, the incoming MMM class, internship hosts, and family members and friends. At the conclusion of the event, awards were presented to students that excelled in the MMM program.

The following pages provide more detail on the experiences of the MMM class of 2012.



(Left) L to R: Brennan Daly, Brett Howard, Jana Aker, Sarah Deller, Amy Ryan, Sarah Wilkin, Paola Cisneros, Tim Hayman, Mirjam Wirz-Held, Hilary Goodwin, Amy Roy, Sam Hamilton and Mike Reid at Making Waves 2012.

Marine Affairs Millennium Prize Recipients

1. Bob Fournier presented Brett Howard with the Marine Science & Technology Prize.
2. Lucia Fanning presented Mike Reid with the Marine Management Prize.
3. Elizabeth De Santo presented Sarah Deller with the Marine Policy Prize.
4. Lucia Fanning presented Paola Cisneros with the Interdisciplinary of the Year Prize.



MMM Internship Reports

The students of the 2011-2012 MMM class undertook internships at a wide variety of agencies this past summer, in Halifax/Dartmouth, Quebec, PEI, Nunavut, Washington DC and Bermuda. The full text of the MMM Graduate Projects can be found at:

www.marineaffairsprogram.dal.ca/Publications/Graduate_Projects/

Jana Aker

Jana completed two internships, one with the Oceans and Coastal Management Division of Fisheries and Oceans Canada (DFO), and the other with the Taggart Lab in the Department of Oceanography at Dalhousie. At DFO, Jana worked with Tanya Koropatnick and Jen Ford, under the supervision of Glen Herbert, MMM Alumni. Her graduate project and internships involved assessing the potential impacts of commercial shipping activities in the St. Anns Bank Area of Interest. This research was done to inform the St. Anns Bank Management team of the potential threats to the future marine protected area, and provide recommendations on how to reduce or remove those threats. Her academic supervisors were Dr. Christopher Taggart, Professor in the Department of Oceanography, and Dr. Diego Ibarra, Post Doctoral Fellow. The title of her graduate project is *Marine transport activity in the vicinity of the St Anns Bank area of interest: potential impact on conservation objectives*.



Sarah Deller, Jana Aker and Tim Hayman, MMM interns at Fisheries & Oceans Canada and the Canadian Coast Guard.

Sarah Deller

Sarah's internship was with the Oceans and Coastal Management Division of Fisheries and Oceans Canada in Dartmouth, NS. Her supervisor was Glen Herbert, MMM alumnus, with invaluable guidance from Derek Fenton and Tanya Koropatnick in the Ecosystem Management Branch. Sarah worked to determine the effectiveness of the current management efforts for the conservation of cold-water corals in the Atlantic region, by developing a framework to evaluate the current coral conservation areas off of Nova Scotia. The goal of her project was to determine where management improvements are needed and how they can be prioritized given the resources available at DFO. She hopes her research will also offer some insight as to how science can better inform policy. Her academic advisors were Dr. Anna Metaxas, Professor in the Oceanography Department, and Dr. Elizabeth De Santo, Assistant Professor, Marine Affairs Program. The

title of her graduate project is *An analysis of an evaluation of deep-water coral conservation and management initiatives in the Canadian Maritimes*.

Tim Hayman

The Canadian Coast Guard Environmental Response Branch in Dartmouth, Nova Scotia, hosted Tim as an intern under the guidance of Joe LeClair. Tim's investigation of a number of recent ship-sourced oil spill scenarios in Atlantic Canada, and the resulting public reactions, provided insights that will help the Coast Guard to understand and anticipate public responses to future marine environmental incidents. Through careful examination and comparative analysis of the cases, coupled with interviews with experts and stakeholders, Tim identified the factors that influence public perception of risk in such incidents. Ron Pelot, a professor in the Faculty of Engineering specializing in risk analysis, was Tim's academic supervisor. The title of his graduate project is *Risk vs. public reaction in marine oil spills: a case study analysis of six Atlantic Canadian marine vessel-sourced oil related incidents*.



Paola Cisneros Linares in Lunenburg, Nova Scotia during a site visit.

Paola Cisneros Linares

Paola's internship, with the Nova Scotia Department of Fisheries and Aquaculture under the supervision of David Mitchell (Coastal Strategist) and Justin Huston (Coastal Zone Advisor and MMM Alumnus), focused on the development of a preliminary rapid assessment of the social and economic value of working waterfront infrastructures in Nova Scotia. This rapid assessment aims to create a new criteria to support the Vulnerability Assessment Tool of coastal infrastructures relevant to the fishery and aquaculture industry in relation to climate change impacts. Part of her project included conducting site visits to wharfs and small-craft harbours in historical places such as the UNESCO world heritage site of Lunenburg. Dr. Eric Rapaport, an

Associate Professor of the School of Planning (Dalhousie University), who specializes in environmental impact assessments and infrastructure planning, was her academic supervisor. The title of her graduate project is *Improving resources to assess climate change coastal vulnerability: a pre-assessment criteria of the socio-economic values of working waterfront infrastructures in Nova Scotia.*

Brennan Daly



Brennan's internship was with the fisheries sector of the Listuguj Mi'gmaq Government's Natural Resources Directorate in Quebec. He worked on the development of a culturally relevant salmon fishery management plan, and researched how the distinct values systems of First Nations can be applied using the Sustainable Livelihoods Approach. Brennan interviewed community members on local perspectives of the fishery in order to determine the applicability of the sustainable livelihoods approach to the communities long term management of the resource. Brennan's supervisor was Chris Milley, MMM Alumnus and Adjunct Professor of Marine Affairs. The title of his graduate project is

Putting people first: using the sustainable livelihoods approach to develop a culturally relevant salmon fishery management plan.

Hilary Goodwin

Hilary undertook an internship at the National Oceanic and Atmospheric Administration (NOAA) Fisheries Office of International Affairs in Silver Spring, MD under the supervision of Cheri McCarty, a Foreign Affairs Specialist. She received guidance from another Foreign Affairs Specialist, Pat Moran, on the thorny skate quota set through the Northwest Atlantic Fisheries Organization (NAFO). Hilary worked on a comprehensive global database of elasmobranch legislation and regulations in order to allow NOAA to evaluate if other countries have comparable shark conservation regulations, which is a requirement under the Shark Conservation Act. Hilary created information sheets on fins and attached regulations for use at international fisheries meetings. Her graduate project focused on skate and ray management in the US, Canada, and the NAFO area. The output of the project helped highlight gaps in management and suggest ways to improve elasmobranch management. Sonja Fordham, President of Shark Advocates International, provided valuable input on skate and ray management. Hilary's academic advisor was Dr. Boris Worm, Professor in the Department of Biology at Dalhousie University. The title of her graduate project is *Skate and Ray management in the Northwest Atlantic: an overview of current management and recommendations for conservation.*

Samantha Hamilton

Sam's internship at the Bermuda Institute of Ocean Sciences, under the supervision of Dr. Eric Hochberg, explored the scientific and management merits of coral bio-optics as an indicator of coral stress, and its potential as a tool for reef monitoring. With guidance from her co-supervisor, Dr. Bruce Hatcher (Cape Breton University), the output of her work provided insight into whether the measurement of coral bio-optics can proactively inform management efforts in a reliable, repeatable and useful manner, and how regulatory and policy frameworks might be influenced by the results of coral bio-optic monitoring. The title of her graduate project is *Applications of coral bio-optics to coral reef management.*



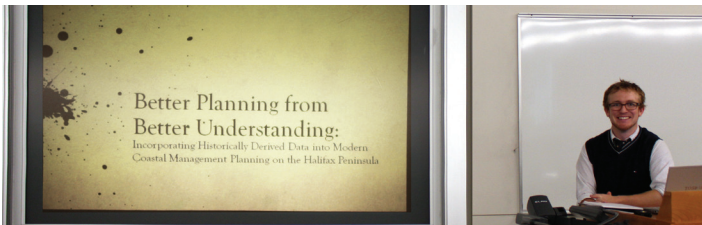
Samantha Hamilton in Bermuda

Brett Howard

Brett interned with the Canadian Sea Turtle Network (CSTN), a non-profit organization based in Halifax, Nova Scotia. The CSTN collaborates with scientists, commercial fishermen and coastal community members to conserve endangered sea turtles in Canadian waters, notably the leatherback sea turtle. As an intern, Brett helped the CSTN with community education and leatherback research projects. The CSTN was also an invaluable resource for Brett's graduate project: assessing the risk to leatherback sea turtles from marine oil pollution in Atlantic Canada. Under the supervision of Dr. Peter Wells, Senior Research Fellow at the International Ocean Institute and MAP Adjunct Professor, this risk assessment determined whether a potential oil spill in Atlantic Canada could seriously harm or kill the endangered leatherback turtles. The title of her graduate project is *Assessing and managing the ecological risk to leatherback sea turtles (Dermochelys coriacea) from marine oil pollution in Atlantic Canada.*

Mike Reid

Mike spent the summer working with the Government of Nova Scotia's Protected Areas and Wetlands Branch. His research focused on developing a method for planners and policymakers to gain a more complete understanding of coastal wetland environments. This was done by combining historical documentation and modern Geographic Information System (GIS) technology. Working with GIS technicians, archivists, historians, biologists and other members of the



Mike Reid during his presentation at Making Waves 2012.

scientific community, Mike created an accurate model of the Halifax Peninsula as it looked in 1784. The aim of the project was to create an ecological baseline to assist with decision-making on wetland management and conservation measures. His academic supervisor was Jerry Bannister, Associate Professor in the Department of History at Dalhousie. The title of his graduate project is *Better Planning from better understanding: incorporating historically derived data into modern coastal management planning on the Halifax Peninsula*.

Amy Roy

Amy's internship at Nova Scotia's Department of Fisheries and Aquaculture (Marine Section) was under the direction of Justin Huston, Coastal Zone Coordinator and MMM alumni (2001). Her research examined the variables that structure an advisory committee to determine which factors contribute to, or limit, a committee's success at informing marine policy. The goal of this research was to make recommendations about the formation and operation of advisory committees to maximize information transfer from subject-matter experts to policy-makers, ultimately aiding the implementation of Nova Scotia's Coastal Strategy. Amy's academic supervisor was Dr. Robert Fournier, Professor Emeritus in Dalhousie University's Department of Oceanography and Adjunct Professor at MAP. The title of her graduate project is *An institutional analysis of Canadian advisory committees: linking committee structure and function to policy changes*.

Amy Ryan

The Canadian Wildlife Federation (CWF) in Halifax, Nova Scotia hosted Amy as an intern under the direct supervision of her academic advisor, Dr. Sean Brilliant, Marine Programs Manager. She examined the value of critical habitat as defined by the Canadian Species at Risk Act (SARA) for the conservation of marine species at risk. She quantified the major threats to Canadian marine species at risk and to examine the threat of habitat destruction. The project assisted CWF to provide the federal government with guidance on how to deal with SARA, and in generating alternative mechanisms to manage species at risk in Canada that ensure the timely protection of imperiled species. This research contributed to a report by CWF that will made recommendations on measures to streamline the process of critical habitat designation to better facilitate the conservation of marine species at risk, and ultimately to help the federal government meet their obligations enough to effectively achieve their conservation goals. In addition to the work conducted on her graduate project, Amy assisted in compiling data from Fisheries and Oceans Canada on the distribution of commercial fixed-gear fisheries from various regions across Canada. Dr. Brilliant also served as Amy's academic supervisor. The title of her graduate project is *Evaluating the role and designation of critical habitat for conserving Canadian marine species at risk: a decision framework*.

Sarah Wilkin

Sarah interned at the Mi'kmaq Confederacy of PEI and was supervised by Randy Angus, the Director of Integrated Resource Management. Her research focused on developing a management plan for migratory birds at Malpeque Bay, a "wetland of international importance". She looked into existing threats, how well existing policies and regulations protect this area, and if the capacity exists to offer sufficient protection. Sarah's internship helped to inform the role of the Mi'kmaq people as a stakeholder in this area, as well as the role of the Lennox Island First Nation in the conservation of Malpeque Bay. Her academic supervisor was Dr. Irene Novaczek, Director of the Institute of Island Studies at UPEI. During her internship, Sarah had the opportunity to volunteer at a grade six Environment Fun Day, where she taught approximately 100 students about wetlands and helped them catch and release



Rackhams Pond, PEI



Participants at Environmental Fun Day

brook trout. The title of her graduate project is *Protecting the migratory bird habitat at Malpeque Bay, Prince Edward Island: an identification of the management needs*.

Mirjam Wirz-Held

Mirjam split her internship between the Department of Fisheries and Oceans (DFO), Central and Arctic Region in Winnipeg, Manitoba, and the Government of Nunavut, Department of Environment in



Mirjam Wirz-Held in Nunavut

Iqaluit, Nunavut, in order to get a more well-rounded perspective on the issues related to whale co-management. Under the guidance of Janelle Kennedy (MMM 2006) she investigated the roles and responsibilities of the various partners in the co-management of whales in Nunavut. Mirjam's graduate project focused on how and to what extent traditional ecological knowledge is included

in the decision making process of narwhal co-management in Nunavut. In addition, she advised the Government of Nunavut on their potential role in the co-management process. Her academic supervisor was John Kearney, Adjunct Professor in the Marine Affairs Program. The title of her graduate project is *Narwhal co-management in Nunavut: deepened collaboration needed to improve partnership, process, and outcome*.