Canadian Census of Marine Life – Summary Report September 2006

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The Canadian Census of Marine Life has had some successes in the last year and continues to work towards establishing a secretariat and research funding base. Canadian scientists have played significant roles in many census projects including The Gulf of Maine Project, ArcOD, POST, and Barcode of Life; these activities will be reported by secretariats for those projects.

Within the Canadian Census there have been several significant efforts that do not fall specifically under any individual CoML project. The first of these was a very successful cruise on CGS Hudson July 8-23, 2006. The lead PIs on this project were Peter Lawton and Ellen Kenchington (BIO/DFO), Anna Metaxas (Dalhousie U.) and Paul Snelgrove (Memorial U.) Funding for the ship time (valued at $558,000 @ $31,000 Can/day for 18 days) was provided by Bedford Institute of Oceanography/Department of Fisheries and Oceans and funds for the remotely operated vehicle (ROPOS) that represented the main sampling tool was provided by a Natural Sciences and Engineering Council of Canada (NSERC) Major Facilities Access award to a group of Canadian scientists that paid the mobilization costs ($210,000) and an NSERC Ship Time Award to Metaxas and Snelgrove ($147,280). The main objective of the expedition was to engage in a multidisciplinary effort to characterize and quantify the biota and associated benthic habitats in different physiographic regions along the Discovery Corridor of the Gulf of Maine. Our goal was to generate maps of benthic seascapes that will allow us to understand (and eventually predict) patterns of biodiversity and the regulatory factors responsible for these patterns. The cruise was extremely successful, and we collected data for deep-water coral areas, muddy sediments, and a wide range of habitats from the continental shelf to 2500 m depth, including video surveys, specimens for genetic analyses, and sediment samples for community analyses. Samples are now being processed in multiple labs in Atlantic Canada. The cruise also generated considerable interest in the Canadian press.

A second significant effort was a proposal led by Connie Lovejoy (Laval U.) to the Canadian International Polar Year program entitled “Climate Change and Arctic Marine Biodiversity”. This proposal, which included 11 other scientists from across Canada, would build on existing Arctic programs but provide additional support for biodiversity-focused “add-ons”. Specifically, this initiative will develop a focused scientific program aimed ***at identification, cataloguing and finding tools for the conservation of marine biodiversity in the Arctic Ocean, adjacent Arctic Seas and shores.*** Our approach will be to identify biodiversity at three hierarchical levels; geographic/seascape, species, and population/genetics. Our overarching aim is to identify climate sensitive processes underlying this biodiversity. In order to assure a legacy toward northern peoples we will rely on local Inuit communities to implement part of this research. Our goal is to enable an exchange of indigenous and scientific concepts to provide both scientists and local communities with knowledge that will promote the value of marine resources and biodiversity in the face of changing climatic and social pressures.

A third significant effort was a Letter of Intent to NSERC’s Strategic Networks Program. This Letter of Intent represents a significant initiative that would seek $1-1.9 million annually for each of the next five years. This Letter of Intent was developed by scientists who have been enthused about developing a Canadian Census of Marine Life Program, and the title of the

proposal is “"Scientific Criteria for Conservation and Sustainable Usage of Marine Biodiversity in Canada's Oceans". Within the network we would focus on four themes. First, ***what are the relationships between biodiversity and ecosystem functioning****, and how will species loss affect ocean health*? Second, w*hat is the spatial and temporal distribution of species, and* ***how can we utilize studies of spatial and temporal variability within and between habitats to model and predict broader biodiversity patterns*** *for other geographic areas, habitats, and times?* Third, ***how are human and natural disturbances (including climate change) related to marine community stability, and how can we identify and protect those areas that are most likely to contribute to objectives such as sustaining biodiversity, ocean health, and commercial fisheries****?* Fourth, *given the dynamic nature of marine ecosystems****, how can we design a network of closed areas, MPAs, and similar strategies that will achieve the biological goals of conservation and sustainable use of adjacent areas****?*

We expect to hear sometime in October (2006) whether a full proposal will be invited by NSERC. This proposal will be pivotal to a Canadian Census of Marine Life program because it would provide a funding base for Census-related research and support for a secretariat to catalogue and report on Canadian CoML activites.