Fisheries and Oceans Canada
Coast Guard

Pêches et Océans Canada
Garde côtière

CANADIAN COAST GUARD RESEARCH AND DEVELOPMENT PROGRAM

PLAN 2008-2009

Canada

April 2008

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17. Abstract

The Canadian Coast Guard Research and Development Plan lists those research projects planned for fiscal year 2008-2009 by the various branches and regions.

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FOREWORD

Research and Development (R&D) has historically been an essential element in helping the Canadian Coast Guard (CCG) achieve its operational mandate. The Coast Guard is dedicated to ensuring the safe and environmentally responsible use of Canada's waters. Research and Development is one way in which the Coast Guard seeks to become more efficient in its day-to-day operations as well as to improve the effectiveness and appropriateness of its levels of service.

The Coast Guard R&D Program is coordinated through one focal point to assist in the establishment of a master plan, support to the CG business plan and to facilitate the establishment of priorities, project selection criteria, performance measures, reporting and accounting.

A description of each R&D project undertaken by CCG during the 2008-2009 fiscal year may be found under their appropriate heading. More details on these initiatives can be obtained by contacting the responsible project officers. A contact name is given at the end of each project report.

Approved R &D FUNDING 2008/09 SUMMARY

1	Ice Hazard Radar		$100k
2	Lighted Spar Buoy		120k
3	Oil Dispersion in Ice-Covered Waters		60k
4	Vision Standards		25k
5	Synthetic Mooring for Large Buoys	remainder	53k
		total:	**$358k**

CG R&D PROJECT DIRECTORY

Ice Hazard Radar

This inter-departmental project has been ongoing outside the R&D Program. Phase two will be the acquisition, modification and installation of the additional hardware leading to the demonstration of the system in 2008/09, subsequent improvements and a validation trial in 2009/10.

During the summer of 2008, the Ice Hazard Radar will be evaluated in conjunction with satellite imagery, data obtained from the Helicopter Ice Sensor (BIO), NRC Video System, and CIS ground-truthing. A large volume of radar data will be recorded for later analysis. The radar data will be recorded from various ice types and objects, in various states of melt, wetness or cover, and in various environmental conditions. The recorded data will be analyzed to characterize the detection performance of the X-Polarized radar, and its ability to discriminate effectively between first year ice and multi-year ice environment.

Project Director:	Barbara O'Connell, Ottawa
Project Officer:	Jose Fernando Mojica, ITS, Ottawa
CG Branch:	Icebreaking Program
Funding:	CCG R&D Program TEC $250,000
	(OGD Investment to date $387,500 & TEC $787,500)
	08/09 Delegation **$ 100,000**
Schedule:	2008-2009 – 2010-11

Lighted Spar Buoy

This project aims at cutting down CCG's operating costs for this service, by developing a year-round buoy that will improve the level of service for commercial navigation at the beginning and end of the winter season.

Specifically the objective is to: *Provide two lighted spar models (0,7 m and 1 m) capable of providing a reliable and effective lighted service nine months of the year and which can stay moored for two years before they require maintenance.*

Project Director:	Daniel Crépault, Québec Region	
Project Officer:	Georges Cossette, Québec Region	
CG Branch:	Navigation Services	
Funding:	TEC $1, 213,100	
	(Investment to date $1,068,100)	
	08/09 Delegation	**$ 120,000**
Schedule:	2000/2001 to 2008/2009	
Project Number:	FJNF3	

Oil Dispersion in the Form of Oil-Mineral Aggregates Ice-Encumbered Waters

During winter, the impact of an oil spill is all the more important that there exist no effective method of recovering spilled oil when water is encumbered with ice. The traditional mechanical oil recovery methods, deployed because there are no other alternatives, offer a poor performance in ice. As a result, at-sea recovery is very expensive and ineffective under these conditions. The present project was launched for the purpose of correcting this deficiency.

The results of this first step will allow us to develop guidelines for an oil spill response procedure in ice-encumbered waters. The second phase, planned for 2008-2009, aims at developing a multi-component operational tool that include a doser-injector that would ensure « automation » of the promoted method and speedy oil spill responses by the CCG.

Project Director:	Martin Blouin, Québec Region
Project Leader:	Stéphane Dumont, Eng., Québec Region
CG Branch:	Environmental Response
Funding:	CCG R&D Program TEC $462,500 (Investment to date $362,000) 08/09 Delegation **$ 60,000**
Schedule:	2001-2002 to 2008-2009
Project Number:	FJMP3

Vision Standards for Seagoing Personnel

As the employer of ships' officers and ships' crew, the Canadian Coast Guard (CCG) Agency is obligated and has the desire to ensure a safe workplace, while at the same time complying with the Canadian Human Rights Act by ensuring that the medical standards are a *Bona-Fide Occupational Requirement*.

The completion of the project will entail the development of minimum vision standards for high and low contrast visual acuity, colour discrimination, field of view (FOV), depth perception, visual search, monocular vision, night vision, and useful field of view (UFOV) for CCG seagoing personnel (officers and crew for deck, engine room and logistics departments), and Conservation & Protection Fishery Officers.

Project Director:	Stephen Peck, Director, Ottawa	
Project Officer:	Phillip Murdock, Fleet, Ottawa	
CG Branch:	Fleet	
Funding:	CCG R&D Program TEC	$ 525,000
	08/09 Delegation	**$ 25,000**
Schedule:	2008/2009 – 2011/2012	
Project Number:	FJNF3	

Synthetic Mooring for Large Buoys

The CCG would like to expand the use of synthetic moorings and provide a safe, reliable, cost effective alternative to chain moorings currently used for heavier anchor weights and larger buoys. In order to achieve this goal analysis is needed.

The R & D work identified here would add to the existing knowledge of synthetic moorings and address unknowns related to synthetics and their application to heavier anchors and larger buoys. Of particular interest are the safe working loads through the life of a mooring, the safe retrieval methods for synthetic moorings for medium size buoys and their 2500 lb sinkers and for larger buoys with sinkers up to 8000 lbs, in this order of priority, and an assessment of disposal options for mooring ropes.

Project Director:	Lynn Denis, Ottawa
Project Officer:	Stephanie Verbit, ITS, Ottawa
CG Branch:	Navigation Services
Funding:	CCG R&D Program TEC $860,000 (Investment to date $550,000) 08/09 Delegation **$ 53,000**
Schedule:	2005-2006 – 2010-2011
Project Number:	FQAP6

NEW SEARCH AND RESCUE INITIATIVES FUND (NIF)

The New Search and Rescue Initiatives Fund (NIF) is a unique undertaking by federal and participating provincial, municipal and private Search and Rescue (SAR) organizations. The objective is the saving of lives by enhancing SAR prevention and the provision of SAR services. NIF is not specifically oriented to R&D projects but, rather, was established by the federal government to provide funding to new initiatives which enhance the effectiveness of SAR by all participants, especially those outside government.

Below lists the ongoing projects to be funded by NIF for FY 2008/2009. New proposals were not yet approved at the time of this publication and will therefore, be included in the year-end annual report.

To obtain more information about these projects, please contact Janice Brasier at (613) 991-6123, CCG NIF Coordinator.

Project List Summary

	Project Name / Recipient/Region	ID / # / Code	Summary	Cost
1	*Self-Locating Data Marker Buoy w/Iridium Satellite Telemetry*	*2007010 DFO 3/08 MSS67*	*Develop an Iridium Based Self Locating Data Marker Buoy in reduced size (smaller than or equial to "A" size) package designed for vessel and air deployment. This design will incorporate IRIDIUM short burst data telemetry capability; developed to meet or exceed the reliability of the current ARGOS based design while improving upon the manufacturing cost.*	*08/09 93,000* *09/10 564,351* *10/11 234,987* *TEC 892,338*
2	*POD Validation of Leeway and Drift*	*200709 DFO 6/07*	*Collect Probability of Detection (POD) data and determine the sweep width for 4- and 7-person life rafts using an All Weather SAR vessel tasked for SAR missions during poor weather during fall and winter in Eastern Canada. Extension of the collection of leeway data for the new Ovatek life raft.*	*07/08 514,278* *08/09 298,828* *TEC 813,106* *VOTE 10*
3	*East Coast Forecast System* *Bedford Institute of Oceanography* *Nfld. Region*	*2005017 DFO 6/05 HVBL6*	*BIO to assist in the development of an integrated computer model for surface current forecasting system for the East Coast and part of the Eastern Arctic and will allow for the transfer of data to CCG for ingestion into CANSARP for operational use.*	*05/06 130,000* *06/07 162,507* *07/08 140,821* *08/09 167,533* *TEC 600,861* *Vote 1*