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Environmental  
Studies  
Research  
Funds

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# Annual Report 2013

**2011**

**ANNUAL REPORT FOR**

**THE ENVIRONMENTAL STUDIES RESEARCH FUND**

**FEBRUARY 2012**

**Environmental Studies Research Funds**

## **Profile**

The Environmental Studies Research Fund (ESRF) is a research program that sponsors environmental and social studies. It is designed to assist government decision-making related to oil and gas exploration and development on Canada's frontier lands. The ESRF program, initiated in 1983 under the *Canada Oil and Gas Act (COGA)*, now receives its legislated mandate through the superseding legislation, the *Canada Petroleum Resources Act (CPRA)*, proclaimed in February 1987. Funding for the ESRF is provided through levies on frontier lands by interest holders such as oil and gas companies. The ESRF is directed by a joint government/industry/public Management Board and is administered by a Secretariat that resides within the Office of Energy Research and Development of Natural Resources Canada in Ottawa, Ontario.

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## **Background on the Structure and Operation of the Fund**

The Environmental Studies Research Fund (ESRF) finances environmental and social studies pertaining to the manner in which, and to the terms and conditions under which, petroleum exploration, development and production activities on frontier lands should be conducted. Subsection 101(1) of the *Canada Petroleum Resources Act* (CPRA) defines an environmental study as “*work pertaining to the measurement or statistical evaluation of the physical, chemical, and biological elements of the lands, oceans, or coastal zones, including winds, waves, tides, currents, precipitation, ice cover and movement, icebergs, pollution effects, flora and fauna, both onshore and offshore, human activity and habitation, and any related matter.*”

The Environmental Studies Research Fund is directed by a twelve-member Management Board that has representation from the federal government, the Canada–Nova Scotia Offshore Petroleum Board (CNSOPB), the Canada–Newfoundland and Labrador Offshore Petroleum Board (CNLOPB), the oil and gas industry and the general public.

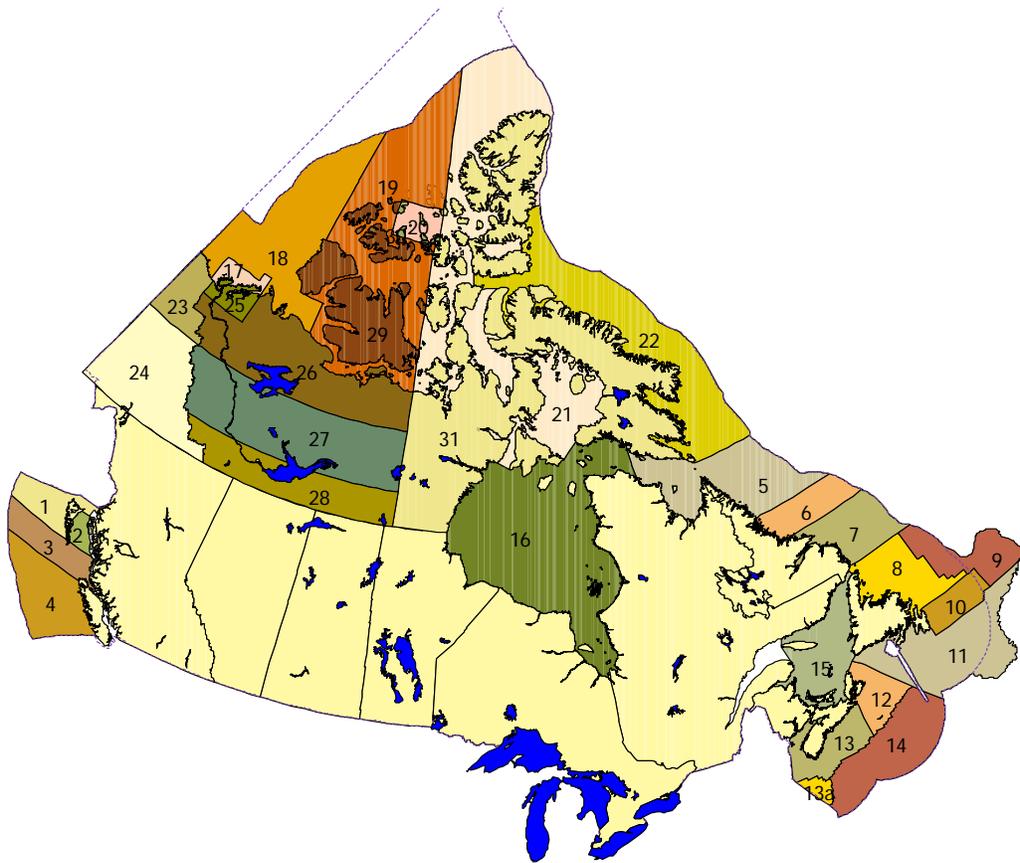
The ESRF Management Board directs the business of the ESRF, sets priorities for study topics, determines the program budget and facilitates the development of study proposals on behalf of the Minister of Natural Resources Canada and the Minister of Aboriginal Affairs and Northern Development Canada.

The program operates on a calendar year basis. The Board generally meets three times a year; however, the frequency of meetings may be adjusted as circumstances dictate. The Board assesses the information requirements of government and industry to determine priorities for the study program for the coming year. The budget to support the study program and its administration forms the basis for the calculation of the levy rate schedule. The budget and levy rates are submitted to the Ministers for approval by November 1 of each year. The projects under the study program are initiated following the collection of levies that generally occurs in the first quarter of the calendar year.

## ESRF Regions

Descriptions and maps can be viewed on the ESRF website at:

[http://www.esrfunds.org/legloi\\_e.php](http://www.esrfunds.org/legloi_e.php)



## **Study Program - 2011**

The ESRF Management Board approved the following seven new studies for the 2011 study program:

### **Northern Studies – 2011**

#### *Changing Sea Ice Conditions, Beaufort Sea*

- Improving the Accuracy of the Short-term Ice and Ocean Forecasts in the Beaufort Sea.

#### *Oil Spill Prevention and Management*

- Emergency Spatial Pre-SCAT for Arctic Coastal Ecosystems – Beaufort Sea/Mackenzie Delta
- Beaufort Sea Oil Spill Workshop (Technical Advisory Committee)

### **East Coast Studies – 2011**

#### *Air Emissions*

- Source Apportionment of Volatile Organic Compounds and Particulate Matter on Sable Island

#### *Wastes*

- Assessment of the Potential for Impacts on Fish Larvae and Zooplankton around Petroleum Development Sites on the Grand Banks

#### *Oil Spill Prevention and Management*

- Oil Spill Strategic Planning Forum

#### *Seismic Activity*

- Fish Behaviour and Seismic Sound Disturbance Workshop

## **Continuing Studies 2011 – Northern Area**

### *Regional Effects Management*

- Beaufort Sea Legacy Data Synthesis (Seabed Stability Conditions in the Shelf/Slope Transition Zone, Canadian)

### *Changing Sea Ice Conditions*

- Detection of Oil Under Ice with Helicopter-borne Ground Penetrating Radar (GPR)

### *Oil Spill Prevention and Management*

- Tracking Oil Spills/Ice Hazards with Ice-ocean Forecast

### *Marine Seismic*

- Development of Aerial Survey Techniques and Whale Detection Methods for Seismic Operations in the Beaufort Sea
- Development of Ecologically-Based Criteria to Assess the Impact and Recovery of Seismic Lines

## **Continuing Studies 2011 – East Coast**

### *Socio-Economic*

- Evaluation of potential socio-economic effects on the Labrador coast as a result of the resumption of offshore oil and gas exploration and development and possible future production

### *Air Emissions*

- Modelling Air Emissions from Offshore Installations

### *Seabirds*

- Simulation of fate and “Detectability” of “Dead” Seabirds

*Seismic*

- Labrador Coast Seabird Surveys
- Seismic and Lobster Feeding
- Marine Mammal Observation Data Synthesis for the East Coast

*Wastes*

- Publication of International Conference Volume
- Biological Effects of Produced Water on Life Stages of Fish
- Validation of Risk Assessment Numeric Models

## **Financial Statement**

The total value of the 2011 ESRF program was \$3,355,093. The budget included \$2,879,593 for the proposed studies and \$475,000 for the administration of the ESRF research activities program (refer to Levy #23 – Table 1).

The difference in the total required levy and total revenue collected is the result of land sales after the calculation of the levy as well as changes in interest owner holdings. You will note that following a rebalancing exercise undertaken by the ESRF Secretariat, no levies are required in the southern regions for the 2011 study program. The collection of unpaid levies is pursued on an ongoing basis by the ESRF Secretariat.

January 1, 2011 to December 31, 2011 (in dollars)

<b>Regions</b>	<b>Opening Cash Balance</b>	<b>Levies and Back Levies Collected</b>	<b>Administrative Costs</b>	<b>Study Program Expenditures</b>	<b>Closing Cash Balance</b>
SOUTH: Regions 1 to 16	3,627,944	22,513	(186,028)	(198,565)	3,265,864
NORTH: Regions 17 to 31	2,206,123	893,347	(186,028)	(683,152)	2,230,290
<b>TOTAL</b>	<b>\$5,834,067</b>	<b>\$915,860</b>	<b>(\$372,056)</b>	<b>(\$881,717)</b>	<b>\$5,496,154</b>

Table I - ESRF Revenues

January 01, 2011 to December 31, 2011 (in dollars)

REGIONS	Levy #23 (\$/ha)	Levies Invoiced 2011	Levies Collected	Back Levies Collected	Levies Refunded	Total Levy Revenue Collected
		B	C	D	E	(C+D-E)
1 Queen Charlottes North	0	0	0	0	0	0
2 Hecate Strait	0	0	0	0	0	0
3 Queen Charlottes South	0	0	0	0	0	0
4 Vancouver Island	0	0	0	0	0	0
5 Labrador North	0	0	0	0	0	0
6 Labrador Central	0	0	0	0	0	0
7 Labrador South	0	0	0	0	0	0
8 Northeast Newfoundland	0	0	0	0	0	0
9 Newfoundland Slope	0	0	0	0	0	0
10 Grand Banks North	0	0	0	0	0	0
11 Grand Banks South	0	0	0	0	0	0
12 Scotian Shelf East	0	0	0	0	0	0
13 Scotian Shelf West	0	0	0	0	0	0
14 Scotian Slope	0	0	0	0	0	0
15 Gulf of St. Lawrence	0	0	0	0	0	0
16 Hudson Bay	0	0	0	0	0	0
17 Beaufort South	0.6140	333,816	272,988	0	0	272,988
18 Beaufort North	0.4791	607,664	574,676	0	0	574,676
19 Western Archipelago-Offshore	0.0629	1,448	1,448	0	0	1,448
20 Central Archipelago-Offshore	0.0629	15,453	15,453	0	0	15,453
21 Eastern Archipelago-Offshore	0.0629	1,200	1,200	0	0	1,200
22 Baffin Bay	0	0	0	0	0	0
23 Yukon North	0	0	0	0	0	0
24 Yukon South	0	0	0	0	0	0
25 Mackenzie Delta	0	0	0	0	0	0
26 Mackenzie North	0.0629	23,125	9,107	12,480	0	21,587
27 Mackenzie Central	0	0	0	0	0	0
28 Mackenzie South	0.0629	7,492	5,724	0	0	5,724
29 Western Archipelago-Onshore	0	0	0	0	0	0
30 Central Archipelago-Onshore	0	0	0	0	0	0
31 Eastern Archipelago-Onshore	0.0629	271	271	0	0	271
<b>TOTAL</b>		<b>\$990,469</b>	<b>\$880,867</b>	<b>\$12,480</b>	<b>\$0</b>	<b>\$893,347</b>

## **Plans for 2012**

In September 2011, the ESRF Management Board established the budget for the 2012 program which will be supported by Levy #24. This program was recommended by the Management Board and has been submitted for approval to the Minister of Natural Resources Canada and the Minister of Aboriginal Affairs and Northern Development Canada. The study program has a total value of \$1,016,000 and an administration budget of \$500,000 for new programs. Continuing studies from 2011 will be funded from the balance of existing funds.

The ESRF Management Board has established the following priority areas for 2012:

### ***North***

- Oil Spill Prevention and Management
- Arctic Oil Spill

### ***East Coast***

- Hydrocarbon Spill
- Seismic
- Waste Management

## **Publication of Reports**

All ESRF studies are subject to a scientific/technical peer review. Reports that are deemed to be scientifically or technically significant are published in the ESRF Technical Report Series. Since its inception in 1983 until December 31, 2011, the ESRF has published 188 reports and 3 related studies. All reports and studies are available to download for free on the [ESRF website](#).

Publications are listed under the following categories:

- Bibliographies
- Environmental Effects and Monitoring
- Environmental Loading and Design
- Frontier Social and Economic Issues
- Ice-Icebergs-Ice Detection
- Oil Spill Research and Countermeasures
- Sea Bottom Ice Scour
- Sediment Transport
- Waves

## **Recent Publications - 2011**

- 177 SL Ross Environmental Research Ltd., DF Dickins Associates LLC., Envision Planning Solutions Inc. *Beaufort Sea Oil Spills State of Knowledge Review and Identification of Key Issues*. November 2010. 126p.
- 179 Kavik-Axys Inc. 2010. *Review of Tuktoyaktuk Harbour as a Base for Offshore Oil & Gas Exploration and Development*. August 2010. 100p.
- 181 Waugh, D., T. Inkpen., M. Hingston., S. Keast., J. McPherson., D. Worthy., G. Forbes. *Sable Island Air Monitoring Program Report: 2003-2006*. June 2010. 56 p.
- 182 Moulton , V.D., M. Holst. *Effects of Seismic Survey Sound on Cetaceans in the Northwest Atlantic*. June 2010. 28 p.
- 183 D. A. Fifield, K. P. Lewis, C. Gjerdrum, G. J. Robertson, R. Wells. *Offshore Seabird Monitoring Program*. December 2009. 68 p.
- 185 Collins, L.A., C.D. Murray and R.T. Stainton. *Bosworth Creek Water Quality Data Study: Final Report*. May 2011. 69 p.
- 188 French, E.B.S., Ollerhead, L.M.N. *Mapping the Spatial Distribution of Juvenile and Spawning Activities for Five Selected Finfish Species off the Labrador and Northeastern Newfoundland Shelf*. December 2010. 31 p.

## Appendix 1 – ESRF Publications 1985 – 2011

### Bibliographies

- 010 Goodwin, C.R., J.C. Finley and L.M. Howard. *Ice Scour Bibliography*. July 1985. 99 p.
- 026 Young, S.C. *Bibliography on the Fate and Effects of Arctic Marine Oil Pollution*. March 1986. 212 p.
- 030 Howard, L.H. *Icebergs: A Bibliography Relevant to Eastern Canadian Waters*. May 1986. 277 p.
- 050 Finley, J.C. and C.R. Goodwin. *The Training and Employment of Northern Canadians: An Annotated Bibliography*. November 1986. 206 p.
- 130 Hunter, S.P. and J.H. Vandermeulen. *Bibliography of Aquatic Oil Pollution Fate and Effects*. December 1994. CD-Rom.
- 136 Coastal Resource Inventory: Great Northern Peninsula. Not published.

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- 009 Harwood, L.A. and A. Borstad. *Bowhead Whale Monitoring Study in the Southeast Beaufort Sea*. July-September 1984. August 1985. 99 p.
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- 057 Duval, W.S. (ed.). *Distribution, Abundance and Age Segregation of Bowhead Whales Relative to Industry Activities and Oceanographic Features in the Beaufort Sea, August-September 1985*. March 1987. 117 p.
- 060 Yunker, M.B. and R.W. Drinnan. *Dispersion and Fate of Oil from Oil-based Drilling Muds near Sable Island, N.S.* January 1987. 169 p.
- 063 Drinnan, R.W., M. Yunker, A. Gillam, N. Charchuk and S.R.H. Davis. *Options for Treatment and Disposal of Oil-based Mud Cuttings in the Canadian Arctic*. February 1987. 167 p.
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- 090 Wainwright, P.F. and B. Humphrey. *Analysis of Sediment Data from the Beaufort Shorebase Monitoring Program, 1982-1984*. March 1988. 78 p.
- 093 Hardy BBT Limited and Stanley Associates Engineering Ltd. *Handling and Disposal of Waste Drilling Fluids from On-Land Sumps in the Northwest Territories and Yukon*. February 1988. 58 p.
- 101 Erickson, P., B. Fowler, and D. Thomas. *Oil-based Drilling Muds: Off Structure Monitoring-Beaufort Sea*. June 1988. 188 p.
- 102 Nakashima, D.J. and D.J. Murray. *The Common Eider of Eastern Hudson Bay: A Survey of Nest Colonies and Inuit Ecological Knowledge*. November 1988. 174 p.
- 109 Lawrence, M.J. and S.L. Davies (eds.). *Wildlife and Wildlife Habitat Restoration and Compensation in the Event of an Oil Spill in the Beaufort Sea*. March 1993. 88 p.
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- 121 S.L. Ross Environmental Research Limited and Ledrew, Fudge and Associates. *The Risk of Tainting Flatfish Stocks During Offshore Oil Spills*. January 1993. 67 p.
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- 137 Hatch Associates Limited and Griffiths Muecke Associates. *Workshop on Cumulative Environmental Effects Assessment and Monitoring on the Grand Banks and Scotia Shelf*. 2000. 61 p.
- 138 Montevecchi, W.A., F.K. Wiese, G. Davoren, A.W. Diamond, F. Huettmann and J. Linke. *Seabird Attraction to Offshore Platforms and Seabird Monitoring from Offshore Support Vessels and other Ships Literature Review and Monitoring Design*. 1999. 56 p.
- 139 Thomson, D. H., J. W. Lawson and A. Muecke. *Proceedings of a Workshop to Develop Methodologies for Conducting Research on the Effects of Seismic Exploration on the Canadian East Coast Fishery, Halifax, Nova Scotia, September 7–8 2000*. April 2001. 92 p.
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- 145 Racca, R. G., D. E. Hannay, R. B. Murray, W. B. Griffiths, and M. Muller. *Testing Fish Deterrents for Use Under-Ice in the Mackenzie Delta Area*. March 2004. 118 p.
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- 135 Dallimore, S.R. and J.V. Matthews, Jr. *The Mackenzie Delta Borehole Project*. April 1997. CD-Rom.

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- 004 Usher, P.J., D. Delancey, G. Wenzel, M. Smith and P. White. *An Evaluation of Native Harvest Survey Methodologies in Northern Canada*. April 1985. 249 p.
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- 046 Constable, G.A., R.M. Griggs, N.E. Millbank and M.S. Sinclair. *Business Opportunities Related to Oil and Gas Exploration and Production in Northern Canada*. August 1986. 269 p.
- 047 IDP Consultants Ltd. *Public Information on Oil and Gas Activities*. September 1986. 170 p.
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- 087 Storey, K. and M. Shrimpton. *Planning for Large-Scale Construction Projects: A Socio-Economic Guide for Communities, Industry and Government*. October 1987. 78 p.
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- 179 Kavik-Axys Inc. 2010. *Review of Tuktoyaktuk Harbour as a Base for Offshore Oil & Gas Exploration and Development*. August 2010. 100p.

### **Ice – Icebergs – Ice Detection**

- 008 Ryan, J.P., M. Harvey and A. Kent. *The Assessment of Marine Radars for the Detection of Ice and Icebergs*. August 1985. 127 p.
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- 016 Rossiter, J.R., L.D. Arsenault, E.V. Guy, D.J. Lapp, E. Wedler, B. Mercer, E. McLaren, and J. Dempsey. *Assessment of Airborne Imaging Radars for the Detection of Icebergs*. September 1985. 320 p.
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