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Natural Resources Canada
House of Commons
Ottawa, Ontario
K1A 0A6

The Honourable Chuck Strahl, P.C., M.P.
Indian Affairs and Northern Development
House of Commons
Ottawa, Ontario
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Dear Ministers:

On behalf of the Environmental Studies Research Funds Management Board, it is my pleasure to submit the 2008 Annual Report for the Environmental Studies Research Funds in accordance with the *Canada Petroleum Resources Act*, paragraph 79(1)d.

Sincerely yours,

Robert Steedman, Ph.D.
Environmental Studies Research Funds
Management Board

ENVIRONMENTAL STUDIES RESEARCH FUNDS

ANNUAL REPORT

2008

FEBRUARY 2009

Environmental Studies Research Funds Profile

The Environmental Studies Research Funds (ESRF) sponsor environmental and social studies 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 by industry through levies on exploration and production properties on frontier lands. The ESRF is directed by a joint government / industry / public Management Board and is administered by a secretariat which resides within the National Energy Board in Calgary, Alberta.

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Background on the Structure and Operation of the Funds

The Environmental Studies Research Funds (ESRF) finance 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. Section 101(1) of the *Canada Petroleum Resources Act (CPRA)* defines an environmental study as “A 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 Funds (ESRF) is directed by a twelve-member Management Board which has representation from the federal government, the regional petroleum boards, 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 Indian Affairs and Northern Development. Robert Steedman, Professional Leader Environment of the National Energy Board, is the current chair of the ESRF Management Board.

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 the levies that generally occurs in the first quarter of the calendar year.

Activities in 2008

The total value of the 2008 ESRF program was \$2,093,336 for the 8 new and 11 ongoing projects. The budget included \$295,500 for project management services, Management Board logistics and administration of the ESRF research activities program.

A total of \$1,057,995 in funding was raised for the 2008 studies and administration program through Levy #20 (refer to Table 1). This levy covered the new study program, the administration budget, and the continued funding of ongoing studies. The difference in the total amount levied and the program value was the result of a land sale after the calculation of the levy and prior to the issuance of invoices. Excess funds raised in these circumstances are credited against future years' levies. The collection of unpaid levies is pursued as an ongoing basis by the ESRF Secretariat. Maps of the ESRF levy regions can be viewed on the ESRF website at:

<http://www.esrfunds.org/legislation.html>.

In 2008, no appointments or re-appointment to the Management Board were made. Please see Appendix 2, 2008 ESRF Management Board Members.

A Northern Advisory Committee (NAC) and East Coast Advisory Committee (ECAC), chaired by an ESRF Management Board Member, and comprising public, industry and government members, have been established to advise the Management Board on regional research priorities, project proposals and emerging issues related to the ESRF mandate. The NAC and ECAC members meet in advance of the MB meetings, and are a very important element of the ESRF annual research cycle.

TABLE 1
ESRF LEVY #20

REGION	LEVY #20 \$/ha 2008	TOTAL LEVIES INVOICED 2008	TOTAL LEVIES COLLECTED 2008	BACK LEVIES COLLECTED 2008	TOTAL REVENUES COLLECTED 2008
1 Queen Charlottes North	\$0.0000				
2 Hecate Strait	\$0.0000				
3 Queen Charlottes South	\$0.0000				
4 Vancouver Island	\$0.0000				
5 Labrador North	\$0.0000				
6 Labrador Central	\$0.0000				
7 Labrador South	\$0.0000				
8 Northeast Newfoundland	\$0.1187				
9 Newfoundland Slope	\$0.1286	283,540.24			
10 Grand Banks North	\$0.2638	154,349.64	93,646.89		93,646.89
11 Grand Banks South	\$0.1834	109,355.18	42,964.20		42,964.20
12 Scotian Shelf East	\$0.2668	251,819.44	251,819.44	30,400.53	282,219.97
13 Scotian Shelf West	\$0.2264	4,315.18	4,315.18		4,315.18
14 Scotian Shelf	\$0.1591	165,288.83	74,997.51		74,997.51
15 Gulf of St. Lawrence	\$0.0981	87,038.24			
16 Hudson Bay	\$0.0000				
17 Beaufort South	\$0.1624	88,437.52	81,363.95		81,363.95
18 Beaufort North	\$0.0448	19,684.05	18,336.46		18,336.46
19 Western Archipelago-Offshore	\$0.0710	530.30	530.30		530.30
20 Central Archipelago-Offshore	\$0.0710	17,100.14	17,100.14		17,100.14
21 Eastern Archipelago-Offshore	\$0.0330	852.42	852.42		852.42
22 Baffin Bay	\$0.0000				
23 Yukon North	\$0.0000				
24 Yukon South	\$0.0000				
25 Mackenzie Delta	\$0.1821	86,302.29	65,595.33		65,595.33
26 Mackenzie North	\$0.2726	300,157.71	234,244.36		234,244.36
27 Mackenzie Central	\$0.2577	192,528.44	126,837.36		126,837.36
28 Mackenzie South	\$0.1948	21,383.78	14,587.40		14,587.40
29 Western Archipelago-Onshore	\$0.0000				
30 Central Archipelago-Onshore	\$0.0710	3,387.77	3,135.86		3,35.86
31 Eastern Archipelago-Onshore	\$0.0330	404.05	404.05		404.05
TOTAL		1,786,475.22	1,030,730.85	30,400.53	1,057,995.52

2008 Study Program

Recent Publications

In 2008, ESRF published or prepared for publication the following reports in the ESRF Technical Report Series.

- #153 Fedirechuk, Gloria J., Sherri Labour, Nicole Niholls. *Traditional Knowledge Guide for the Inuvialuit Settlement Region Volume I: Literature Review and Evaluation* and *Traditional Knowledge Guide for the Inuvialuit Settlement Region Volume II: Using Traditional Knowledge in Impact Assessments* Calgary, 80 pp.

- #163 Kavik-AXYS Inc. Inuvik, NWT, FMA Heritage Resources Consultants Inc, *Biophysical Research Requirement for the Beaufort Sea Hydrocarbon Development*. August 2008. 125p.

- #164 Godard, D.R., Peters, L., Evans, R., Wautier, K., Cott, P.A., Hanna, B., and Palace, V. 2008. *Development of Histopathology Tools to Assess Instantaneous Pressure Change-Induced Effects in Rainbow Trout (Onchorhynchus Mykiss) Early Life Stages*. 280 p.

Ongoing Studies in 2008

The following studies continued through 2008.

- **Effects of Hydrocarbon Sheens on Pelagic Seabirds** – East Coast. (study commenced in 2005)
 - The final report for this project was submitted and reviewed in 2008. Publication in the ESRF report series is planned for early 2009.

- **Evaluation of Seismic Impacts on Invertebrates** – East Coast. (study commenced in 2005)
 - 2008 saw completion of final engagements with stakeholders, preparation of scientific papers and peer review of these studies on snow crab carried out in previous years by Canada Center for Offshore Oil and Gas (COOGER) Environmental Research with ESRF funding. 2009 will see publication of the results of these studies.

➤ **Seismic & Lobster Feeding (study commenced in 2008)**

- An extension of work done by COOGER during the first round of studies evaluating the effect of seismic on invertebrates the experimental protocol for this study was developed during 2008. Experimental work will be initiated and completed in 2009.

➤ **Fate and Transport of Drilling Mud and Fluid Discharges – East Coast.**(study commenced in 2006)

- The initial scope of work was completed and reported on to the project Technical Advisory Group during 2007 along with a recommendation for follow on work. During 2008 approval to continue the study was given with a view to having the completed work published in 2009.

➤ **Evaluation of Produced Water Toxicity and Environmental Significance – East Coast.** (study commenced in 2006)

- As reported in the 2007 annual report an international conference on produced water research was successfully held in the fall of that year. Publication of the proceedings has been delayed until 2009 due to the need to find another publisher which was done in 2008. In the meantime, drawing on the results of the conference several proposals for produced water research were reviewed by the project Technical Advisory Group during 2008 and recommendations for research to be carried out in the second phase of this project will be considered in 2009.

➤ **Offshore Seabird Monitoring Program – East Coast.** (study commenced in 2005)

- In 2008 Canadian Wildlife Service, with ESRF funding, continued out systematic and opportunistic seabird monitoring in the Newfoundland and Labrador and Nova Scotia offshore areas. As well as monitoring activities carried out from industry supply vessels engaged in their routine activities, quality control and training initiatives with industry seabird observers are ongoing. Quarterly

reporting demonstrates the collaboration with industry on this project is working well and, in part as a result of this, ESRF has approved supplemental funding to allow the work to continue to the end of 2009. During 2009 the process of determining what follow up work, if any, should succeed this program.

- As part of this program ESRF also contributed funds to a larger study on the flight behaviours of common murrelets to help determine how those behaviours influence the risk of encountering sea surface oil slicks in the event of a marine hydrocarbon spill. Data from this study will be analyzed during the winter of 2008/2009 and the results incorporated into an oiling risk model.

➤ **Assessment of Influence of Seismic Testing on Fish Movements and Behaviour** – East Coast. (study commenced in 2006)

- A field study designed to evaluate the effects of a seismic survey on the real-time behavior, movement and survival of fish the study design was developed and refined during 2007 through pilot studies funded by ESRF. As the nature and scope of this study makes it a costly venture discussions with potential funding partners were undertaken in 2008. This process is progressing satisfactorily and will continue into 2009 with a final decision on the viability of the study from a technical and cost perspective will be made by the Fall of 2009.

➤ **Synthesis of Marine Mammals Observations** – East Coast. (study commenced in 2006)

- Data analysis for this study was undertaken during 2008 and an increase in scope was recommended to ESRF and approved to allow the study to incorporate data from oil industry seismic surveys that were carried out over a wide area of the Jeanne d'Arc Basin off Newfoundland. Data analysis and a draft report are expected to be complete by the end of the first quarter of 2009.

➤ **CSA Structures** (study commenced in 2004)

- ESRF continued to support the CSA Offshore Structures Program in 2008 to ensure that International (ISO) Offshore Structures Standards are adopted in Canada as they become available, with national annexes that include unique Canadian requirements.
- **Monkfish & Seismic** (study commenced in 2007)
- Benefiting from lessons learned during the 2007 field season this study was successfully completed during 2008. Viable monkfish egg veils were successfully collected and brought to shore for exposure to sound energy generated by a typical airgun under controlled conditions.
 - A draft report has been prepared and is under review in preparation for publication in 2009
- **Drill Cuttings Treatment Technology Evaluation** (study commenced in 2007)
- Awarded in early 2008 research was conducted throughout the year in close consultation with the Technical Advisory Group assembled for the project and a draft report prepared. The draft report is currently under review and it is expected that the final report will be completed by the end of the first quarter of 2009.

Northern Ongoing Studies

- **Valued Component / Threshold Study** – Northern Region (study commenced in November 2008)
- The objective of this study is describe Valued Component indicators and thresholds applicable to the oil and gas industry and to suggest an implementation strategy considering a tiered threshold approach that would contribute to the management of cumulative effects in the NWT.
 - A draft report has been prepared and review comments provided by the TAG. Incorporation of review comments and final editing is expected to be complete by the end of the first quarter 2009.
- **Development of Ecologically-based criteria to assess the impact and recovery of**

seismic lines – Northern Region (study commenced in April 2008)

- The objective of this study is to contribute to the understanding of linear density thresholds for wildlife. This involves examining the successional trajectory of vegetation recovery on seismic lines and corresponding response of wildlife to seismic lines of different widths, ages and densities in particular habitat types.
- The study will run for three years in order to collect sufficient field data (over multiple seasons) to allow for statistical analysis and interpretation of results. A status report has been prepared on the results of the first year’s field program (2008).

➤ **Considerations in Developing Oil and Gas Industry Best Practices in the North** – Northern Region (study commenced in May 2008).

- This study aims to improve our understanding of the economic and social implications for northern businesses of introducing new regulations based on oil and gas industry “best practices”. The use of new machinery and /or equipment to reduce the width of seismic lines was identified as a practical example of innovation in the industry that has implications for northern businesses servicing seismic operations.
- A second draft has been prepared of the report, incorporating feedback from the TAG. The final report is expected by the end of the first quarter of 2009.

➤ **Assessment of Waste Disposal Options in the ISR** – Northern Region (study commenced in April 2008).

- The objective of this study is to assess and compare the environmental, economic and social costs and benefits of three drilling waste disposal methods in the Inuvialuit Settlement Region. The three methods include a) use of sumps, b) in-situ disposal through injection wells and c) removal and transportation outside the ISR.
- A draft report has been completed and is currently being reviewed by the TAG. A final report is expected by the end of the first quarter of 2009.

➤ **Bosworth Creek Monitoring Project – Literature Review and Lessons Learned.**

Northern region (study commenced in April 2009).

- This study involves a literature review of existing information collected to date on Bosworth Creek (NWT) and a summary report on the status of reclamation and mitigations measures taken to reclaim the creek. Bosworth Creek provides a case study of reclamation efforts and ecological response to oil and gas disturbance over an extended period.
- A second draft report has been prepared and is currently being reviewed by the TAG. A final report is expected towards the end of the first quarter of 2009.

New Research for 2009

In 2009, the ESRF Management Board will initiate work on the following 10 projects. Technical Advisory Groups, comprising a cross-section of stakeholder interests, will be formed to develop detailed terms of reference and review technical reports for work to be offered for contract. Dollar amounts provided are budget estimates intended to indicate the relevant scale of the studies.

East Coast

➤ Mapping of Spawning and Juvenile Habitat of Selected Fish Species on Labrador Coast

- This study will complete a series of four such studies undertaken for the East Coast by Fisheries and Oceans Canada. Similar studies were completed for the Grand Banks, Scotian Shelf and the Gulf of St. Lawrence in the last few years. The purpose of these studies is to map critical life stages (larval, spawning etc.) for selected fish species to support the evaluation of potential oil industry/fisheries interactions.
- Budget is \$50,000
- Schedule is to prepare the request for proposal document in the first quarter of 2009 with contract award in April.

➤ Air Emissions from Offshore Oil and Gas Installations – Phase 1

- This study will review the applicability of existing air emissions dispersion models to oil and gas installations operating offshore. It will also assess available meteorological data needed for input to these models. The objective is to determine the most appropriate model/modeling approach to this issue and input data needed to support its application.
- Budget is \$75,000
- Schedule is to prepare the request for proposal document in the first quarter of 2009 with contract award in April.

➤ **Socio-Economic Concerns related to Large Offshore O&G projects – Labrador Focus**

- Renewed interest in the Labrador Coast shown by industry response to recent land sales indicates to ESRF that there is a need to identify and evaluate potential local economic and social impacts of offshore oil and gas development for Labrador drawing on the experience gained from the island of Newfoundland and Nova Scotia projects.
- Budget is \$100,000
- Schedule is to prepare the request for proposal document in the first quarter of 2009 with contract award in April.

➤ **Compilation of an Archive of Cetacean Vocalizations**

- The new Canadian Code of Practice for Seismic Surveys calls for consideration of passive acoustic monitoring (PAM) for low visibility situations. In addition, Canadian species at risk legislation also brings focus to the need to ensure that effective mitigation measures for marine mammals potentially exposed to seismic surveys are developed. This project seeks to identify and compile electronically existing cetacean vocalization signatures from Atlantic Canada in support of PAM software development, specifically databases used for species identifications. Another outcome of this project will be to determine the need for field recordings for those species for which such data is not available or adequate.
- Budget is \$50,000
- Schedule is to prepare the request for proposal document in the first quarter of 2009 with contract award in April.

➤ **Development of an Experiment to Evaluate the Dispersal and Detectability of Dead Seabirds Offshore**

- Understanding the dispersal and detection of oiled, dead seabirds is an important component in the development of a reliable seabird mortality model.

This project seeks to develop an experimental methodology to study this issue in the field to better understand of the fate and detectability of oiled seabirds to improve the accuracy and reliability of models used to estimate seabird mortality as a result of oil spills.

- Budget is \$75,000
- Schedule is to prepare the request for proposal document in the first quarter of 2009 with contract award in April.

Northern

➤ **Beaufort Sea Oil Spill Review: Review of Oil Spill State of Knowledge for the Beaufort Sea and Identification of Key Issues.**

- Objectives are to identify and describe key issues associated with oil spills in arctic waters, review current technologies and effectiveness of spill response options, identify equipment needs and resources required and identify monitoring and mitigation measures to protect key northern resources.
- Budget is \$ 150,000
- Schedule aims at issuing request for proposal document in January, award of contract in February, 2009.

➤ **Review of Tuktoyaktuk Harbour as a base for Offshore Oil and Gas Exploration and Development**

- This study will review the information base regarding the past, present and possible future use of Tuktoyaktuk harbour (NWT) as a base of offshore exploration and development for the Oil and Gas industry. The review will address both biophysical and socio-economic considerations for use of the harbour to determine key issues and state of preparedness for future industry activity.
- Budget is \$ 75,000
- Schedule is to prepare the request for proposal document in the first quarter of 2009 with contract award in April.

➤ **Validation of Predicted Sound Effects on Whale Behaviour based on Acoustic Modeling and Field Observations in the Beaufort Sea – Workshop.**

- The effects of underwater sound on Bowhead and Beluga whales as a result of seismic activity is to be tested in this study, to provide empirical information on the effectiveness of “safety zone” setbacks to protect whales during oil and gas exploration activity. The first part of this study will include a workshop of whale experts, industry and regulatory personnel, as well as other interested parties.
- Budget is \$ 75,000
- Schedule – Workshop to take place in the second quarter of 2009

➤ **Development of Aerial Survey Techniques and Whale Detection Methods for Seismic Operations in the Beaufort Sea.**

- The objective of this study is to develop whale survey methods and techniques specifically to address seismic programs in the Beaufort Sea. While current whale survey methods are conducted on a macro scale covering large geographic areas, there is a need to develop a more fine scale level of survey to detect whales in close proximity to seismic operations. The results of the study will assist in developing mitigation measures to reduce or eliminate negative effects of seismic operations on whales in the Beaufort Sea.
- Budget is \$ 100,000
- Schedule – Request for proposal document to be prepared in the first quarter of 2009 with contract award early in the second quarter.

➤ **Bosworth Creek Water Quality Data Summary**

- The Bosworth Creek Monitoring Study (NWT) has compiled a considerable amount of field data over several years. A complete analysis of the data is required that will identify the baseline chemical status of the creek. The results of the study will assist with the development of a long-term monitoring program to track the

ecological health of the creek in the future.

- Budget is \$ 25,000
- Schedule – to be determined in collaboration with the Sahtu Renewable Resources Board.

Financial Statement

ESRF Regions	Revenue Forwarded Jan 1, '08	Administrative Expenditures 2008	Study Payments 2008	Levy Revenues & Adjustments	Outstanding Study Commitments	Uncommitted Funds as of Dec 31, 08
South (NRCan 1-16 North (IAND) 17- 31						
South	2,184,306.08	1,221,493.98	636,256.46	498,143.75	816,547.87	8,151.52
North	380,098.50	84,433.32	108,157.68	559,851.77	745,286.34	2,072.93
Total	2,564,404.58	1,305,927.30	744,414.14	1,057,995.52	1,561,834.21	10,224.45

Plans for 2009

In September 2008, the ESRF Management Board established the budget for the 2009 program, which will be supported by Levy #21. This program was recommended by the Management Board and has been approved by the Minister of Natural Resources Canada and the Minister of Indian Affairs and Northern Development. The program has an estimated value of \$1,552,231.52 which includes funding for continuing 2009 programs and for new programs within the established priority areas:

North

1. Oil and gas effects on Northerners' use of land and water
2. Cumulative effects assessment
3. Seismic issues
 - a) onshore, esp. habitat effects
 - b) offshore, esp. whales
4. Research topics for the Beaufort Sea (from ESRF 2007/8 priority research gap study)
5. Oil spill fate and effects, cleanup and monitoring – Beaufort Sea and Mackenzie Delta

East

1. Seismic
2. Seabirds
3. Exploration & Production Waste Management
4. Socio Economic Concerns
5. Offshore Air Emission Environmental Effects (new)

A budget of \$315,500 was approved for 2009 to cover ESRF project management services, Management Board logistics, and administrative costs of the ESRF Secretariat and to support travel by some members of the Management Board.

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. Reports are distributed to oil and gas companies, universities, federal, provincial and territorial government libraries, and research institutes. The series is documented on several international databases including the Canadian Institute for Scientific and Technical Information (CISTI).

ESRF now utilizes a website for publishing Requests for Proposals, notification of new publications, and general information on ESRF. Please visit our website at

Since its inception in 1983, the ESRF has published 165 reports which are distributed free of charge. All reports have been posted on the ESRF website. You may obtain copies of reports by visiting the website at www.esrfunds.org or contacting:

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Appendix 1 - ESRF Reports, 1993 - 2008

SEDIMENT TRANSPORT

- 017 Keith Philpott Consulting Ltd. with Acres Consulting Services Ltd. *Scour Around Seafloor Structures*. April 1986. 225 p.
- 027 Hodgins, D.O., D.A. Huntley, W.D. Liam Finn, B. Long, G. Drapeau and A.J. Bowen. *Sediment Transport - Present Knowledge and Industry Needs*. April 1986. 394 p.
- 029 Plasse, D. *Surficial Geology Surveys on the Scotian Shelf: Compilation of Maps from Government, Industry, University & Foreign Sources*. April 1986. 47 p.
- 041 Hodgins, D.O., G. Drapeau and L.H. King. *Field Measurements of Sediment Transport on the Scotian Shelf - Volume I. The Radio-isotope Experiment*. June 1986. 160 p.
Hodgins, D.O. and O.J. Sayao - *Volume II. Boundary Layer Measurement and Sand Transport Prediction*. August 1986. 222 p.
- 054 Hodgins, D.O., O.J. Sayao, E.D. Kinsella and P.W. Morgan. *Nearshore Sediment Dynamics -Beaufort Sea*. December 1986. 195 p.
- 061 Judge, J.T., R.K. Watanabe and J.L. Warner. *Seafloor Stability Study, Inner Scotian Shelf*. May 1987. 88 p.
- 096 Gillie, R.D. *Beaufort Sea Artificial Island Erosion Data*. May 1988. 119 p.

ENVIRONMENTAL EFFECTS AND MONITORING

- 001 McLaren, P.L. and R.A. Davis. *Distribution of Bowhead Whales in the Beaufort Sea*. Summer 1983. February 1985. 62 p.

- 005 Thomas, D.J., W.S. Duval, C.S. Johnston, G.S. Lewbel, A. Birdsall, M.S. Hutcheson, G.D. Greene, R.A. Buchanan and J.W. MacDonald. *Effects Monitoring Strategies and Program for Canada's East Coast*. May 1985. 88 p.
- 009 Harwood, L.A. and A. Borstad. *Bowhead Whale Monitoring Study in the Southeast Beaufort Sea*. July-September 1984. August 1985. 99 p.
- 021 Tidmarsh, W.G., R. Ernst, R. Ackman and T. Farquharson. *Tainting of Fishery Resources*. January 1986. 174 p.
- 025 Kingsley, M.C.S. *Distribution and Abundance of Seals in the Beaufort Sea, Amundsen Gulf & Prince Albert Sound*. 1984. February 1986. 16 p.
- 028 Thomson, D.H., D.B. Fissel, J.R. Marko, R.A. Davis and G.A. Borstad. *Distribution of Bowhead Whales in Relation to Hydrometeorological Events in the Beaufort Sea*. March 1986. 119 p.
- 036 Norton, P. and L.A. Harwood. *Distribution, Abundance and Behavior of White Whales in the Mackenzie Estuary*. June 1986. 73 p.
- 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.
- 066 Nenninger, R.D. *Monitoring a Sump Containing Drilling Mud with High Salt Content*. March 1987. 47 p.

- 075 Cross, W.E. and B. Humphrey. *Monitoring the Long-Term Fate and Effects of Spilled Oil in an Arctic Marine Subtidal Environment*. August 1987. 120 p.
- 080 Ernst, R.J., W.M.N. Ratnayake, T.E. Farquharson, R.G. Ackman and W.G. Tidmarsh. *Tainting of Finfish by Petroleum Hydrocarbons*. September 1987. 150 p.
- 089 Ford, J.K.B., J.C. Cabbage and P. Norton. *Distribution, Abundance, and Age Segregation of Bowhead Whales in the Southeast Beaufort Sea, August-September, 1986*. November 1987. 53 p.
- 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. (ed.) and S.L. Davies (ed.) *Wildlife and Wildlife Habitat Restoration and Compensation in the Event of an Oil Spill in the Beaufort Sea*. March 1993. 88 p.
- 110 Hurlbut, S.E., D.P. French and B.J. Taylor. *Evaluation of the Potential Effects of Major Oil Spills on Grand Banks Commercial Fish Species as a Result of Impacts on Eggs and Larvae*. January 1991. 53 p.
- 117 Sekerak, A.D., N. Stallard and W.B. Griffiths. *Distribution of Fish and Fish Harvests in the Nearshore Beaufort Sea and Mackenzie Delta During Ice-Covered Periods, October-June*. November 1992. 157 p.

- 118 Thomas, D.J. *Considerations in the Design of Effects Monitoring Strategies: Beaufort Sea Case Study*. January 1992. 54 p.
- 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.
- 122 Mackinnon, D.S. and P.A. Lane. *Saltmarsh Revisited - The Long-Term Effects of Oil and Dispersant on Saltmarsh Vegetation*. September 1993. 24 p.
- 123 Duval, W.S. *Proceedings of a Workshop on Beaufort Sea Beluga February 3-6, 1992, Vancouver, B.C.* March 1993. 26 p.
- 134 Richard, P.R., A.R. Martin and J.R. Orr. *Study of Summer and Fall Movements and Dive Behaviour of Beaufort Sea Belugas, Using Satellite Telemetry. 1992-1995*. 34 p.
- 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, 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, Denis H., Jack W. Lawson and Anne 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, 7-8 September 2000*. April 2001. 92 p.
- 142 ERIN Consulting Ltd. and OCL Services Ltd. *Sheens Associated with Produced Water Effluents – Review of Causes and Mitigation Options*. March 2003. Calgary. 46 p.
- 143 Mortensen, Pål B., Lene Buhl-Mortensen, Susan E. Gass, Donald C. Gordon Jr., Ellen L.R. Kenchington, Cynthia Bourbonnais and Kevin G. Macisaac. *Deep-Water Corals In Atlantic Canada: A Summary Of ESRF-Funded Research (2001-2003)*. December 2004.

- Calgary. 43 p.
- 144 Christian, John R., Anne Mathieu, Denis H. Thomson, David White and Robert A. Buchanan. *Effect of Seismic Energy on Snow Crab (Chionoecetes opilio)*. November 2003. Calgary. 106 p.
- 145 Racca, Roberto G., David E. Hannay, R. Bruce Murray, William B. Griffiths, and Michael Muller. *Testing Fish Deterrents for Use Under-Ice in the Mackenzie Delta Area*. March 2004. Calgary. 118 p.
- 146 Buchanan, Robert A., Joanne A. Cook and Anne Mathieu. *Environmental Effects Monitoring For Exploration Drilling*. December 2003. Calgary. 86 p
- 147 Dillon Consulting Limited with DMT Cordah. *Pollution Prevention Opportunities in the Offshore Oil and Gas Sector - Final Report*. October 2003. Calgary. 73 p
- 149 Trudel, K. 2004. *Workshop on Dispersant Use in Eastern Canada*. Environmental Studies Research Funds, Report No. 149, Calgary Alberta, 109 pp.
- 150 Martec Limited, CEF Consultants Ltd, DRDC Atlantic, St. Francis Xavier University. *Effects of Pipelines/Gathering Lines on Snow Crab and Lobster*. December 2004, Calgary, 61 p.
- 151 Lee, K., H. Bain, and G.V. Hurley, (eds). 2005. *Acoustic Monitoring and Marine Mammal Surveys in the Gully and Outer Scotian Shelf Before and During Active Seismic Programs*. December 2005. Calgary, 154 p + appendices.
- 152 Ellis & Associates. *Drilling Waste Management – Recommended Best Practices*. January 2005. Calgary. CD-Rom.
- 154 AMEC Earth & Environmental. *Inuvialuit Settlement Region Drilling Waste Disposal Sumps Study*. February 2005. Calgary. CD-Rom.
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- 156 Moulton, V.D., and B.D. Mactavish. *Recommended Seabird and Marine Mammal Observational Protocols for Atlantic Canada*. March 2004. Calgary. 80 p
- 157 Christian, John R., Anne Mathieu, and Robert A. Buchanan, *Chronic Effects of Seismic Energy on Snow Crab (Chionoecetes opilio)*. March 2004. 45 p.
- 159 Kemper, J. Todd. *Vegetation Changes on Seismic Lines from Recent (2000-2001) and Historic (1970-1986) Seismic Programs in the Mackenzie Delta Area*. May 2006. 29 p.
- 161 Kavik-AXYS Inc. *Review of the Ikhil Gas Development and Pipeline Regulatory and Environmental Process: Lessons Learned*. January 2007. 48 p.
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OIL SPILL RESEARCH AND COUNTERMEASURES

- 006 Belore, R.C. *Effectiveness of the Repeat Application of Chemical Dispersants on Oil*. June 1985. 66 p.
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- 019 Witherspoon, P., J. Swiss, R. Kowalchuk and J. Armstrong. *Oil in Ice Computer Model*. December 1985. 129 p.

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- 069 Hatfield Consultants Ltd. *Spills-of-Opportunity Research*. February 1987. 124 p.
- 070 Lane, P., M.J. Crowell, D.G. Patriquin and I. Buist. *The Use of Chemical Dispersants in Salt Marshes*. May 1987. 100 p.
- 072 Nawwar, A., A. Godon, H.W. Jones, E. Yeatman, J. Ohuja, M.B. Frish and I. Arvin. *Acoustical Methods for Measuring Thickness of Oil on Water*. April 1987. 57 p.

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- 078 Reimer, E.M. and J.R. Rossiter. *Measurement of Oil Thickness on Water from Aircraft: A. Active Microwave Spectroscopy. B. Electromagnetic Thermoelastic Emission*. August 1987. 82 p.
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- 083 Thorpe, J.W. and K.E. Hellenbrand. *Microbial Degradation of Hydrocarbon Mixtures in a Marine Sediment Under Different Temperature Regimes*. September 1987. 48 p.
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- 086 Pelletier, E. and C. Brochu. *Prototype, Mesoscale Simulator for the Study of Oil Weathering Under Severe Conditions*. November 1987. 55 p.
- 092 Trudel, B.K., B.J. Jessiman, S.L. Ross and J.J. Swiss. *Guide to Dispersant - Use Decision Making for Oil Spills in the Canadian Southern Beaufort Sea*. February 1988. 227 p.
- 095 D.F. Dickins Associates Ltd., S.L. Ross Environmental Research Ltd. and Seakem Oceanography, Ltd. *Evaluation of Hovercraft for Dispersant Application*. February 1988. 57 p.

- 098 Goodman, R.H. *Simple Remote Sensing System for the Detection of Oil and Water*. December 1988. 32 p.
- 100 Swiss, J.J. and N. Vanderkooy. *Beaufort Sea Dispersant Trial*. July 1988. 44 p.
- 106 S.L. Ross Environmental Research Ltd. *Proceedings of a Workshop to Establish Canadian Marine Oil Spill Research and Development Priorities*. April 1990. 56 p.
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- 124 Englehardt, R. *Oil Base Drilling Mud Toxicity*. December 1989. 47p. (Unpublished)
- 126 Koski, W.R., S.D. Kevan and W.J. Richardson. *Bird Dispersal and Deterrent Techniques for Oil Spills in the Beaufort Sea*. December 1993. 122p.
- 127 Dempsey, J., A. Simms, J. Harper, E. Lambert, and R. Hooper. *West Coast Newfoundland Oil Spill Sensitivity Atlas*. March 1995. 62 p.
- 140 Jacques Whitford Environment Limited 2001. *Atlas of Ecologically and Commercially Important Areas in the Southern Gulf of St. Lawrence*. 2001. CD-Rom.

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.
- 022 Ryan, J.P. *Enhancement of the Radar Detectability of Icebergs*. January 1986. 83 p.
- 035 Harvey, M.J. and J.P. Ryan. *Further Studies on the Assessment of Marine Radars for the Detection of Icebergs*. June 1986. 82 p.
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- 044 Hay & Company Consultants Inc. *Motion and Impact of Icebergs*. September 1986. 146 p.
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- 048 Davidson, L.W., W.I. Wittman, L.H. Hester, W.S. Dehn, J.E. Walsh and E.M. Reimer. *Long Range Prediction of Grand Banks Iceberg Season Severity: A Statistical Approach*. October 1986. 163 p.
- 052 de Margerie, S., J. Middleton, C. Garret, S. Marquis, F. Majaess and K. Lank. *Improvement of Iceberg Drift Forecast - Grand Banks*. November 1986. 86 p.

- 081 Warbanski, G. and E. Banke. *Evaluation of a Modified Water Cannon System to Control Small Iceberg Masses*. August 1987. 142 p.
- 091 Klein, K., J.P. Ryan and M. House. *Ryan Evaluation of Two Search Radar Systems for Detection of Ice Masses*. January 1988. 240 p.
- 104 Terry, B.F., D.J. Lapp, C.L. Balko, K.E. Hancock and P.A. Lapp. *Ice Data Management System*. July 1989. 151 p. + appendices.
- 113 Finlayson, D.J., J. Bobbitt, P. Rudkin and I.J. Jordan. *Iceberg Trajectory Model: Real-Time Verification*. March 1992. 47 p.
- 115 Pilkington, G.R., M.C. Hill, M. Metge and D. McGonigal. *Beaufort Sea Ice Design Criteria -Acquisition of Data on EIFs*. October 1992. 154 p.
- 125 Davidson, L.W. *Long-Range Ice Forecasting System (LRIFS) Applied for the Beaufort Sea*. May 1993. 58 p.
- 132 Rossiter, J.R., et al. *Remote Sensing Ice Detection Capabilities - East Coast*. April 1995. 172 p.
- 133 Davidson, S.H. and A. Simms. 1997. *Characterisation of Iceberg Pits on the Grand Banks of Newfoundland*. February 1997. 162 p
- 157 Sonnichsen, G.V., Hundert, T., Pocklton, P. and Myers, R. 2005. *Documentation of Recent Iceberg Grounding Evens and a Comparison with Older Events of Know Age, Northern Grand Bank, Canada*, April 2006. 206 p

SEA BOTTOM ICE SCOUR

- 007 El-Tahan, M., H. El-Tahan, D. Courage and P. Mitten. *Documentation of Iceberg Groundings*. May 1985. 162 p.
- 032 Shearer, J., B. Laroche and G. Fortin. *Canadian Beaufort Sea 1984 Repetitive Mapping of Ice Scour*. May 1986. 93 p.
- 037 Comfort, G. and B. Graham. *Evaluation of Sea Bottom Ice Scour Models*. June 1986. 115 p.
- 039 Woodworth-Lynas, C.M.T., D.W. Bass and J. Bobbitt. *Inventory of Upslope and Downslope Iceberg Scouring*. July 1986. 103 p.
- 043 Geonautics Ltd. *Design of an Iceberg Scour Repetitive Mapping Network for the Canadian East Coast*. March 1987. 45 p.
- 049 Lewis, C.F.M., D.R. Parrott, P.G. Simpkin and J. T. Buckley (eds.). *Ice Scour and Seabed Engineering. Report on Calgary Workshop, February 1985*. November 1986. 322 p.
- 055 Gilbert, G. and K. Pedersen. *Ice Scour Data Base for the Beaufort*. December 1986. 93 p. + appendices.
- 094 Hodgson, G.J., J.H. Lever, C.M.T. Woodworth-Lynas and C.F.M. Lewis (eds.). *Dynamics of Iceberg Grounding and Scouring. Volume I The Field Experiment. Volume II Maps and Charts*. June 1988. 316 p.
- 097 Gilbert, G.R., S.J. Delory and K.A. Pedersen. *Beaufort Sea Ice Scour Data Base (Scourbase)*. Update to 1986. March 1989. 99 p.
- 105 Geonautics Limited. *Regional Ice Scour Data Base Update Studies*. October 1989. 177 p. + appendices.
- 107 Davidson, S.H., W.T. Collins and P.G. Simpkin. *An Experiment to Monitor Four Iceberg Scours on the Grand Banks of Newfoundland*. December 1991. 110 p.

- 128 Geonautics Limited. *East Coast Repetitive Seafloor Mapping 1979/1990*. March 1991. 49 p. + appendices.
- 129 Myers, R., S. Blasco, G. Gilbert, and J. Shearer. *1990 Beaufort Sea Ice Scour Repetitive Mapping Program*. March 1996. 147 p + appendices.

WAVES

- 020 Brown, R.D., P. Roebber and K. Walsh. *Climatology of Severe Storms Affecting Coastal Areas of Eastern Canada*. February 1986. 233 p.
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- 073 Hodgins, S.L.M. and D.O. Hodgins. *Evaluation of Wave Forecasting Models and Forecast Wind Fields in the Canadian Context*. June 1988. 356 p.
- 076 Eid, B.M. and V.J. Cardone. *Operational Test of Wave-Forecasting Models During the Canadian Atlantic Storms Program (CASP)*. August 1987. 256 p.
- 088 Penicka, F.X. *Wave Hindcast Sensitivity*. April 1987. 114 p.
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- 114 Eid, B.M. and V.J. Cardone. *Beaufort Sea Extreme Waves Study*. March 1992. 143 p.

FRONTIER SOCIAL AND ECONOMIC ISSUES

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- 047 IDP Consultants Ltd. *Public Information on Oil and Gas Activities*. September 1986. 170 p.

- 067 Pinfold, T. *An Evaluation of the Utility of Large-Scale Economic Models for Socio-economic Impact Assessment*. March 1987. 34 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.
- 153 Fedirchuk, Gloria J., S. Labour, N Nicholls, FMA Heritage Resources Consultants *Traditional Knowledge Manual Volume 1 & 2: Literature Review and Evaluation and Using Traditional Knowledge in Impact Assessments*. August 2005. Calgary.

ENVIRONMENTAL LOADING AND DESIGN

- 111 Maddock, B., G. Khng and M. Gerin. *Verification of CSA Code for Fixed Offshore Steel Structures*. October 1992. 92 p.
- 112 Allyn, N., W.J. Cichanski and P. Adebar. *Verification of CSA Code for Fixed Offshore Concrete Structures*. November 1992. 62 p.
- 116 Traynor, S. and S.R. Dallimore. *Geological Investigations of Proposed Pipeline Crossings in the Vicinity of Taglu and Niglintgak Islands, Mackenzie Delta, NWT*. May 1992. 115 p.
- 131 Allyn, N., et al. *Environmental Loading Studies for the CSA Offshore Structures Code*. January 1995. 86 p.
- 135 Dallimore, S.R. and J.V. Matthews, Jr. *The Mackenzie Delta Borehole Project*. April 1997. CD-Rom.

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.

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