

Annual Report

Fiscal Year 2017/18



The BC Oil and Gas Research and Innovation Society (BC OGRIS), formerly the SCEK Fund, is a not-for-profit society with membership from the Canadian Association of Petroleum Producers (CAPP), the Explorers and Producers Association of Canada (EPAC) and the BC Oil and Gas Commission (Commission).

Vision

To continuously improve understanding and management of the impacts of oil and gas activities in B.C.

Mission

The BC OGRIS supports practical studies that develop credible and relevant information to address knowledge gaps in the understanding and management of high priority environmental matters related to oil and gas exploration and development in B.C. Research findings from funded projects are shared with organizations in the oil and gas industry as well as regulators and government agencies, other stakeholders and First Nations.

BC OGRIS Report

This report documents the operational and financial achievements for the 2017/18 fiscal year (April 1, 2017 to March 31, 2018) along with an overview of plans for the 2018/19 fiscal year.

Contact Us

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www.bcogris.ca

Front/Back Cover Photo: Courtesy of Lori Denys, BC Oil and Gas Commission.

Message from the BC OGRIS Board of Directors

Fiscal year 2017/18 was an exciting transition year for BC OGRIS as the mix of projects we support is changing as well as the types of contributions we receive. The research we support continues to be focused on larger projects strategically aligned with the information needs and policy priorities of the B.C. government. In the last two years, we have successfully diversified our funding to include contributions from various government and industry stakeholders. The collection of funds from fees on well applications and levies on production volumes is on hold as we assess future projects and funding requirements.

Of our two research funds, the Caribou Research Fund focused the year on monitoring the results of habitat restoration on boreal caribou and their predators; investigating cost-effective ways to estimate vegetative regrowth on seismic lines; and researching options for functionally restoring boreal caribou habitat. The Operating Research Fund continued to support research into air and seismicity monitoring as well as communication and collaboration activities with First Nations that are aligned with identified B.C. government policy priorities.

Next year, FY 2018/19, we will adjust our funding envelopes to accommodate the requests of our funding contributors. Our agreement to fund boreal caribou research expired in July 2018 and discussions are underway to continue supporting the B.C. government's management plan for boreal caribou. The Operating Research Fund will expand to include research into methane gas emissions, reclamation, engineering and safety. Our involvement in supporting the environmental monitoring by First Nations resources will continue as the B.C. government looks to bring the program in-house and expand beyond the oil and gas sector. We will enhance and formalize our strategic partnerships with other research organizations to ensure we attract good research, leverage our investments, increase our communication of research finding and avoid duplication of research activity.

During this year, the BC OGRIS Board of Directors met five times to ensure the Society supports projects consistent with the priorities of our members and provides continuing oversight to ensure accountability for delivery and relevance of findings. Ultimately, the Board ensures the BC OGRIS delivers on its mandate of assisting the B.C. government and industry to address public concerns and thus retain the confidence and support of the communities in northeast B.C. for the upstream oil and gas sector.

Geoff Morrison
Chair, BC OGRIS Board of Directors
September 2018

Report on the BC OGRIS (FY 2017/18)

Introduction

The BC OGRIS is a professional research organization delivering topical and important information to inform our stakeholders on matters related to oil and gas exploration and development in British Columbia. Research is focused on informing environmental, operational and health/safety policy matters and operational practices. As a not-for-profit society, BC OGRIS receives investments, funds research projects and provides governance and quality assurance over projects we support.

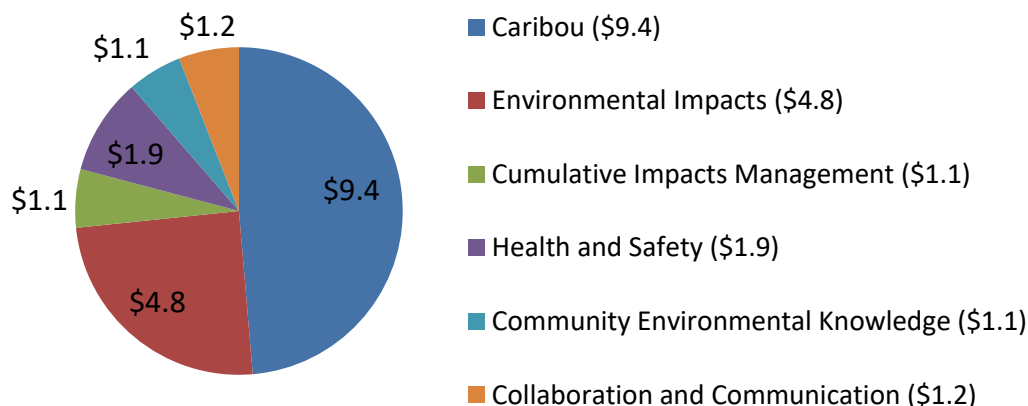
In 2017/18, the BC OGRIS received funding in the form of contributions from its stakeholders. Some of these contributions were for specific projects or research themes while others were for use as per the direction of the BC OGRIS Board of Directors. Historically, BC OGRIS has received contributions from upstream oil and gas companies, large and small, through fees and levies administered by the Commission—as part of industry's commitment to responsible development and the Commission's mission to regulate oil and gas activities for the benefit of British Columbians.

In FY 2017/18, BC OGRIS operated two main funds:

- **Caribou Research Fund**—focused on boreal caribou research. The Fund is overseen and directed by the MoU Strategic Leadership Team (MSLT) comprising senior representatives of the B.C. government and industry who recommend projects to the BC OGRIS for funding. The MSLT is supported by a Research and Effectiveness Monitoring Board (REMB) comprising representatives of the scientific committee who assess and monitor boreal caribou projects and their findings.
- **Operating Research Fund**—comprising five funding envelopes—Health and Safety; Environmental Impacts; Community Environmental Knowledge; Cumulative Impacts Management; and Collaboration and Communication. This fund is overseen and directed by the BC OGRIS Board of Directors who fund projects based on recommendations from our stakeholders. External subject matter experts assist in the assessment and quality assurance of projects and their findings.

The charts below and in the following section summarizes investment since inception in 1999 under the SCEK Fund and BC OGRIS. More information on the BC OGRIS, including the terms of reference and business plan, can be found on the website at: www.bcogris.ca.

Investment To-date (Millions)*



* Since project expenditures commenced in 1999.

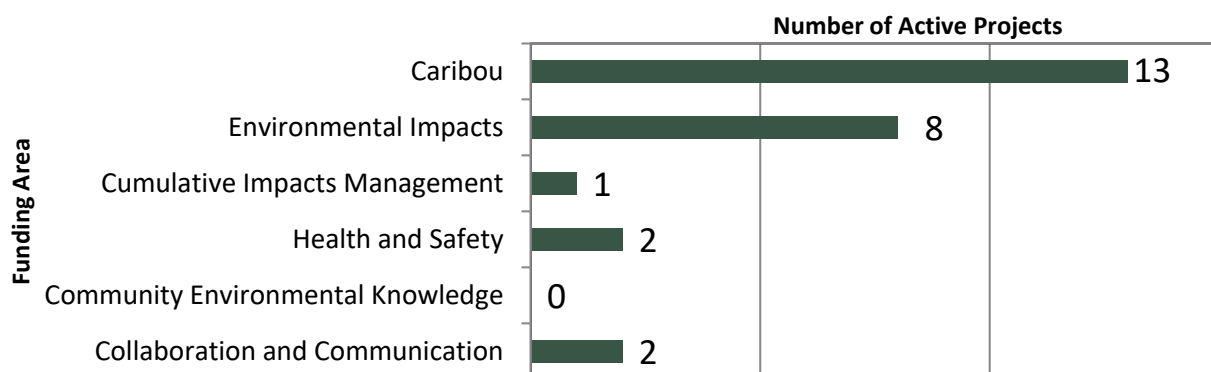
Accomplishments (FY 2017/18)

Project and Proposal Activity

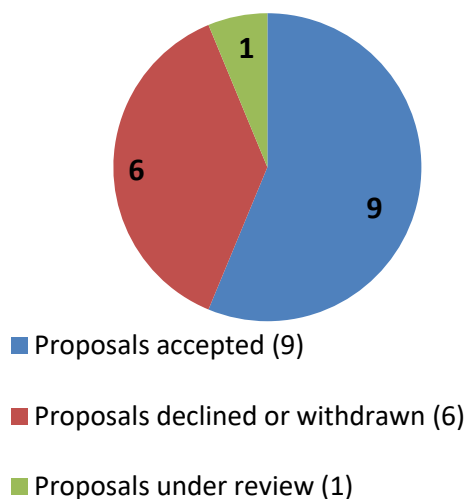
Proposal and project activity for the 2017/18 fiscal year is summarized in the charts below. In total, 26 projects were active in 2017/18.

Projects accepted for support in the 2017/18 fiscal year were within the funding areas of Caribou, Environmental Impacts, Cumulative Impacts Management, Health and Safety and Collaboration and Communication. In total, nine new projects were approved for funding while 12 projects were completed.

Active Projects in 2017/18



Proposal Activity



The review and recommendation of projects for funding is divided into Caribou Research Fund projects and Operating Research Fund projects. Recommendations to fund caribou related projects were made by the MSLT and REMB as described on page 4. Non-caribou projects were strategic requests from our major stakeholders to support the collection of science-based information to inform emerging public policy and support decision making on operational activities.

More information on projects and findings within the Caribou Research Fund can be found in the REMB Annual Report available on the BC OGRIS website at: <http://www.bcogris.ca/boreal-caribou/extension>.

Communication Activity

Activities undertaken this year to disseminate findings and raise awareness about BC OGRIS funded research projects are summarized below.

Final reports—all projects delivered a report explaining the project and its findings. These reports—prepared by the project team—were posted on the BC OGRIS website for distribution.

Project presentations—eighteen presentations were delivered in FY 2017/18. Seven project presentations were made to the BC OGRIS Board of Directors, the REMB under the Caribou Research Fund and/or invited guests such as representatives from government, regulators and industry. Nine other presentations were made at environmental themed conferences. The REMB delivered two webinars, designed to disseminate the findings from boreal caribou research. The highly attended webinar series explained the project's findings and potential applications and will be continued in FY 2018/19.

Project summaries in external media—in FY 2017/18, the BC OGRIS and its extension partners published 15 releases such as newspaper articles and press releases and engaged in social media activities to raise awareness about projects funded by the BC OGRIS in communities where we operate.

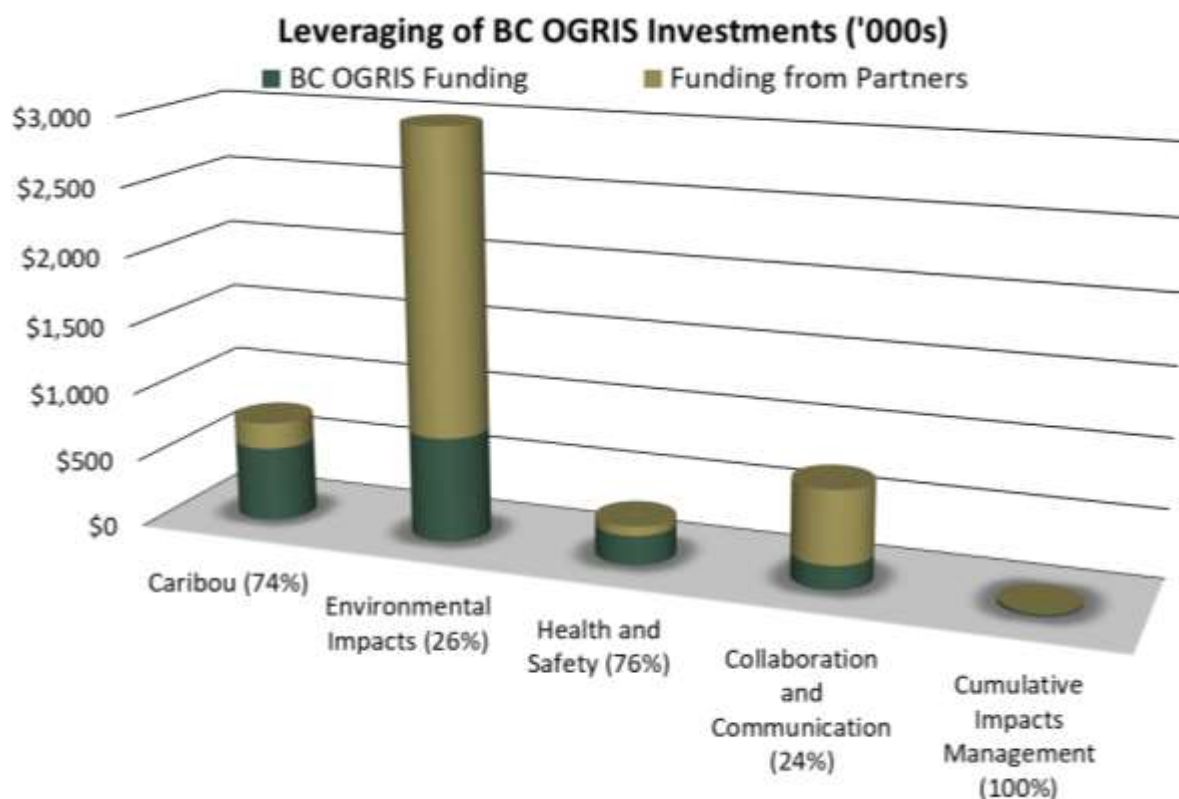
Website—containing fund and project information such as reports and materials covering the research findings and implications: www.bcogris.ca.

Annual Report—reporting out to BC OGRIS members on research activities and accomplishments.

Conferences—planned for next fiscal year (2018/19), conferences will be used to explain and discuss research findings and implications.

Leveraging our Investments

An increasing number of the BC OGRIS' research projects involve collaboration with external subject matter experts, research and extension partners. This enables the BC OGRIS to leverage its investment in projects as well as share the management and extension activities with other organizations. The resulting extension activities are significantly enhanced through the combined resources of the participating organizations—leading to wider exposure and use of the research findings.



Leveraging of BC OGRIS funds in research projects undertaken in FY 2017/18
(Amount of project funding provided by BC OGRIS and partners—by funding envelope. Percentage of project costs provided by BC OGRIS shown in parenthesis)

The illustration above summarizes the leveraging of BC OGRIS funding in 2017/18. Funding envelopes with no activity are not shown. Funding envelopes such as Environmental Impacts are highly leveraged with BC OGRIS contributing 26 percent of project funding while partners provided 74 percent. Working with partners on these projects helps us avoid duplication of research and confirms we are supporting important projects that others wish to contribute to. Other funding envelopes such as Caribou, Health and Safety and Cumulative Impacts Management are less leveraged as they are supporting projects unique to B.C. and requested by our stakeholders. In the majority of these, our stakeholders make contributions to BC OGRIS to cover these projects. Going forward, the Board will continue to look for opportunities to attract funding as part of our effort to support important projects and avoid duplication of research efforts.

Governance and Management

The BC OGRIS is a provincially incorporated not-for-profit organization under the BC Societies Act whose members are the Canadian Association of Petroleum Producers, Explorers and Producers Association of Canada and the BC Oil and Gas Commission. The BC OGRIS is governed by a Board of Directors consisting of three directors representing each of the members. Responsibilities include setting strategic direction and overseeing operations to ensure a well governed fund that delivers high quality results to inform public policy, aid decision making and enhance operating practices for oil and gas activities.

Administration of the BC OGRIS is carried out under the supervision of the Board of Directors by the Program Manager. Financial services and technical support of the website are provided under a services agreement with the Commission.

Operating Principles

Operating principles established by the BC OGRIS Board of Directors include the following:

Priority	Description
Ensure good governance of the BC OGRIS	Providing oversight of projects and ensuring all projects use and follow applicable processes, tools and policies while ensuring flexibility to respond to additional opportunities as they arise. Governance of individual projects is undertaken applicable to the investment level, type of research and project specific risks.
Ensure good use of the investment funds	Soliciting research proposals and making decisions on funding research consistent with the following BC OGRIS principles:
<ul style="list-style-type: none"> • Targeting research 	<ul style="list-style-type: none"> • At known knowledge gaps that are important to our major stakeholders such as undertaking projects to inform emerging public policy topics, regulatory discussions in government and best management practices in industry.
<ul style="list-style-type: none"> • Leveraging our research funding 	<ul style="list-style-type: none"> • By including other stakeholders and research partners in our funding agreements and being flexible in our funding models.
<ul style="list-style-type: none"> • Conducting extension activities 	<ul style="list-style-type: none"> • To ensure research findings and the application and implications of the research findings are easy to find and use by our target audiences.
<ul style="list-style-type: none"> • Minimizing administrative expenses 	<ul style="list-style-type: none"> • Through sharing administrative and overhead costs with research partners and structuring simple, yet maintaining flexible and appropriate funding agreements.

Financial Report (FY 2017/18)

Results of Operations

The BC OGRIS has historically received most of its funding from levies on production volumes and fees from well licence applications. In FY 2017/18, we received significant contributions from the B.C. Oil and Gas Commission as well as pipeline companies for specific projects and research themes. As a result of these contributions, revenue to BC OGRIS from fees and levies was suspended. Discussions continue about longer term funding as BC OGRIS supports larger and longer term projects requested by our members.

A summary of financial activity in FY 2017/18 is shown below. The activity is broken down by funding envelopes with the Operating Research Fund column representing all the funding envelopes except the Caribou Research Fund. The annual financial audit of the BC OGRIS was completed by external auditors. Copies of the audit statement and the audited financial reports are available on the BC OGRIS website at <http://www.bcogris.ca/about>.

Statement of Financial Position (as at March 31, 2018)

	Operating Research Fund (000's)	Caribou Research Fund (000's)	Total
Assets			
Current assets			
Cash & cash equivalents	\$ 8,681	\$ 1,157	\$ 9,838
Accounts receivable	55	10	65
Sub-total	\$ 8,736	\$ 1,167	\$ 9,903
Total Assets	\$ 8,736	\$ 1,167	\$ 9,903
Liabilities and net assets			
Current liabilities			
Accounts payable	\$ 578	\$ 113	\$ 691
Holdback payable	6	—	6
Deferred contributions	6,340	—	6,340
Sub-total	\$ 6,924	\$ 113	\$ 7,037
Fund Balances			
Caribou	—	1,054	1,054
Operating	1,812	—	1,812
Sub-total	\$ 1,812	\$ 1,054	\$ 2,866
Total Liabilities and Net Assets	\$ 8,736	\$ 1,167	\$ 9,903

Statement of Operations and Changes in Fund Balances (for year ending March 31, 2018)

	Operating Research Fund (000's)	Caribou Research Fund (000's)	Total
Revenue			
Interest	\$ 50	\$ 18	\$ 68
Contributions	1,165	58	1,223
Sub-total	\$ 1,215	\$ 76	\$ 1,291
Expenses			
Project costs	1,130	383	1,513
Professional services	33	120	153
Management fees	9	19	28
Extension and communication	—	14	14
Other expenses	4	8	12
Sub-total	\$ 1,176	\$ 544	\$ 1,720
(Deficiency) / excess of revenue over expenses	39	(468)	(429)
Fund balance beginning of year	1,773	1,522	3,295
Fund balance end of year	\$ 1,812	\$ 1,054	\$ 2,866

The Year Ahead (FY 2018/19)

Looking ahead to next year (FY 2018/19), the BC OGRIS will continue to fund a diversity of research projects while ensuring the projects focus on addressing knowledge gaps important to the oil and gas sector and our stakeholders.

The funding priorities for next year (FY 2018/19) include the following items:

- **Caribou**—supporting research completing under the final year of the MoU between the B.C. government and industry for boreal caribou research. Funds remaining after this year will be transferred to future boreal caribou related projects under a new agreement.
- **Environmental Research**—focused on knowledge gaps related to the impact of oil and gas activities on water, methane and greenhouse gases.
- **Seismicity**—maintaining the Northeast BC Seismic Array Network—collecting and analyzing data on seismic activity in northeast B.C.
- **Air**—maintaining the Northeast BC Air Monitoring Network—collecting and analyzing data on air quality in northeast B.C.
- **Engineering/Safety Research**—addressing knowledge gaps in engineering and safety in the areas of pipelines, wells and facilities.
- **Aboriginal and Community Engagement and Consultation**—building capacity to understand and monitor oil and gas activity in First Nation areas. A new funding envelope will start in FY 2018/19 to support First Nations resources carrying out restoration programs.
- **Reclamation**—a new funding envelope in FY 2018/19 to provide funding support to joint industry and B.C. government initiatives on reclamation.

Forecasted Research Expenditures for the Year Ahead (FY 2018/19)

The table below illustrates our anticipated expenditures, by funding envelope, for FY 2018/19:

	Allocated (FY 2018/19) ('000s)	Allocated (Future Years) ('000s)	Unallocated ('000s)	Total ('000s)
Funding Envelope				
Boreal Caribou	650	-	404	1,054
Environmental research				
Methane and GHG	222	-	427	649
Water	198	85	57	340
Seismicity Research and Monitoring	100	150	253	503
Air Monitoring	25	-	135	160
Engineering/Safety Research - Pipelines				
Pipelines	150	150	-	300
Wells, Facilities, Other	200	-	-	200
Aboriginal and Community Engagement and Consultation				
FN Stewardship & Monitoring Initiatives	1,403	-	1,919	3,322
FN Restoration	350	-	175	525
Reclamation Program	-	-	1,000	1,000
General (including communications)	39	-	824	863
Total	3,337	385	5,194	8,916

Active Projects

The following projects, listed by funding area, were undertaken in FY 2017/18. More information on these projects can be found on the BC OGRIS website at www.bcogris.ca or by contacting the Program Manager at info@bcogris.ca.

Caribou

Focus

Providing funding, contract governance and quality assurance to a joint industry-B.C. government initiative on boreal caribou. This initiative collects science-based information on populations and habitat to support the B.C. government's management plans. The initiative, started in 2011, is scheduled to complete by Dec. 31, 2018. Discussions are underway for further boreal caribou related activities in fiscal year 2018/19 and beyond.

Active projects (FY 2017/18)



Images from motion-sensing cameras installed to monitor large mammal use of linear features (courtesy Matrix Solutions).



Boreal Caribou Telemetry Program

Collect, monitor and report population and habitat information through a network of over 200 GPS/VHF radio collars deployed on boreal caribou, moose and wolves. The information enables the refinement of population growth estimates and the location of caribou and their predators (*Caslys Consulting; Diversified Environmental Services*).

Restoration Monitoring

Sixty-one kilometers of linear features in the Parker Range were restored in FY 2016/17. Follow-on projects are monitoring the vegetation response and the use of the restored corridors by predators. Additional research is underway to assess alternative ways for functionally restoring seismic lines sooner with fewer resources.

REMB Annual Report

More information on projects in the Caribou Research Fund can be found in the REMB Annual Report available on the BC OGRIS website: <http://www.bcogris.ca/boreal-caribou/extension>.

Collaboration and Communication

Focus

Improving communication between industry, regulators and government agencies, other stakeholders and First Nations.

Active projects (FY 2017/18)



Environmental Monitor (Liaison) Program
(courtesy BC Oil and Gas Commission).

BC Natural Gas Atlas

Creating a comprehensive, public facing atlas of natural gas molecular and isotope compositional data for northeast B.C. (*Geoscience BC / University of Victoria*).

Environmental Monitor (Liaison) Program

Supporting the development of capacity within First Nations to monitor oil and gas activities in northeast B.C. In its second year, the program involves six Aboriginal groups. Plans and funding are being discussed to expand into a B.C. government program for the natural resource sector (*BC Oil and Gas Commission*).

Cumulative Impacts Management

Focus

Advancing the understanding and management of the cumulative impacts of oil and gas projects in the context of landscape level management.

Active projects (FY 2017/18)

Framework for Managing Cumulative Effects

Assessing options for aligning approaches used by the BC government and regulator to manage cumulative effects. Project included identifying technical, policy and legislative options.

Environmental Impacts

Focus

Collecting information and identifying methods to avoid, minimize, or mitigate the impacts of oil and gas activities on terrestrial and aquatic ecosystems.

Active projects (FY 2017/18)



Aerial equipment mapping groundwater aquifers in the Peace Region (courtesy Geoscience BC).



Seismic Array Network project equipment—an installed seismograph station (courtesy Geoscience BC).

Water Related Projects

Three projects to research water quality and quantity in northeast B.C. Projects include mapping groundwater aquifers in the Peace Region; deriving salt standards for produced water in wetlands; and understanding the distribution and flow pathways of springs in northeast B.C.

Methane Projects

Several projects including the potential of using drones to detect emissions as well as the development of a fugitive gas database for use in mitigating and managing risks of gas migration at oil and gas wells in northeast B.C. (*University of British Columbia—Okanagan, University of Victoria*). Going forward, we plan to participate in a methane research consortium comprising the B.C. government, industry, academia and other research organizations to carry out larger and multi-year research projects.

Seismic Array Network Project

Since 2012, BC OGRIS has participated in a consortium of research organizations tasked with establishing and maintaining a network to collect and analyze data on induced seismic activity in northeast B.C. The analysis provides information to continue the safe and responsible development of B.C.'s natural gas resources—for example, supporting protocols for hydraulic fracturing, fluid disposal and completion practices (*Geoscience BC*).

Health and Safety

Focus

Advancing oil and gas practices related to human health and safety.

Active projects (FY 2017/18)



Northeast Air Monitoring Project

Year three of a three-year project to establish a monitoring network in northeast B.C. to capture air quality data for use in making informed public health decisions. Showing generally very low levels of common air pollutants associated with oil and gas facilities, the network will be continued as a base case for characterizing regional air quality in northeast B.C. (*B.C. Ministry of Environment*).

Northeast Air Monitoring project equipment—an air monitoring environmental laboratory (courtesy B.C. Ministry of Environment).

Community Environmental Knowledge

Focus

Documenting, demonstrating and improving the application of community environmental knowledge to oil and gas planning, development and restoration.

Active projects (FY 2017/18)

No active projects in FY 2017/18. Some community environmental knowledge activities were undertaken under the Caribou Research Fund and as part of projects in the Collaboration and Communication funding envelope. This activity is anticipated to increase with research themes proposed for FY 2018/19.



BC Oil and Gas
Research and Innovation Society

In Closing

From our beginning in 1999, we have supported close to 150 projects ranging in size from short studies and reports to multi-year projects involving multiple researchers and organizations. In the last six years, our level of activity in funding research has steadily increased to reach record numbers of projects supported. Our projects are getting larger and focused on strategic alignment with priorities of the B.C. government.

We thank all our stakeholders, researchers, technical reviewers and administration team for their assistance in delivering these research projects. Your support and assistance enable us to meet our goals and deliver findings that address important knowledge gaps in environmental and social aspects of oil and gas development in B.C.

Comments and questions on this report and/or the BC OGRIS can be sent to info@bcogris.ca.

