



## OUR NATURAL ADVANTAGE

Genome Canada recently released preliminary information about a long-anticipated genomics competition in the natural resources space, *Natural Resources and the Environment: Sector Challenges – Genomic Solutions*.

Although the official announcement is still pending, and details and dates are forthcoming later this spring, there are some things we can expect to see.

As with all Genome Canada competitions, the focus is on R&D that provides socioeconomic benefit to Canada. **For the purposes of this competition, the term ‘natural resources’ extends beyond the traditional areas of oil and gas, forestry, and mining into the broader impacts of industry on the environment. Therefore, topics such as water stewardship, wildlife management/conservation and bioproducts that help conserve natural resources and protect the environment could also be viable R&D initiatives.**

With this wide lens, Genome Atlantic has been exploring opportunities in the region for the last couple of years.

We’ve talked to companies in oil and gas, mining, and environmental services about genomics-based solutions to some of their big challenges. For example, genomics can provide

in-depth information about the microbes at work in these sectors. The single-celled organisms can induce corrosion in pipes, others can provide early indicators of oil seeps, and some enhance bioremediation efforts.

We’ve worked with a range of partners and institutions to connect genomics experts from across the country with companies in our regions. And we’ve facilitated workshops and planning sessions for multi-disciplined teams comprised of industry, academia and government agencies, regulators and funders.

The result so far is approximately 30 different opportunities for genomics to play an important role in the Atlantic Canadian natural resources space.

The Genome Canada competition will be a great source of R&D funding that can help transform these ideas into sustainable solutions. It will provide up to one-third of the funding for four-year projects with total budgets of \$2- to \$10-million.

But Genome Canada is just one source of funds for such projects. Many organizations provide R&D funding, such as ACOA, NSERC, NRC-IRAP and more. Genome Atlantic’s goal is to help the region benefit from genomics-based initiatives by working with teams to identify and pursue any appropriate R&D funding source.

Truly innovative solutions to complex, multifaceted challenges require many

bright minds, bold yet collaborative approaches, and a passionate set of public and private investors.

**THE GENOME CANADA COMPETITION WILL BE A GREAT SOURCE OF R&D FUNDING THAT CAN HELP TRANSFORM THESE IDEAS INTO SUSTAINABLE SOLUTIONS.**

Luckily, we have access to all of this right here in Atlantic Canada, giving us tremendous potential to develop sustainable solutions that our natural resources industries can employ in our own backyard, and around the world. If you want to be involved, please contact us.

## IN THIS EDITION

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- Additional Expertise
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## RECENT EVENTS

On March 5th, we partnered with the Environmental Services Association of Nova Scotia, Springboard Atlantic and the Natural Science and Engineering Research Council of Canada to co-host an Environmental Services Industry—Research Connector event.

Over 70 attendees from industry, academia and government attended this lively networking event designed to connect industry challenges with academic research expertise. Topics were as far-ranging as mine water remediation and biomass conversion technology.

## TOPICS WERE AS FAR-RANGING AS MINE WATER REMEDIATION AND BIOMASS CONVERSION TECHNOLOGY.

Local researchers did a great job explaining how they use genomics in their work. Morgan Langille, PhD, from Dalhousie University's Centre for Comparative Genomics and Evolutionary Bioinformatics - Integrated Microbiome Resource (IMR), has developed highly efficient and cost-effective methods to sequence the genomes of a vast number of species.

Dalhousie's Julie LaRoche, PhD, is one of his collaborators, using the IMR to help quantify and categorize the multiple microbes found in ocean water samples, which can provide early indicators of shifts in ocean life due to climate change or industrial impacts. In addition, Graham Gagnon, PhD, of Dalhousie University's Water Studies department is interested in genomics to help fine-tune his team's ability to filter out undesirable elements or compounds in public water systems using naturally occurring microbes.

## THE FISCAL YEAR IN REVIEW

As we came to the end of our fiscal year on March 31st, the team at Genome Atlantic had a lot to reflect on. **In the preceding 12 months, we saw the announcement of two new genomics aquaculture industry projects worth \$7.6 million, the completion of half a dozen industry outreach events, the progression of nine industry-led R&D initiatives, and the engagement of 38 different industry or public sector groups looking for help in pursuing genomics-based opportunities.**

Interest from these groups covers the gamut from human health solutions, mining and the environment, to agriculture, aquaculture, and oil and gas. To advance these opportunities, it was critical for us to work with some very important partners.

These partners—IRAP industry technology advisors, ACOA development officers, industry associations, university offices of research and industry liaison offices,

national and regional funding agencies, provincial government departments, and more—helped us focus diverse groups of industry and academic expertise around common genomics R&D objectives. Together, we have worked to:

- enhance competitiveness of proposals
- identify and secure funding from various national and regional sources
- establish project management paradigms
- identify regulatory and other technology translation issues

All of these services help to ensure that our region benefits from strategic genomics R&D initiatives. We are very grateful for these partnerships and the collaborative environment in which we are able to operate. If you want to learn more about how we can help, please contact us.

## HIGHLIGHTS OF 2014-2015

value of two new aquaculture projects

**\$7.6 M**

**6**

genomics/industry events

industry-led genomics R&D initiatives

**9**

**38**

new genomics-based R&D opportunities explored

## MANY HANDS

As a regional office of only six full-time employees, Genome Atlantic relies on the services of strategic consultants with diverse knowledge and experience. While we work with a range of experts, there are three consultants currently helping us with our extensive mandate.

**RICHARD DONALD, PHD**, is an experienced researcher and educator in the fields of agronomy and the environment. He has been a consultant in agriculture for the United Nations and many other international institutions. Richard served as VP Research and Extension at the Nova Scotia Agricultural College (NSAC), and Associate Dean Research upon the merger of NSAC with Dalhousie University. He retired from Dalhousie in 2014 and continues to consult in the food and agriculture domain. He has helped Genome Atlantic identify key opportunities in both the agri-food and environment space, and provides excellent project facilitation for industry-academic teams that are developing R&D proposals.



**DAVID MILLAR, MBA** has over 30 years of management experience. As a professional business consultant, he counsels companies, government departments and not-for-profits on start-ups, international trade, strategic

planning, and sector and technology competitiveness. David has been working with Genome Atlantic since its inception in 2000. Many successful genomics project teams have relied on David's critical, yet constructive input and guidance to help them clearly articulate the social and economic importance of their work.



**JOHN WANCZYCKI** has over 30 years of experience as an international executive and consultant specializing in the realm of sustainability, broadly defined. He has led international operations in a number of organizations. Consulting to all levels of government and international financing institutions, John has helped plan over \$300 million in projects, and helped shaped strategies, policies and programs. This experience and his previous role as President of the Environmental Services Association of Nova Scotia make him an invaluable asset to Genome Atlantic in identifying and developing opportunities for genomics-themed innovation in the environmental sector.



## OUTSTANDING COMMITMENT

Kevin Keough, PhD, has stepped down from the Genome Atlantic Board of Directors, after seven years of service, including two years as Board Chair.

Kevin brought vast insights from his wealth of experiences, including serving as one of the original members of Genome Canada's Board, filling the role of Vice President Research at Memorial University, running several small start-ups, and providing consulting services to businesses, government and not-for-profit corporations within the R&D and innovation realm.

We will greatly miss Kevin's contribution to the Board. We are grateful for his dedication and input, and wish him all the best. As Kevin departs, Genome Atlantic is very pleased to announce two new additions to the Board.

**Mark Ploughman** is Assistant Deputy Minister, Innovation and Sector Development, for the Department of Business, Tourism, Culture and Rural Development in Newfoundland and Labrador. As an industrial engineer and MBA, Mark has extensive experience in the private sector, working for companies such as Michelin and Lotek Wireless before joining the public service in 2012.

**Dave Finn** is Chief Operating Officer of Petroleum Research Newfoundland and Labrador (PRNL). An engineer with a background in naval architecture and ice engineering, Dave is well attuned to the challenges and opportunities within the oil and gas sector in Atlantic Canada.

Both Mark and Dave see the potential for genomics-based innovations to help a range of industries in Atlantic Canada.

## EVENTS ON OUR RADAR

Genomics is playing a role in many important sectors, and will be a topic of discussion in several business conferences in the coming months.

**ENERGY** Casey Hubert, PhD, (U Calgary) returns to Atlantic Canada to explain how genomics helps us predict the microbial bioremediation response in marine oil spills at the Newfoundland and Labrador Environmental Industry Association (NEIA) Oil Industry and the Environment Seminar, April 27-28, St. John's NL.

**MINING** Genomics can enhance extraction as well as improve environmental monitoring and remediation in the mining sector. Both are on the agenda of the Canadian Institute of Mining, Metallurgy and Petroleum Annual Convention, May 10-13th in Montreal, QC.

**HEALTH** Genomics is key to our understanding of the trillions of microbes that make up the human microbiome. The potential for translational interventions in microbiome research in health care will be explored at the Translational Microbiome Conference, May 14-15, Boston MA.

**ENERGY** Genomics can help us understand the microbes involved in the biorefining process, which can lead to valuable products from forestry, fish and farm wastes. The Atlantic Bio-refining Conference occurs in Edmundston, NB, May 27-29.

**AGRICULTURE** Genomics can help us diagnose, treat and prevent disease in animals, as well as help us determine what feed formulas will help animals thrive. An assortment of international animal health and nutrition businesses will gather

at Vet Health Global, June 8-10, Charlottetown, PE.

**ENVIRONMENT** Genomics can be used in many aspects of the environmental services industry, including biomonitoring and wastewater management in Canada's northern regions. These issues will be explored at an Environmental Services Association of Nova Scotia meeting in Halifax, NS, June 17th.

**LIFE SCIENCES** Personalized medicine is a huge component of BIO 2015, including a plenary talk by Dr. Francis Collins of the National Institutes of Health, as well as other other genomics-related topics including targeted oncology therapeutics, regulatory issues in molecular diagnostics, and the challenges of implementing these technologies into the health care setting. June 15-18, Philadelphia, PA.

**HEALTH** The Genetics and Genomics Health Seminar Series, presented by Genome Atlantic and the IGNITE Project, wraps up the season with two great presentations. On May 13th, Dalhousie's Paola Marcato, PhD, will explain the use of genome-wide RNAi screening approaches to understand breast cancer progression and develop improved therapies. On June 17th, Jim Brown, PhD, Director of Computational Biology at GSK, will discuss the company's interest and approach to working with genomics researchers.

**TECHNOLOGY** Genomics generates data. Reams and reams of data. The Canadian Bioinformatics Workshop on Analysis of Metagenomic Data is designed for the bioinformaticians who organize, analyze and decipher

the data so we can make sense of it all. Halifax, NS, June 24-26.

**HEALTH** Researchers, business leaders, clinical investigators and investment professionals will discuss the proteinopathies of neurodegenerative diseases at NeuroConX, July 12-14, Charlottetown, PE.



## WHO WE ARE

Genome Atlantic is a not-for-profit corporation with a mission to help Atlantic Canada reap the economic and social benefits of genomics and other 'omics technologies across an array of sectors, including agriculture, aquaculture and fisheries, energy, the environment, forestry, human health and mining. Partnering with other government, industry, academia and research institutions, it has enabled over \$70 million in genomics R&D throughout Atlantic Canada.

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Life Sciences. Life Solutions.