The Ocean Frontier Institute
Safe & sustainable development of the ocean frontier
One ocean | Understanding change | Collaborating on solutions

About the Ocean Frontier Institute (OFI)
October 2018
An international hub for ocean research, OFI brings together experts from both sides of the North Atlantic to explore the vast potential of the world’s ocean. Through transformational research, OFI will help:

- improve prediction and mitigation of major storms
- manage human activities as they relate to ocean resources
- improve the potential for fisheries and aquaculture industries to meet global seafood demand in a sustainable manner
- strengthen marine safety
- transform ocean monitoring with new data capture and IT tools
Mission

OFI is a transnational hub for marine research, exploring the ecosystems of the North Atlantic and Canadian Arctic Gateway to discover innovative solutions that strengthen the economy and protect the environment. Through education, training, and communication — and by sharing talent, resources, and information — OFI generates ocean knowledge and opportunity.
Vision

OFI's vision: To be a global leader in transnational interdisciplinary ocean research, producing demonstrable and enduring social, economic and environmental benefits.
Four Strategic Priorities

**DISCOVER**
Conduct research on our changing ocean and use the results to identify innovative solutions that advance the safe and sustainable development of the North Atlantic

**COLLABORATE**
Engage stakeholders and rightsholders in ocean management solutions and build support for ocean research and its applications

**LEAD**
Advance ocean-related learning and teaching

**ENABLE**
Achieve OFI’s vision through operational excellence
Significant support

- Established September 2016, with investments totalling $227 million
- Lead partners:
  - Dalhousie University
  - Memorial University of Newfoundland
  - University of Prince Edward Island
- Business leader and philanthropist John Risley committed $25 million

* All funds in Canadian dollars.
Ground-breaking research: ocean innovation
Transnational partners
Government partners

- Fisheries and Oceans Canada
- Environment and Climate Change Canada
- Defence Research and Development Canada
- Royal Canadian Navy
- National Film Board of Canada
- Province of Nova Scotia
- Province of Newfoundland and Labrador
- Research and Development Corporation (now innovateNL)
Industry partners

Through our industry partners, OFI enables researchers to put their science to work — applying and testing theories through incubator projects with the eventual goal of achieving commercialization.

OFI has multiple industry partners, representing a broad spectrum of the economy:

<table>
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<tr>
<th>Fisheries</th>
<th>Aquaculture / Aquatic Plants</th>
<th>Ocean Science &amp; Technology</th>
<th>Defence &amp; Security</th>
<th>Insurance &amp; Financial Services</th>
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</table>
Focus: North Atlantic / Canadian Arctic Gateway

**Scientific relevance**
- Meridional overturning circulation
- CO$_2$ uptake
- Atmosphere-ocean heat exchange
- Productive but shifting ecosystems
- Arctic to Atlantic connectivity
- Changing sea ice cover
- Ocean acidification

**Social & economic importance**
- Energy, minerals
- Fishing, aquaculture
- Trade, shipping
- Security
- Marine tourism
OFI research priorities

OFI's ocean research has two focus areas:

I.  CHANGES: Examines key aspects of atmosphere-ocean interaction, resulting ocean dynamics and changes in ecosystems

II. SOLUTIONS: Focuses on effective approaches to resource development that are sustainable, globally competitive, societally acceptable, and resilient to change
An ocean of opportunity ...

One ocean | Understanding change | Seeking solutions
Large research projects: understanding change

**Atmosphere-ocean interactions**
- Marine atmospheric composition & visibility
- Auditing the Northwest Atlantic carbon sink

**Shifting ecosystems**
- Dynamic response of microbial communities
- Ecosystem indicators for a changing ocean
- Cooperative model framework
Large research projects: identifying solutions

**Sustainable Fisheries**
- Future-proofing marine protected areas
- Sustainable capture fisheries & ecosystems
- Spatial dynamics of Atlantic groundfish
- Informing governance responses

**Sustainable Aquaculture**
- Improving sustainability & mitigating challenges
- Novel sensors for fish health and welfare
- New models of salmon health management
- Social license, planning in coastal communities

**Marine Safety**
- Safe navigation & environmental protection

**Ocean Data & Technology**
- Transforming ocean observations
- Ocean data analytics
- Ocean data management
OFI funding opportunities

The OFI Seed Fund supports ocean-related projects that offer high potential for innovation success but need small amounts of funding to help them to move forward — and grow.

Great ideas should be pursued ... quickly. OFI's Opportunities Fund provides financial support to ocean research projects that require rapid turnaround.
OFI: sharing tools, technology & expertise

- Infrastructure
- Research & lab space
- Ship access
By providing a variety of educational opportunities, OFI attracts — and retains — the best research talent, advancing Atlantic Canada’s position as a leader in ocean-related teaching and learning.

<table>
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<tr>
<th>International Postdoctoral Program</th>
<th>Visiting Fellows Program</th>
<th>Bilateral Doctoral Program</th>
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<td>• 10 per year, for two-year terms</td>
<td>• Unites North Atlantic research efforts through residency visits to OFI from collaborators within partner institutions</td>
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<tr>
<td>• Spend time at partner institutions</td>
<td>• Length of visit from one to four months</td>
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<td>• Promote cross-disciplinary collaboration</td>
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<td></td>
<td>• Graduate students co-supervised at partner institutions</td>
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<td>• Students gain international experience</td>
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Knowledge mobilization

Fostering innovation through COVE (Centre for Ocean Ventures & Entrepreneurs)
Through Ocean School, OFI supports the development and delivery of resources and programs to advance ocean literacy:

• literacy exhibits, online and classroom-based learning resources

• learning tools: short films, digital games and 360-degree ‘immersive’ ocean experiences using head-mounted virtual reality displays and tablets
Safe and sustainable development of the ocean frontier ...

Learn more at
oceanfrontierinstitute.org
@OceanFrontier