

meia.org
Newfoundland and Labrador
Environmental Industry Association



**NSERC
CRSNG**



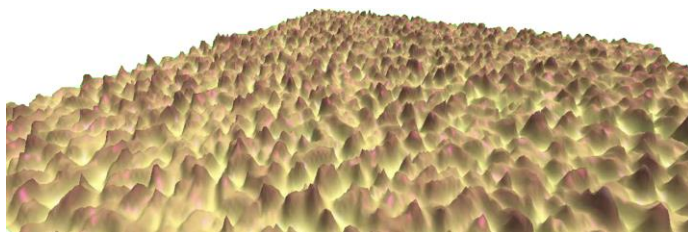
Research Matching with Business

Erika Merschrod, Ph.D.
Associate Professor
Dept. of Chemistry, Faculty of Science



•Research Overview:

- Microfluidic “Lab on a Chip” sensors
- Coatings: antifouling, sensing, optical
- Materials characterization: failure, corrosion, wear



•R&D Interests and Expertise available:

- Sensor design; signal transduction
- Microfabrication; nanofabrication
- Unique characterization infrastructure and expertise (microscopy, spectroscopy)



Abdul Zubair – Remediation of Hydrocarbon Contaminated Sites Using Surfactant-Enhanced Soil Washing (SESW) Technology



Research Overview:

- **Evaluate the efficiency of Surfactants in remediating Bunker C oil from the soil.**
- **Optimize the technology for Hydrocarbon Remediation in the soil.**
- **Develop a numerical model for the use of SESW for cleaning-up sites contaminated with Bunker C oil.**

R&D Interests and Expertise available:

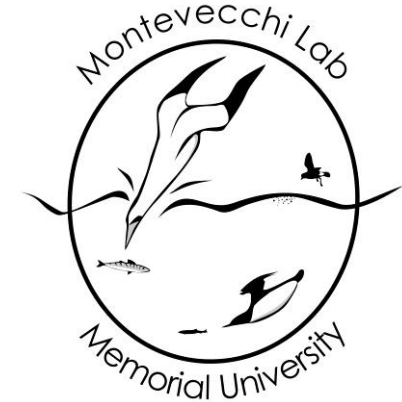
- **Environmental Remediation/Clean-Up**
- **Enhanced Oil Recovery (EOR)**

Bill Montevecchi
University Research Professor
Psychology/Biology/OSC, Faculty of Science



Research Overview:

- **Ecology, Behavior and Conservation of Marine Birds**
- **Bird-borne Tracking Technology**
- **Ecosystem Indicators and Risk Assessment**



R&D Interests and Expertise available:



Fishery



Oil



Wind



Habitat

Dr. Yolanda Wiersma – Associate Professor in Landscape Ecology



Research Overview:

- Environmental and ecological issues from the perspective of an airplane window
- Wildlife, forestry, land use, planning applications
- Crowdsourcing and citizen science

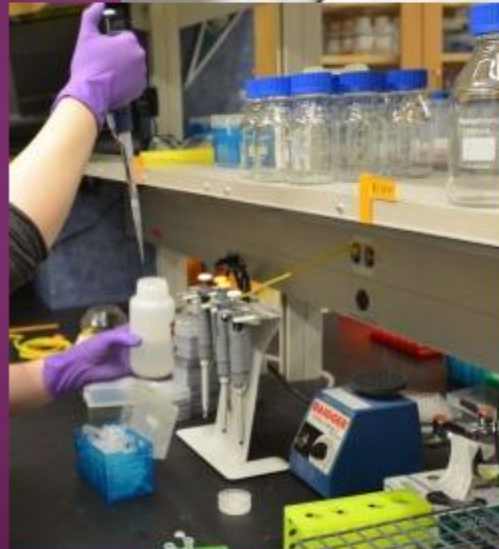


R&D Interests and Expertise available:

- GIS, spatial analysis
- Crowdsourcing
- Dealing with “big data”
- Field ecology
- Spatial modelling



NEW DEGREE PROGRAM AT MEMORIAL: BACHELOR OF SCIENCE, BIOLOGY - CO-OPERATIVE



Randal Power

Low Cost Solar Air Heater/Air Exchanger

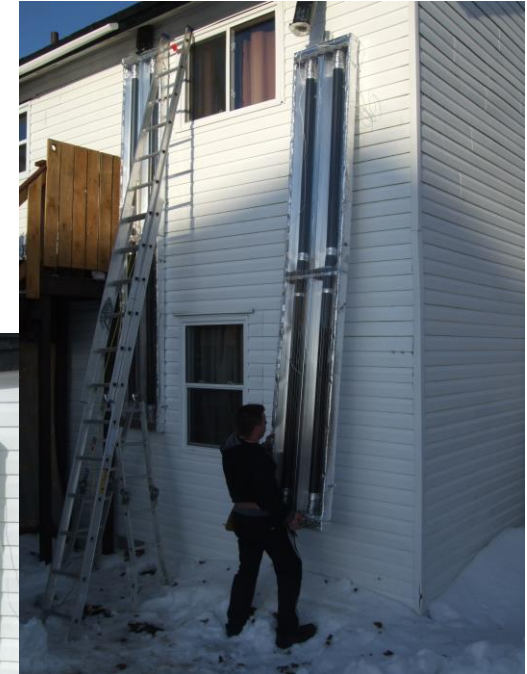


Research Overview:

- Development of Household and Commercial Designs for Solar Air Heaters
- System Combines Low Cost, Solar Concentration and Modular/Expandable Construction

R&D Interests and Expertise available:

- Solar Wind and Wave Power
- Underwater Vehicles
- Engineering
- Rapid Prototyping/3D Printing
- Product Design



Name –Dr. Tom Cooper
Associate Professor, Faculty of Business



Research Overview:

- **Strategic risks**
- **Aboriginal business**
- **Access to finance/strategic planning**

R&D Interests and Expertise available:

- **Risk management**
- **Municipal infrastructure**
- **Aboriginal business – access to finance**
- **Benefit agreements, major projects, socio-economic assessments**
- **Business case development, strategic planning, management consulting**
- **Corporate Social Responsibility, Business Ethics, Business sustainability**

Paul Hearn – Instructor Mechanical Engineering Technology

Research Overview: **AUTOMATED CRAB MEAT EXTRACTION**

RESEARCH



Step 1: Automated Crab Leg Removal



PARTNERS



Prime Contractor



FUNDING



Department of Fisheries and Aquaculture

R&D INTERESTS AND EXPERTISE AVAILABLE:

- Industrial Automation
- Machine Design
- Robotics
- Machine Vision
- Prototyping
- Solidworks

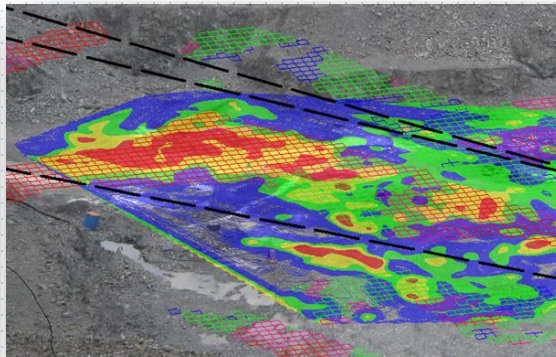


John O'Leary

Faculty, Industrial/Mechanical Engineering Technology

Research Overview

- Product and process Innovation
- Information systems requirements
- Process and operations analysis
- Technology adoption/ HR development



R&D Interests and Expertise available

- Work methods and measurement
- Soft automation systems and robotics
- Virtual prototyping/simulation
- Technology adoption and implementation planning

**Dr. Aimee M. Surprenant– Professor
Dept. Psychology, Faculty of Science**



Research Overview:

- **Memory for information obtained in challenging sensory environments; relationship between sensory capabilities and memory; how age-related perceptual deficits affect memory**

R&D Interests and Expertise available:

- **How noise and distraction affect cognitive capabilities**
- **How age-related perceptual deficits add to cognitive decline**
- **How enhancing perceptual environments can ameliorate effects of sensory deficits and their cascading effects on memory**
- **Memory for prescription instructions in challenging listening and visual environments**

Brent Snook, Ph.D.

Psychology, Faculty of Science



Research Overview:

- **Information Literacy**
 - **Using listenability as a tool to increase comprehension of information that forms the basis of consequential decisions**
- **Information Gathering**
 - **Training people to extract accurate and complete information from people that is later used to make consequential decisions**

R&D Interests and Expertise available:

- **Increasing Literacy of Spoken Messages**
 - **Safety, Medical, Procedural, Hiring**
- **Maximizing Information Extraction From Others**
 - **Root Cause Investigation, HR, Marketing, etc.**

Alan Kirby, M. Eng., P. Eng., FEC
Environmental Technology (Co-op)
Corner Brook campus



Research Overview:

- **Involved in water and wastewater applied research for the past 20 years**
- **Involved in industry research partnerships for the past 20 years**
- **Involved in Climate Change research for the past 10 years**

R&D Interests and Expertise available:

- **The Effects of Climate Change on the Hydrology of western Newfoundland**
- **Snow Melt modeling in western Newfoundland**
- **The Effects of Air Pollution on Lichens**
- **Using Fly Ash as a Soil Amendment in Compost Operations**

CONNECT. COLLABORATE. PROSPER.



Master of Arts in Environmental Policy (MAEP)

Research Overview: The MAEP is an interdisciplinary program and offers both a 1 year Research Paper and 2 year Thesis option. It is research intensive, also including research essays for each course during the academic year. The research provides students with an in depth understanding of the theoretical and practical aspects of the policies on current environmental issues and offers potential for partnerships with industry, government and community groups.

R&D Interests and Expertise available:

The program attracts students from various academic backgrounds: ***economics, law, environmental studies, international development and natural science.***

Research Interests/topics include:

- Minimum Processing Requirements (MRP) in NL & Labrador Fishing Industry
- Corporate Social Responsibility: Economics, Environment or Human Rights
- Climate Change Adaptation in Boreal Forest
- Bill c45 and the Indian Act: Impact on Wabanaki People
- Mining Reclamation
- Forest Industry in Mexico
- Ecological Impacts of the Qalipu eel Fisheries
- Capacity for Engagement in Integrated Watershed Management in NL
- Legislative Change and Resulting Social Movements (Idle No More)
- Forestry Certification

Environmental Policy Institute, Grenfell Campus

Contact: kvodden@grenfell.mun.ca, michaelv@grenfell.mun.ca



Research Overview:

- Research, dissemination, capacity building and public dialogue focused on critical environmental policy challenges in NL
- *Includes:* climate change and energy, forestry, fisheries, food security, water/watershed management, green economies and sustainable community development

R&D Interests and Expertise available:

Foley: international and comparative political economy; development and environmental change; environmental politics and policy; market-oriented and global environmental policy and governance (e.g. eco-certification and eco-labeling)

Klinke: governance and public policy analysis; institutional dynamics of environmental governance; international environmental politics; social science risk research; participation and deliberation; international relations; inter- and trans-disciplinary research

Van Zyll de Jong: fisheries management and ecology; ecosystem-based approaches to resource management; integrated research and the science-policy interface

Vodden: sustainable community/regional development, rural resilience, community involvement in resource management, local governance, community adaptation, innovation, green economies and community-corporate relations

Greg Curtis M.Sc.E
Centre for Green Chemistry & Catalysis,
Faculty of Science



Research Overview:

- **Fishery waste utilization, aqueous conversion of carbohydrates, non-toxic and cost effective processes, platform chemicals, biotransformations, biorefining, bioplastics, biofuels**

R&D Interests and Expertise available:

- **Hydrogen fuel cells, 2nd generation ethanol, biodiesel, green fuels, biogas, catalyst design, nano-materials, enzymes and whole cell organisms.**
- **Renewable plastics, organic fertilizer/pesticides/herbicides, micro and macro algae utilization, process design and energy harvesting.**
- **Environmental policy and regulations, project management, product development, sustainable economics and industrial ecology.**

Craig Greene



Research Overview:

To construct a prototype net zero dormitory constructed of a 40 foot shipping container. The dormitory would strive to be off grid thru energy generation by wind turbine, rainwater collection and grey water use.

This would serve as a basis for a full scale dormitory constructed of stacked shipping containers for use not just in Newfoundland and Labrador but throughout the world.

Faculty and students of both The College of The North Atlantic and Purdue University (Indianapolis) have already conducted research and site visits to both Hawaii and Haiti to investigate and implement the use of shipping containers for housing for the homeless or those affected by natural disaster.

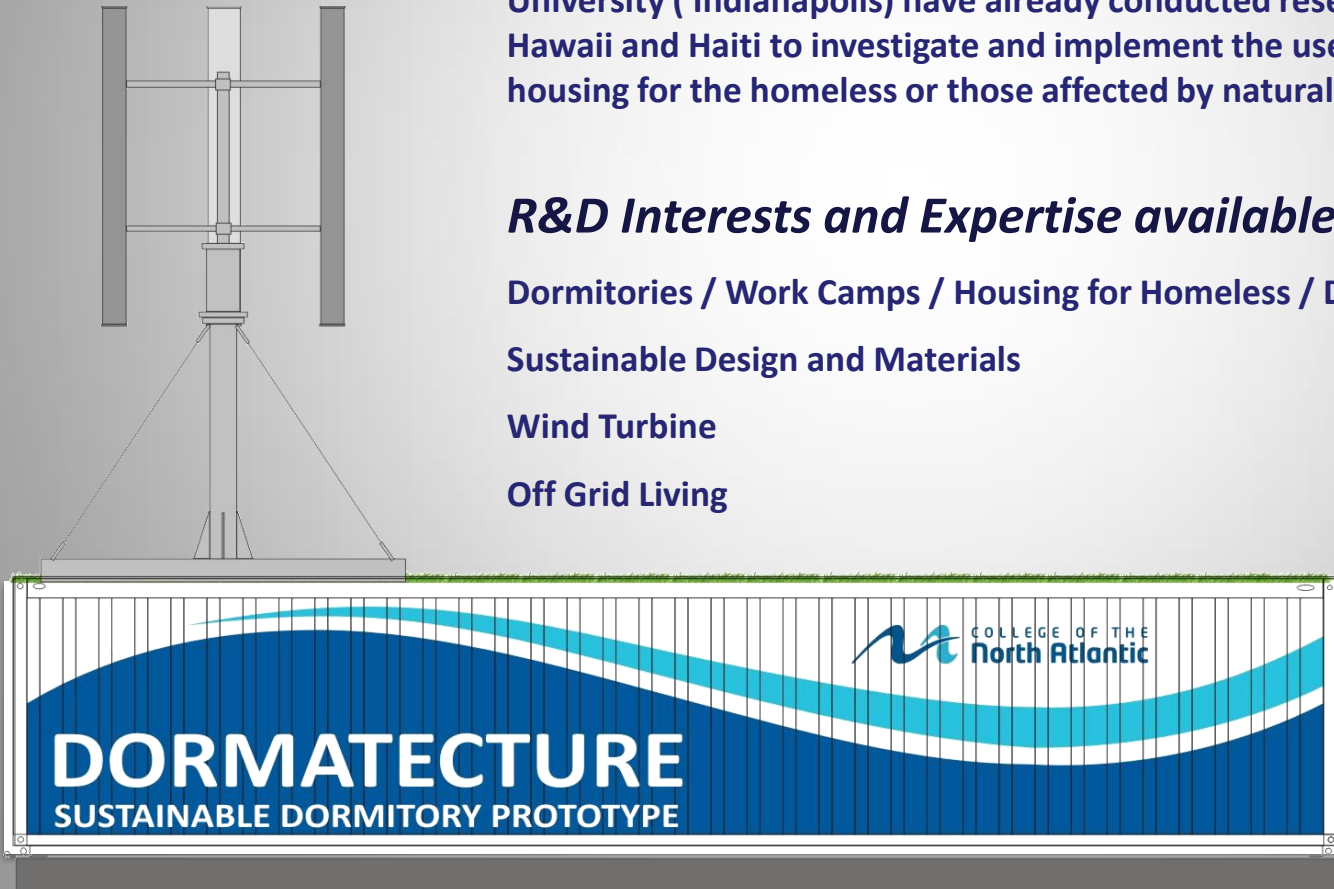
R&D Interests and Expertise available:

Dormitories / Work Camps / Housing for Homeless / Disaster Relief

Sustainable Design and Materials

Wind Turbine

Off Grid Living



Dr Gary Thompson P. Geo NSERC Industrial Research Chair



Natural Sciences and Engineering
Research Council of Canada

Conseil de recherches en sciences
naturelles et en génie du Canada

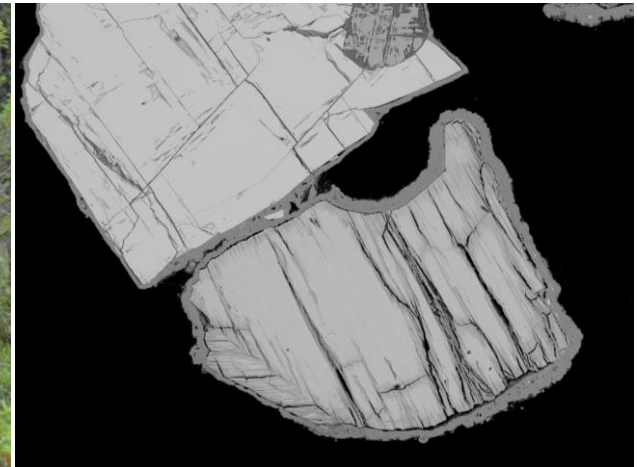
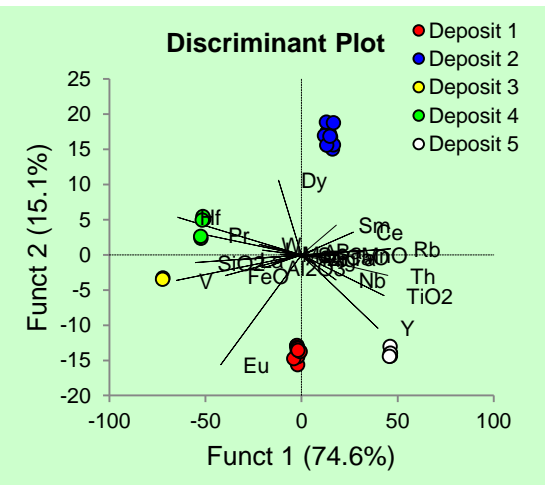


Research Overview:

The NSERC Industrial Research Chair in Applied Mineralogy was established in the College of the North Atlantic to undertake industrially relevant mineralogical and geochemical research

R&D Interests and Expertise available:

- more than 20 years' international research and senior technical management experience in geochemistry



Photonics – A disruptive technology for environmental monitoring, imaging, and sensing

Qiying Chen (qiyingc@mun.ca)

Professor & Canada Research Chair in Photonics



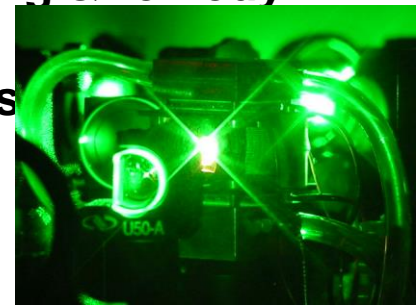
Newfoundland & Labrador, Canada

Research Overview:

- **Interdisciplinary study of Ultrafast Laser Technology and Nanotechnology**
- **New optical technologies for monitoring, imaging, sensing**
- **Development of new applications of photonics technologies (offshore, environmental, natural resources, biomedical, renewable energy...)**

R&D Interests and Expertise available:

- **Intelligent multiparameter fibre-optic sensing & wireless communications**
- **Fibre-optic sensors for environmental monitoring (land, marine, harsh environments), and structure health monitoring**
- **Opto-microfluidic devices and systems for chemical analysis & imaging**
- **Nanomaterials & spectroscopies for environmental monitoring & remedy**
- **Devices for renewable energy (thin film solar cells & DSSC)**
- **Femtosecond laser ablation ICP-MS for composition analysis (ICP-MS: Inductively coupled plasma mass spectrometry)**



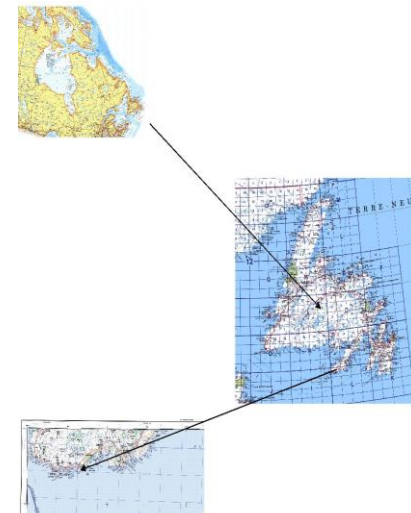
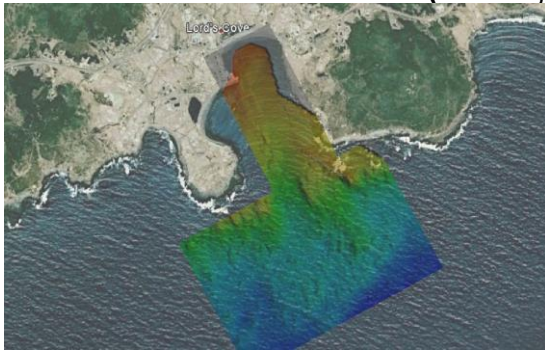
Wave Energy Research Centre Lord's Cove

Research Overview:

- Use of wave energy to supply water to shore based multi-species aquaculture
- Develop instrumented, documented & permitted Ocean Wave Energy Test Facility
- Develop numerical models of device performance, near shore wave action

R&D Interests and Expertise available:

- Meteorology, instrumentation, mechanical & electronic fabrication
- Data acquisition, remote monitoring & control
- Aquaculture, ecological monitoring
- Exposure testing of devices and materials
- Materials science (NDT, microscopic inspection, tensile strength)



Environmental Impacts of Bio-diesel Burning

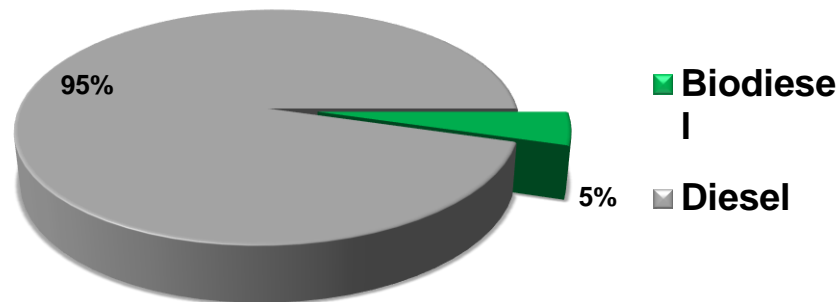
(Dr. Faisal Khan, Dr. Yan Zhang, Zaman Sajid)

Research Overview:

Biodiesel raw material has less carbon contents (77.6%) as compared to diesel (86%). Therefore, its combustion produces less CO₂

-Less carbon tax - A financial incentive for investors

CO₂ Emission Contributions



R&D Interests and Expertise available:

- *Environmental Friendly fuels- Biofuel*
- *Economic Analysis of Biofuel Production Systems*
- *Process Engineering Background*



Len Zedel – Professor Physics and Phy. Ocgy., Faculty of Science

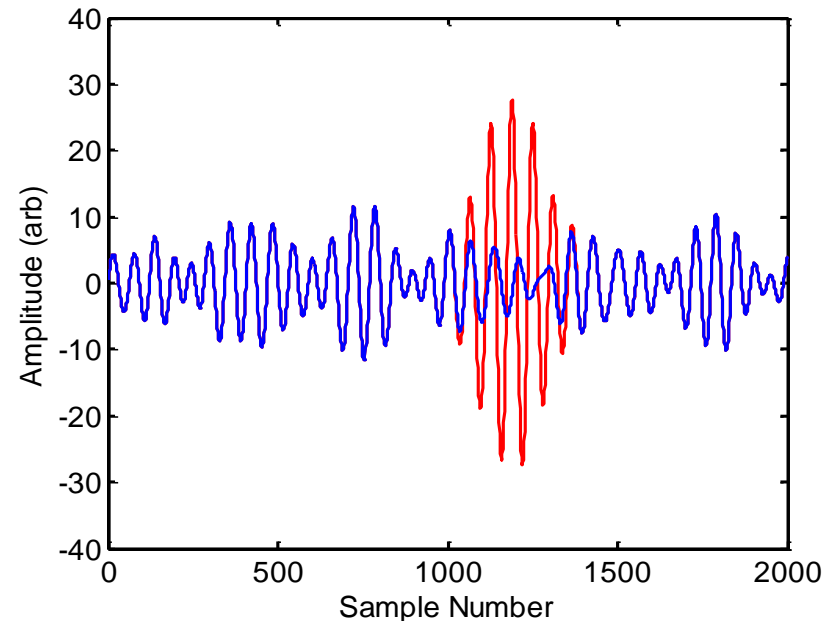


Research Overview:

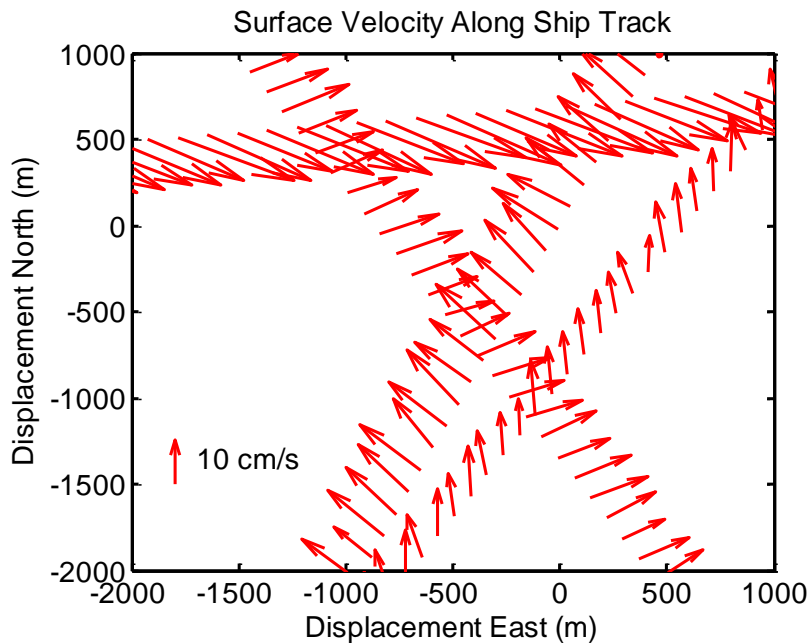
- **Development of coherent sonar measurement technology**
- **Natural (physical) sources of underwater sound**
- **Ocean current measurements (bottom boundary layer processes)**
- **Doppler sonar measurements of fish velocity**

R&D Interests and Expertise available:

- **Physical Oceanography**
- **Doppler sonar**
- **Signal processing**
- **Sonar modelling**
- **Underwater acoustics**



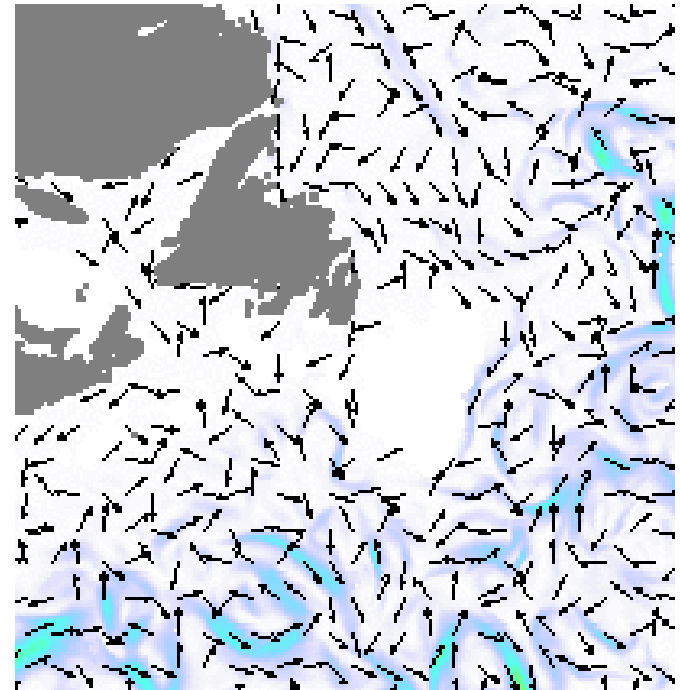
Incorporating Operational Metocean data Into Predictive Models



Data improves model performance
Data constrains prediction accuracy

Operational Predictions of
Currents and Temperatures

Dr. L. Zedel (Professor)
Dr. F. Davidson (Adjunct)
Physics and Phys. Ocgy.





ADAPTING TO A CHANGING ENVIRONMENT

October 10 - 11, 2013
Holiday Inn
St. John's, NL

Connect with the researchers
at:

The Green Showcase

*- Networking, Buffet Lunch and
Tradeshow*