

Canadian Projects, Funding and Opportunities



Kim Houston, Fisheries and Oceans Canada

Talk by Ellen Kenchington
Ecosystem Research Division
Fisheries and Oceans Canada
Bedford Institute of Oceanography
Dartmouth, Nova Scotia, Canada





OVERVIEW

- Ongoing Scientific Research (Government Labs, Universities)
- CHONe Research Network
- Centre for Marine Biodiversity Discovery Corridor
- NSERC

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Research on cold-water corals at Bedford Institute of Oceanography in Dartmouth, NS, St. Andrew's Biological Station, NB and the Northwest Atlantic Fisheries Centre in St. John's, NL

- in support of management issues
 - distribution and mapping
 - habitat associations
 - associated fauna
 - impacts of fishing
 - coral biochemistry
 - conservation strategies
 - conservation genetics
 - bioinformatics

Primary Contacts:

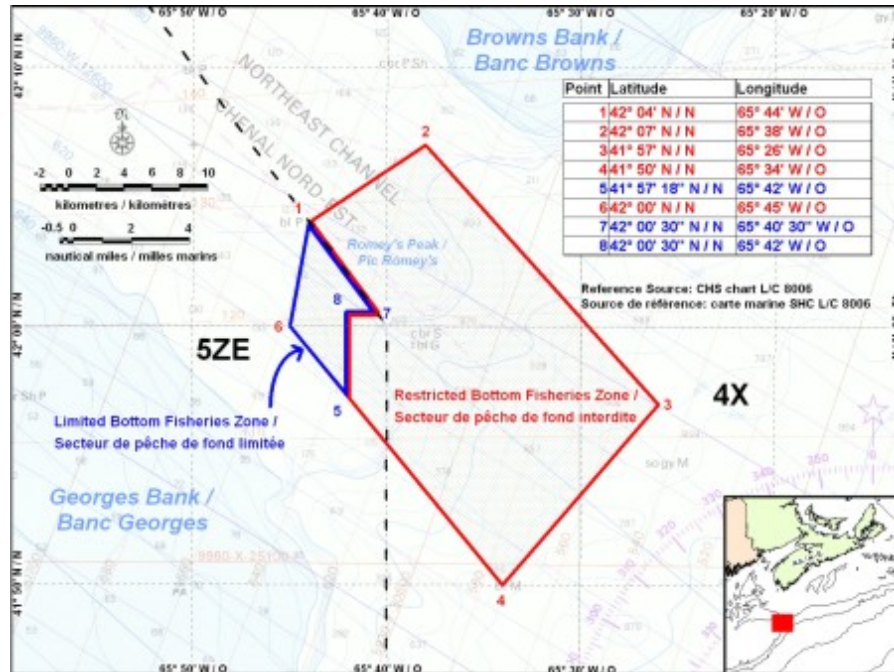
Drs. E. Kenchington (BIO), P. Lawton (STABS), K. Gilkinson (NWAFC),
D. Hamoutene (NWAFC)



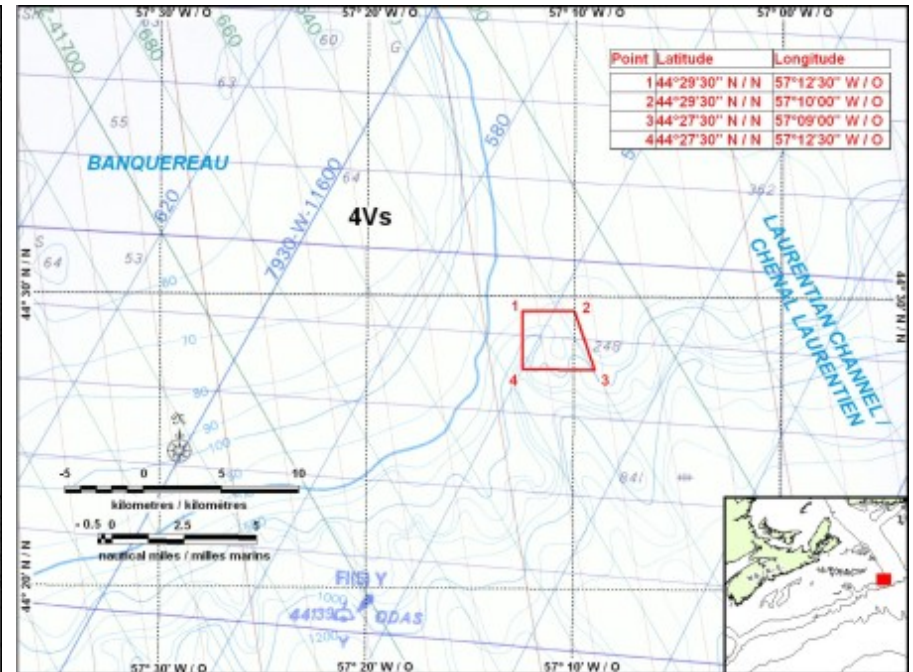
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Coral Conservation Areas



Northeast Channel Coral Conservation Area: established 2002



Lophelia Coral Conservation Area: established 2004

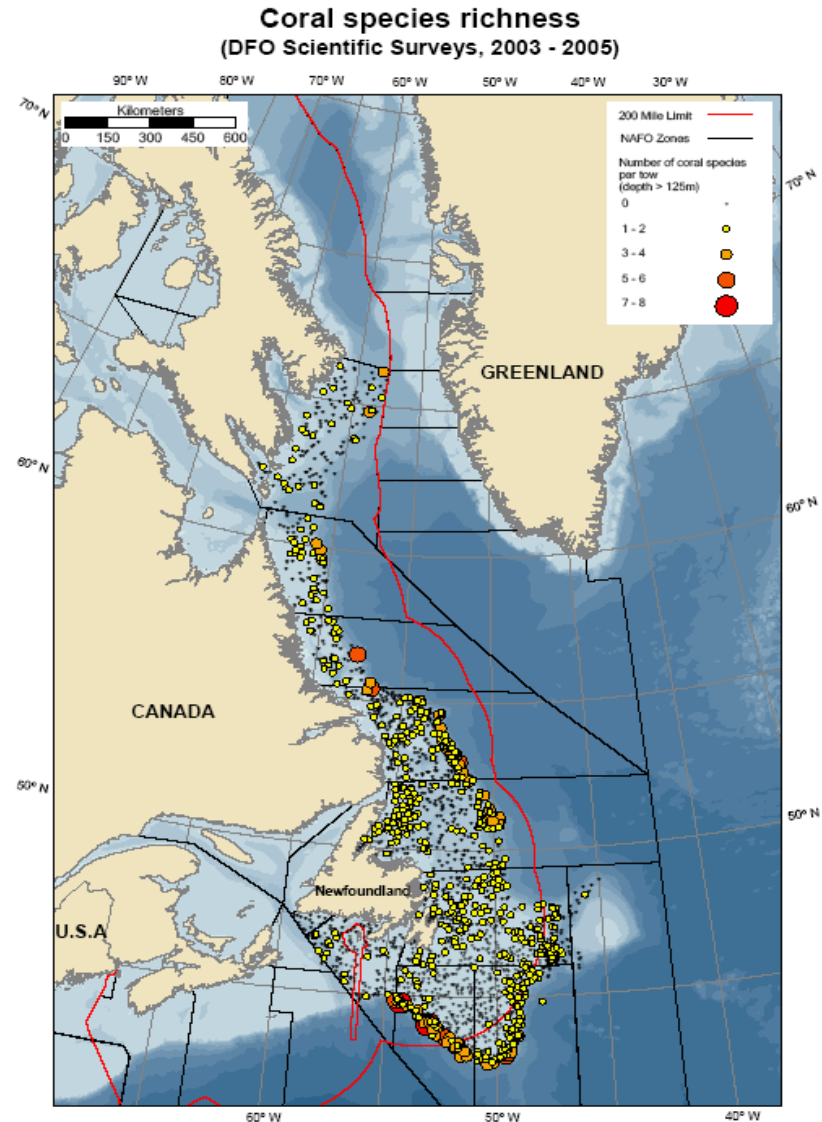
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Distribution and Mapping

A primary activity for all DFO regions with data collected from RV surveys and Fisheries Observers

Primary Contacts:
Drs. E. Kenchington (BIO),
K. Wilkinson (NL) and
V. Wareham (NL)

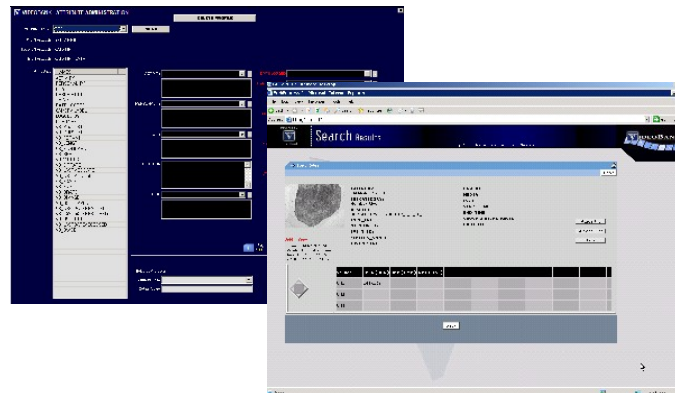


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Bioinformatics and Data Management

- Science images
Archived and Accessible
- Proposed set of
collection standards
- Pilot Image Archive for
2007-08

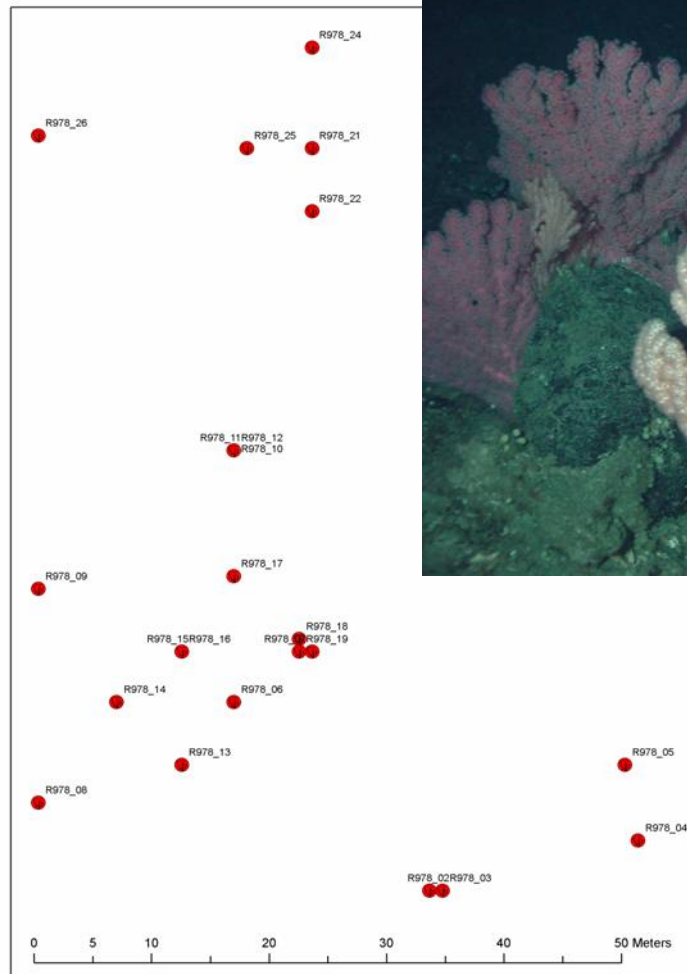


Primary Contact: Pierre Clement (BIO)

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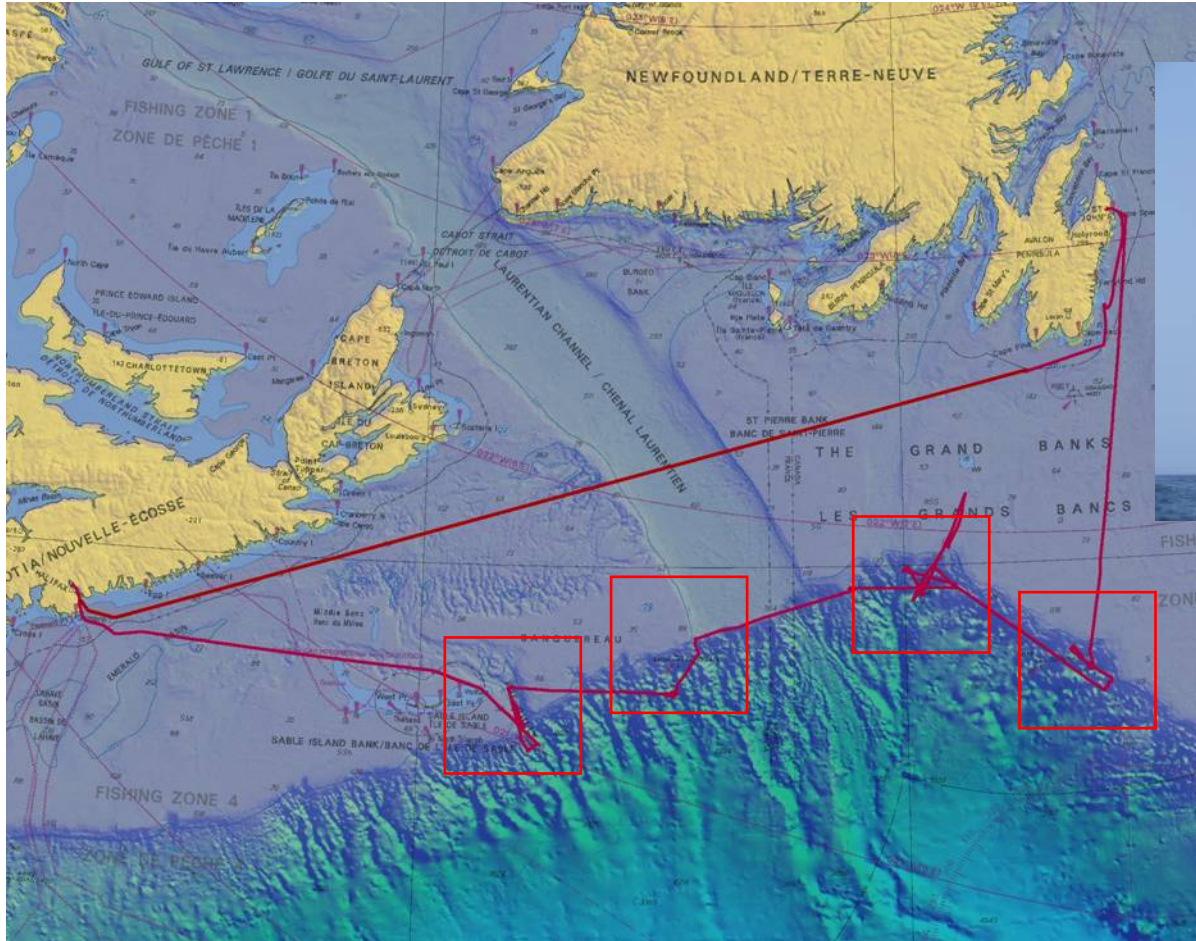
Conservation Genetics



F_{IS} (Inbreeding Coefficient) = 0.250

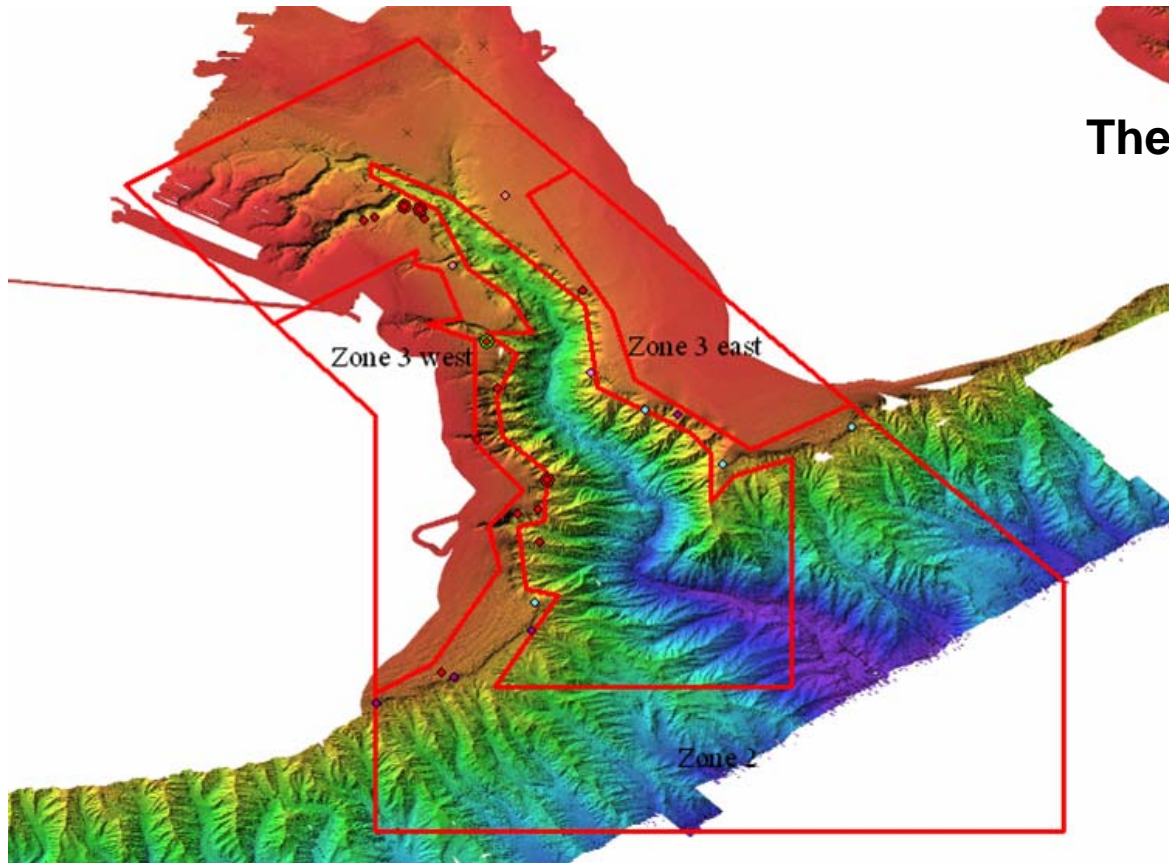
Primary Contact:
Dr. E. Kenchington (BIO)

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Primary Contacts: Drs. E. Kenchington (BIO); K. Gilkinson (NL)

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The Gully Marine Protected Area

- Depth-stratified random transects; Grid-transects
- Deep water fauna
- Video, Images, Collections
- Sediment Samples
- Abundance and Diversity

Primary Contact: Dr. E. Kenchington (BIO)

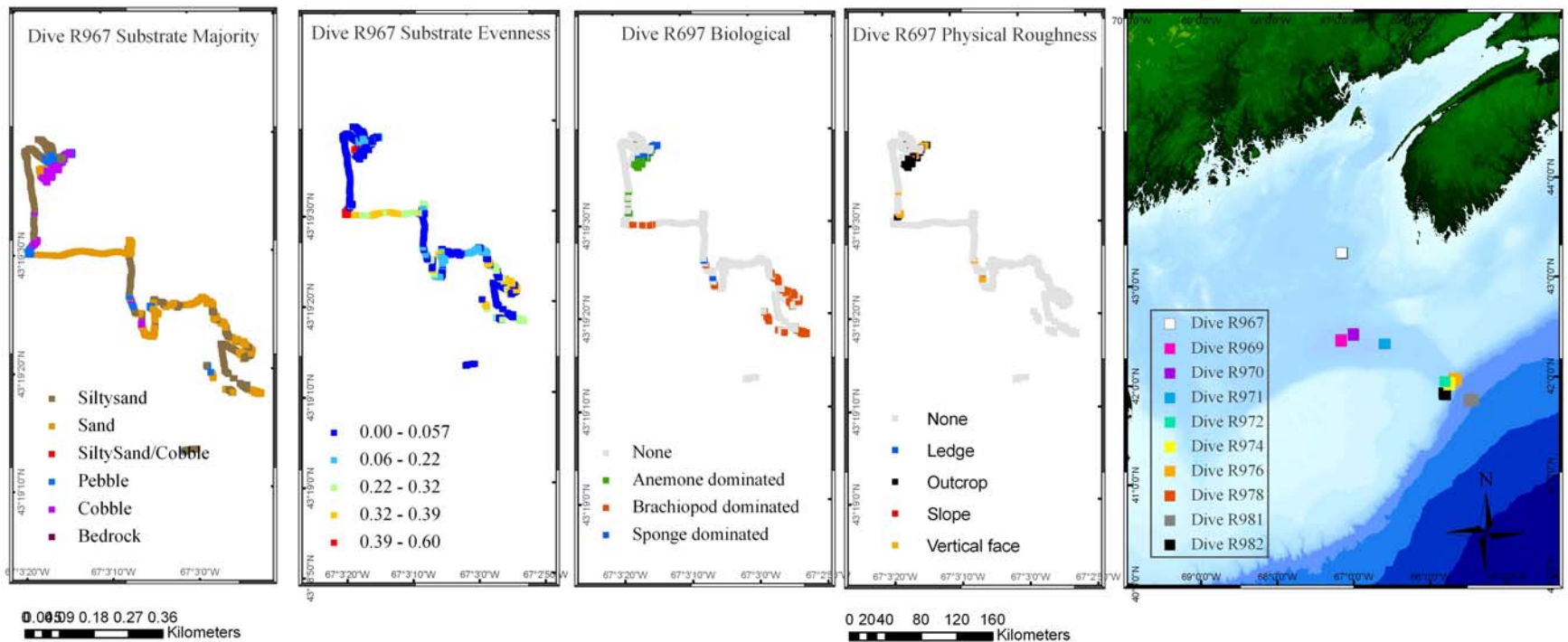
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Primary Contacts: Kevin MacIsaac and Ellen Kenchington (BIO)



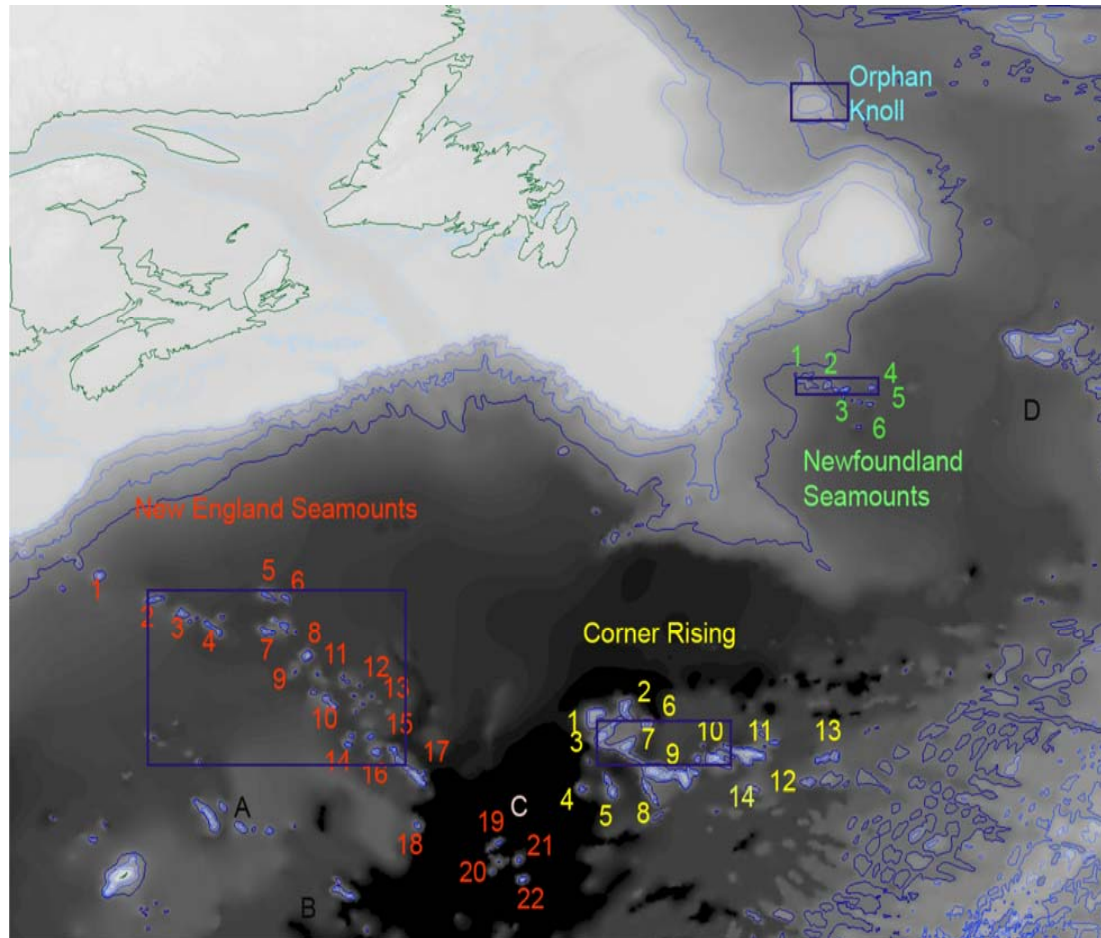
Mapping of Fine Scale Habitat Features



Primary Contact: Dr. P. Lawton (STABS)



Future Field Programs



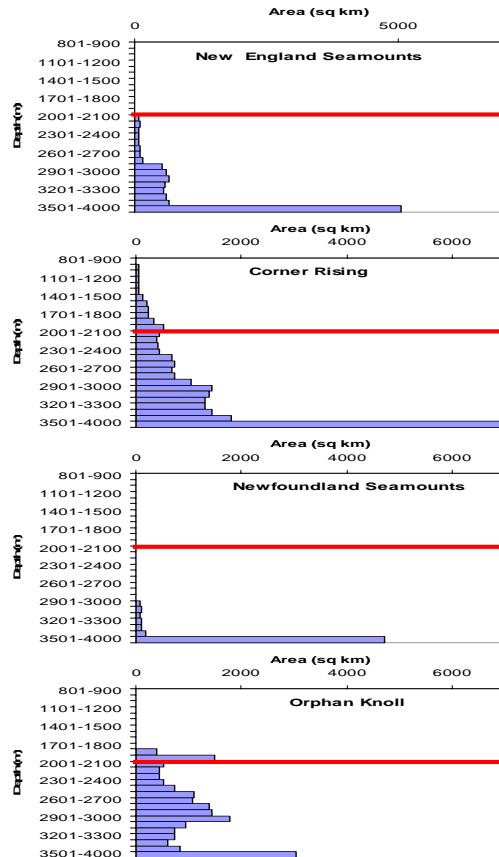
Primary Contact: Dr. E. Kenchington (BIO)

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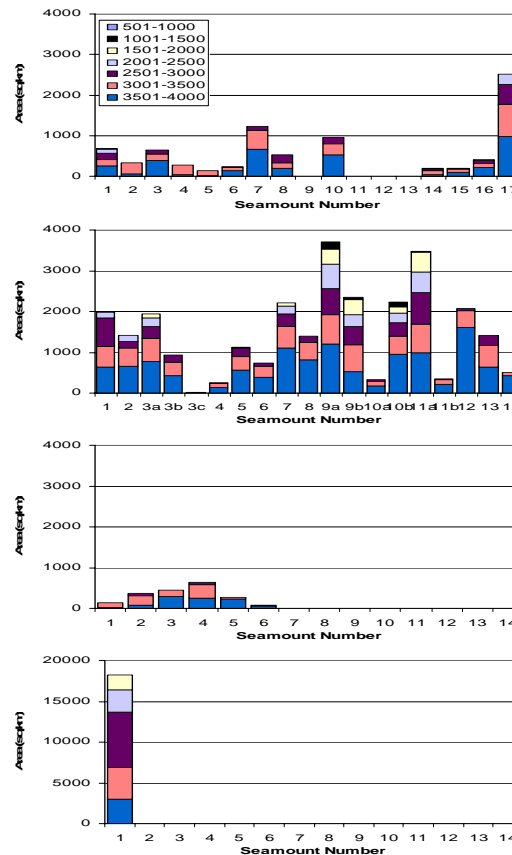


Future Field Programs

Depth (m)



Area (km²)



Primary Contact: Dr. E. Kenchington (BIO)



Provision of Scientific Advice to National and International Bodies

ICES Working Groups

- Ecosystem Effects of Fishing Activities (WGECO): E. Kenchington (Chair)
- ICES-NAFO Joint Working Group on Deep Water Ecology (WGDEC)
- Application of Genetics to Fisheries and Mariculture (WGAGFM)
- Benthic Ecology (WGBE)

NAFO Scientific Council

- Ecosystem Approach to Fisheries Management (WGEAFM)

DFO Oceans Branch Centre of Expertise for Corals and Sponges

- 2008 location as yet undetermined

DFO Science Branch Center of Expertise for Habitat

- DFO-NWAFC (Dr. R. Gregory Chair)





International Governance Strategy (IGS)

Overall Objective:

Strengthen international governance of fisheries and promote healthy ocean ecosystems

Scope of research:

Domestic and international - to support policy and decision-making

IGS has 3 Science elements:

- 1. Science in Support of Decision-making on Straddling and Highly Migratory Species**
- 2. Understanding Ocean Variability and Marine Ecosystems**
- 3. Science in Support of Protecting High Seas Marine Habitat and Communities**





Areas of compatibility between IGS and TRACES

- Understand the long-term changes in ecosystems - particularly in regards to climate change and variability
- Identify and characterize high seas vulnerable marine ecosystems (VMEs), including seamounts, frontier benthic habitat and sensitive species in the Atlantic and Pacific oceans
- Fill key gaps to better understand the impact of various fishing gear and practices on VMEs and the environment in general





Research on cold-water corals in Atlantic Canada Universities

- larval biology and connectivity (DAL)
- distribution and mapping (MUN)
- habitat associations (DAL, MUN)
- growth rates and longevity (MUN)
- geochemistry (MUN)
- taphonomy (MUN)
- reproduction (MUN)
- genetics (DAL)



Newfoundland & Labrador, Canada



Primary Contacts:

Drs. A. Metaxas (DAL), E. Edinger (MUN), A. Mercier (MUN)



Larval Recruitment (DAL, MUN)



Larval dispersal



Substrate limitations on recruitment and distributions

Primary Contacts:

Drs. A. Metaxas (DAL), E. Edinger (MUN)



Growth rates and longevity (MUN)

Primnoa resedaeformis

Paragorgia arborea

Keratoisis ornata

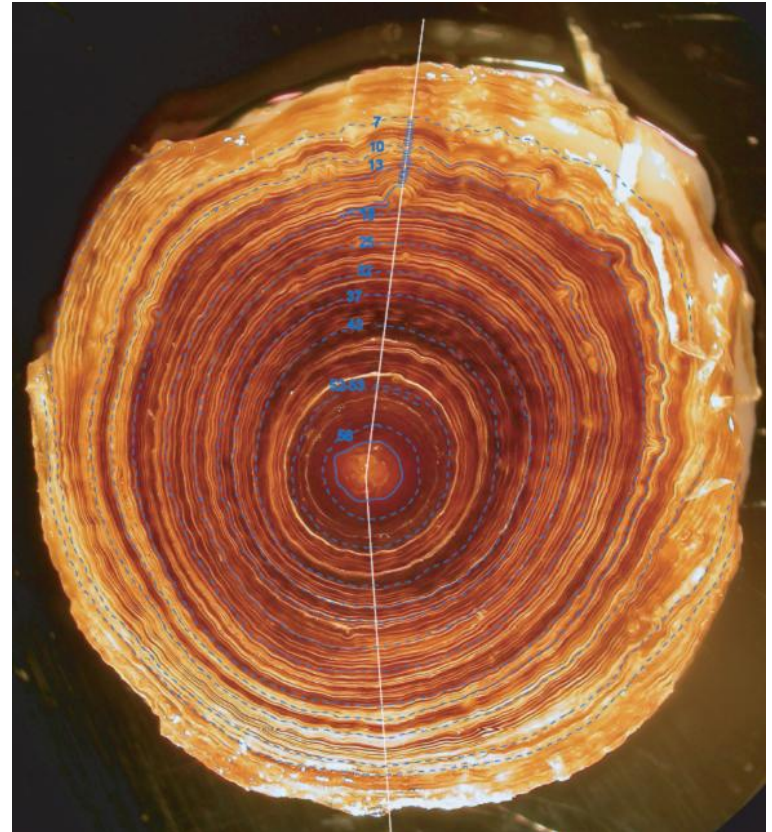
Acanella arbuscula

Paramuricea grandis

Stauropathes arctica

Primary Contacts:

Drs. O. Sherwood, E. Edinger (MUN)

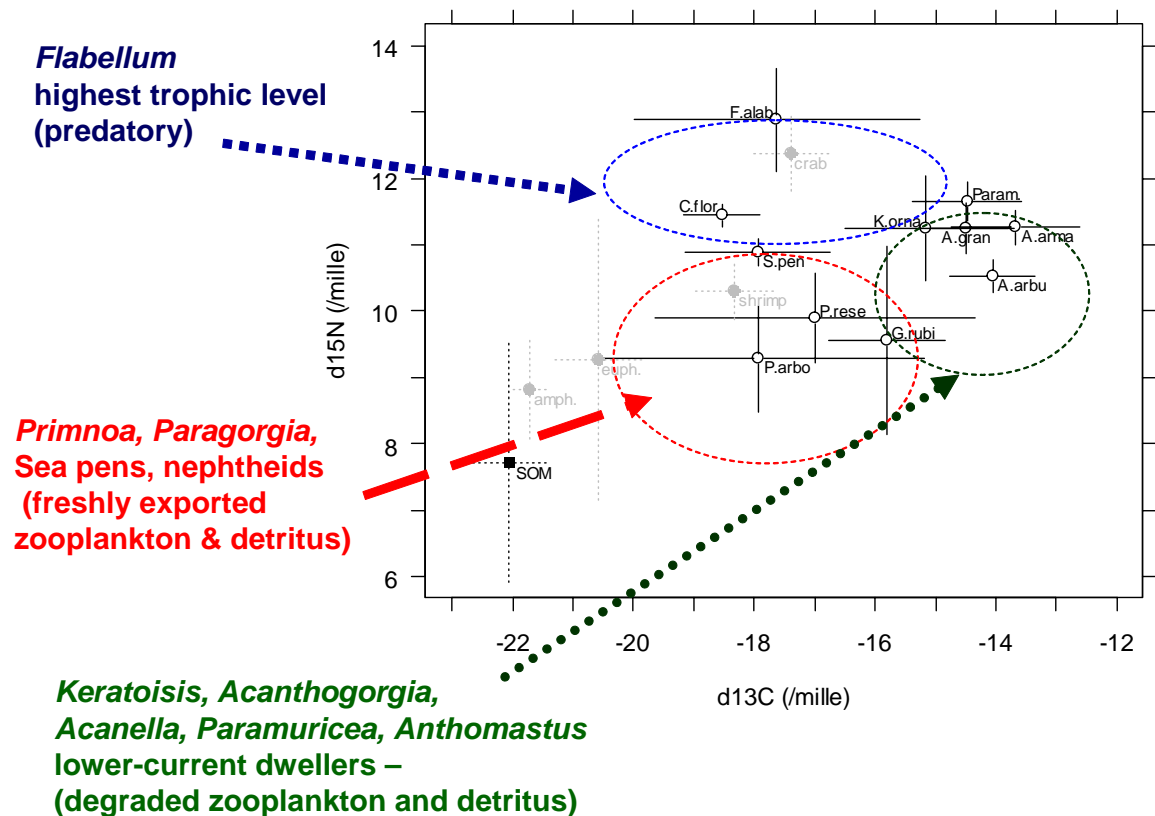


Keratoisis ornata



Stable isotope analyses (MUN)

Primary Contacts:
Drs. O. Sherwood,
E. Edinger (MUN)





Reproduction (MUN)

- Microscopic investigation of various coral species (*Keratoisis*, *Anthomastus*, *Flabellum*, *Gersemia*, *Drifa*, *Duva*)
- Long-term (12-18 mo) monitoring of spawning, larval behaviour/settlement, and juvenile growth in nephteid soft corals
- Depth related differences and seasonality in reproductive patterns

Primary Contact: Dr. A. Mercier (MUN)



Biochemistry (MUN)

- Coral radiocarbon is used to study mixing times and ventilation rates of intermediate water layers (Calcite, Aragonite)
- Gorgonin: Surface water geochemical records of productivity

Primary Contacts: Drs. O. Sherwood, E. Edinger (MUN)

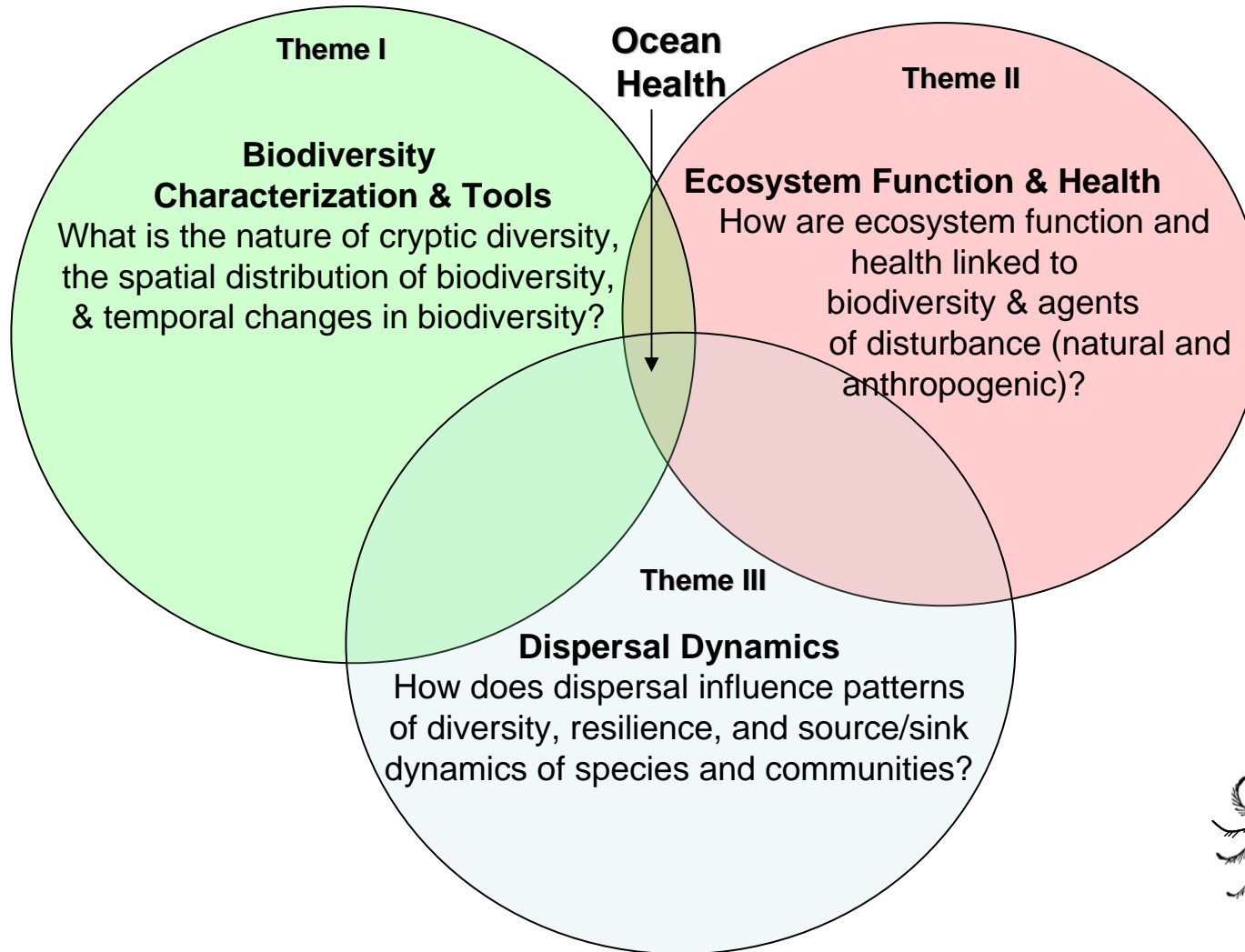


CHONe Canadian Healthy Oceans Network (NSERC)

- 147 researchers (42 university faculty, 25 government scientists, 20 PhD students, 17 MSc students, 37 undergraduate students, 3 post docs)
- Approx. \$5M funded in November 2007
- Opportunity to apply for funds for smaller projects
- Project Leader:
Dr. Paul Snelgrove, Memorial University, St. John's, NL



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CHONE Canadian Healthy Oceans Network (NSERC)

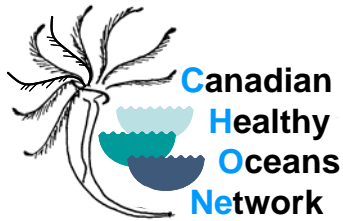
Biodiversity Theme: Dr. David Schneider (MUN), Dr. Peter Lawton (DFO)

Ecosystem Function Theme: Dr. Kim Juniper (UVIC), Dr. Phil Archambault (UQAR)

Population Connectivity Theme: Dr. Anna Metaxas (DAL), Dr. Pierre Pepin (DFO), Dr. Paul Snelgrove (MUN)

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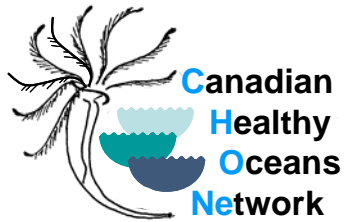


Diversity in Space

What is the strength and form of the relation of functional and species diversity to habitat diversity at multiple spatial scales?

In particular, what is the role of biogenic structure (corals, sponges, gorgonians)?

Is the relation of diversity to habitat strong enough to be used in ecosystem management (e.g. MPAs), and to improve estimates of marine biodiversity?



Coral within CHONe

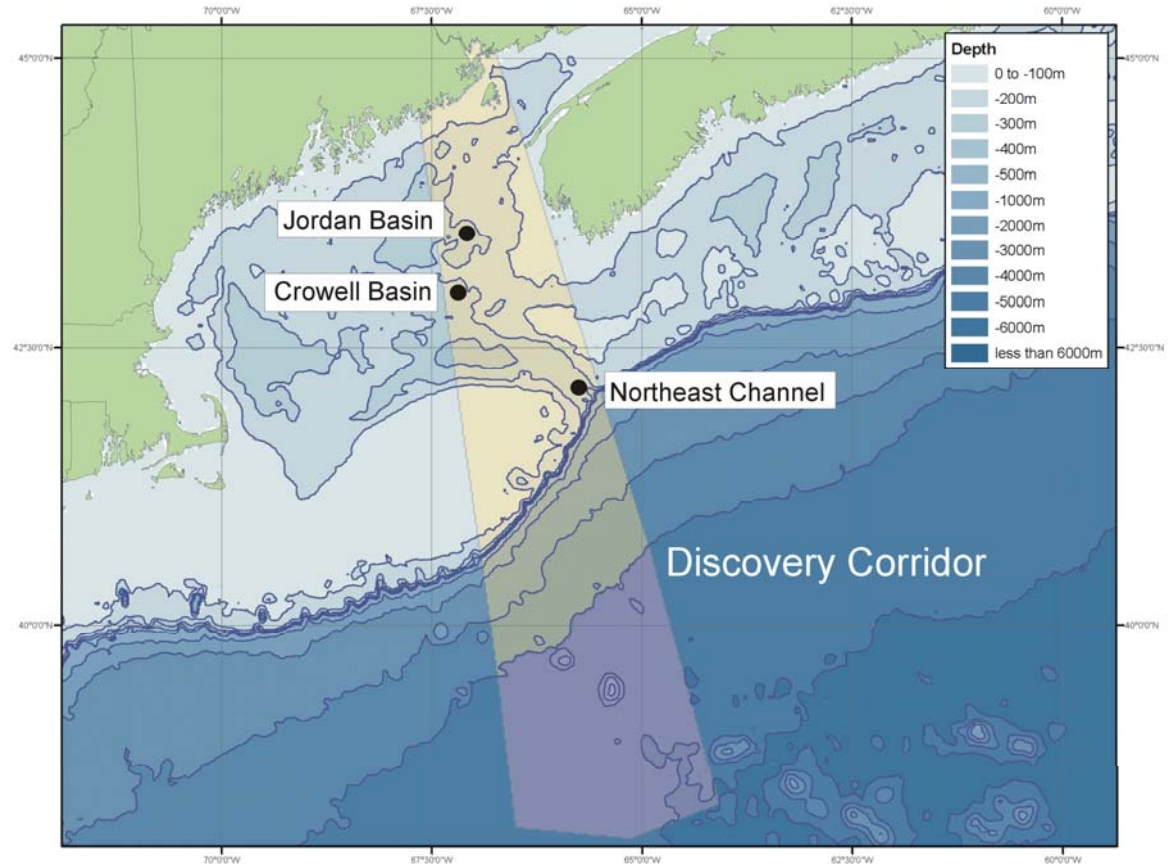
For **Atlantic corals**, *Edinger*, *Snelgrove*, *Metaxas*, *Leys*, *Gilkinson* will examine diversity along a latitudinal transect from boreal to Arctic biomes

- transect contains known coral biodiversity hotspots from Scotian shelf northward along the Grand Banks and Labrador shelf to Hudson Strait
- compare canyon & non-canyon habitats at shelf break and upper slope
- diversity differential from coral to depth equivalent non-coral habitats will be assessed using video transects and still photos



Centre for Marine Biodiversity Discovery Corridor

- Gulf of Maine Census of Marine Life
- NaGISA
- CHONe
- NE Channel CCA
- Habitat Research
- Coral





Centre for Marine Biodiversity Discovery Corridor

www.marinebiodiversity.ca

- Cruises in 2005 and 2006
- 2006 cruise with ROPOS
- “Rock Garden” in Jordan Basin



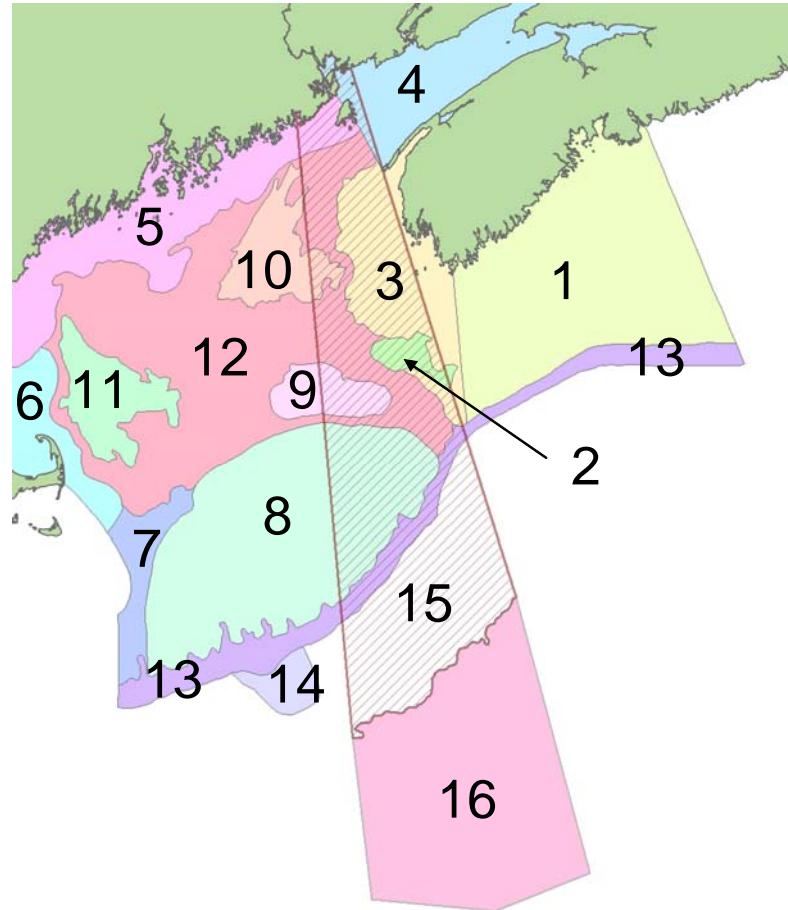
Project Contacts: Drs. P. Lawton,
A. Metaxas,
E. Kenchington, P. Snelgrove





Physiographic regions

- 9 of 14 previously defined regions for Census of Marine Life Program are intercepted
- Coverage varies 10 - 95% of specific region areas
- Two prospective regions (continental rise and abyssal)



Project Contacts: Drs. P. Lawton, A. Metaxas,
E. Kenchington, P. Snelgrove



NSERC Natural Sciences and Engineering Research Council of Canada

Special Research Opportunity (SRO) Program

Types of projects that may be considered by the SRO program:

- A project that can be undertaken only in conjunction with a specific and unusual world event
- A workshop to define and plan Canadian participation in a major international research initiative
- An interdisciplinary effort to address an emerging problem of importance to Canada





Canada's International Agreements The Joint Science and Technology Cooperation Committee

The Canada-EU Joint Science and Technology Cooperation Committee (JSTCC) oversees the implementation of the Agreement, promoting and reviewing joint activities. The Committee meets once a year, alternating between Ottawa and Brussels. These meetings enable research managers representing both signatories to explore ways to enhance cooperation at the science policy and research levels. An annual report assesses the degree and effectiveness of cooperation, and reviews the functioning of the Agreement.



Canada's International S&T Network

Science and Technology Counsellors

There are 6 dedicated S&TCs in key OECD countries. One of their key functions is:

Promotion of S&T collaboration

Objective: Foster S&T partnerships of Canadian governmental institutions, the academic community and the business sector, with their counterparts in the host country

London, United Kingdom

The Canadian High Commission
Macdonald House, 1 Grosvenor Square
London, W1K 4AB, United Kingdom

Web Site: <http://www.dfait-maeci.gc.ca/london/>



The International Seabed Authority

Endowment Fund to Support Collaborative Marine Scientific Research on the International Seabed Area (Cobalt rich areas on NE Seamount Chain?)

Memorial University-Bergen University (Norway) Exchange Program

A two-way exchange program for both students and Professors





Dalhousie University



University-Wide Exchange Partners

Tuition/Program Fees: Paid to Dalhousie University (15 Credit Hours)

Duration: Typically for 1 term; (in some cases up to a year will be permitted, depending on availability)

Universities: Glasgow, Birmingham, Hull, Keele, Bath, Iceland, Aarhus, Bergen, Göteborg, Umeå, Malaga, Pablo de Olavide, Nova Scotia/New England Exchange (US)

University -Wide Study Abroad Partners

Tuition/Program Fees: Paid to host institution (with the exception of the International Study Centre, Herstmonceux Castle, where program fees are paid through Dalhousie)

Duration: Up to one year

Country	University
England	Oxford University Study Abroad Program
England	International Study Centre - Herstmonceux Castle
Ireland	University of Dublin-Trinity College
Scotland	University of Edinburgh
Scotland	University of St. Andrews