Canadian Atlantic Marine Research Priorities

SEAS-ERA Workshop

July 13, 2012

Dublin, Ireland

Agenda

- Who we are and what we do – with particular reference to competitive research funding?

- What are our current and/or anticipated decadal marine research priorities in the North Atlantic Region?

- What rules pertain with regard to co-funding with non-national RFOs and supporting non-national researchers?

- What topics/issues do we think would be appropriate for trans-Atlantic co-operation?

- What hurdles need to be overcome to promote trans-Atlantic co-operation?

Science in Support of Regulation

- Departmental mandate for prosperous marine sectors and fisheries, healthy oceans, safe and secure waterways

- Prosperity and environmental quality both as overarching objectives for policies and programs

- Science is an "enabler" to both strategic policy choices and operational decision-making

- These roles require a focus on applied science in support of regulatory roles without losing "discovery science" to keep seeing what is coming over the horizon

Priorities Clearly Established

- Fish population and community productivity
- Habitat and population linkages
- Climate change / variability
- Ecosystem assessment and management strategies
- Aquatic invasive species
- Aquatic animal health
- Sustainability of aquaculture
- Ecosystem effects of energy production
- Operational oceanography
- Emerging and enabling technologies for regulatory and policy responsibilities

Advisory support in "Traditional" Tasks

- Status and trends of harvested fish stocks
  - Moving to multi-year management & assessment
  - Greater use of Reference Points and Control Rules
- Identification and protection of special places in the ocean and coastal areas
  - Science-based criteria for "Ecological and Biologically Significant areas
  - Risk and threat assessments
  - Uptake of these areas in MPA networks, habitat protection, marine spatial planning

Challenge: Climate Change Adaptation

- Strong engagement of physical & biological oceanographers since 1990s to examine how will ocean conditions change

- Growing engagement of marine biologists in 2000s to look at how abundances, productivity, and distributions of key species may change in response to changes in ocean conditions

- New Challenge – How could our uses of the oceans adapt to the changes in ocean physics and biology?

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Challenge: from Population-based to Place-based

- Historically management (fisheries, species at risk protection, etc) focused on population dynamics
  - "Place" mattered little in advice, but –

- Move to Ecosystem Approach to Fisheries and Marine Spatial Planning of Oceans and Coasts in late 2000s
  - Concepts are inherently **place-based**
  - Means advisory products can be multi-purpose, but … different kinds of models of different ecological processes and linkages need to be developed and tested

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Challenge: Biotechnology and the "-omics"

- Growth area driven by regulatory needs in response to new products and technologies

- Expanding to study of proteins (*proteomics*) to look at how marine species respond/adapt <u>biologically</u> to changing environment

- Enables cost-effective applications in aquatic resources management, invasive species and aquatic animal health

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Who are the Emerging Partners?

- New relationships between Science, Policy, and Management
  - Fewer sectoral "silos" within the Department
  - Program architecture more unifying, and working teams more diversified
- New relationships between government, academia, and private sector
  - More tri-partite networks for science
  - More sharing of infrastructure and platforms
- Need for more greater international partnering

Collaboration is Key to our Future

- Collaboration in marine sciences has been a key building block for Canada

- Pressure to collaborate increases as we all face resource constraints

- Challenges domestically to ensure alignment with mandate and with governing financial regulations

- Internationally – strengthened dialogue can facilitate better governance and ultimately more effective use of resources