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## Science as a Foundation for Decision Making

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## Outline

- Why Government does Science
- Science/Policy – interface, challenges, mechanisms and integration
- DFO examples
- Addressing Cross-Cutting Issues
- The Enterprise Approach



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## Why Government does Science

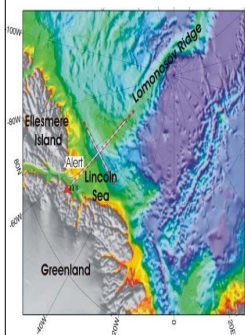
- Support for decision making, policy development, regulations
- Development and management of standards
- Support for public health, safety, environmental, defence needs
- Enabling economic and social development



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## Science-Policy Interface

In recent years considerable attention paid to science - policy interface:



- Is policy well informed by relevant science?
- Is science being undertaken to answer key policy questions?
- Is policy alert to emerging science-based issues?
- Is policy asking the right questions of science?

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## Challenges...Science-Policy Interface



- Different time scales
- Different jargon/perspectives/culture
- Complexity of inter-related issues
- Tolerance for uncertainty
- Quantitative versus qualitative
- Engagement of stakeholders
- Building on research/keeping it relevant

*Challenge: to plan for science needed, determine how to get it, and constantly adapt plan in response to changing needs*



## Mechanisms to Ensure the Right Science at the Right Time

- Process tools
- Input mechanisms
- Environmental scanning
- Bridge builders
- Engagement





## Integration

- Both Science and Policy provide advice to government
- Government science helps anticipate, understand, and respond to complex public policy challenges
- Government generates knowledge and acts as catalyst, bringing collective capacity of innovation system to bear on priorities and challenges.



***Science and policy must work together in an integrated manner***

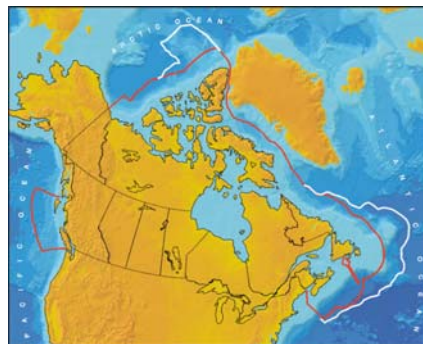
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## United Nations Convention on the Law of the Sea

UNCLOS defines rights and responsibilities of nations in use of the seas

- Provision:
  - defining ocean boundaries
  - safeguarding marine environment
  - protecting freedom of scientific research on high seas
- Partners:
  - DFAIT (lead), NRCan, Denmark



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# Invasive Species

- **Issues: Construction and operation of outlet from Devil's Lake with possible transfer of invasive parasites and pathogens**
  - Outlet constructed by North Dakota without filtration (US Government commitment)
  - DFO responsible for Fisheries Act
  - Environment Canada oversees pathogen and parasite survey
  - Test of IJC and diplomatic relations between US and Canada



# Seismic Noise in Marine Environment

- **Issue: concerns that seismic pulses interfere with sea life**

- **Science:**
  - Sound propagation varies
  - Effects on creatures vs. life stages
- **Policy:**
  - Statement of Canadian Practice on Mitigation of Seismic Noise in Marine Environment



# Addressing Cross-Cutting Issues

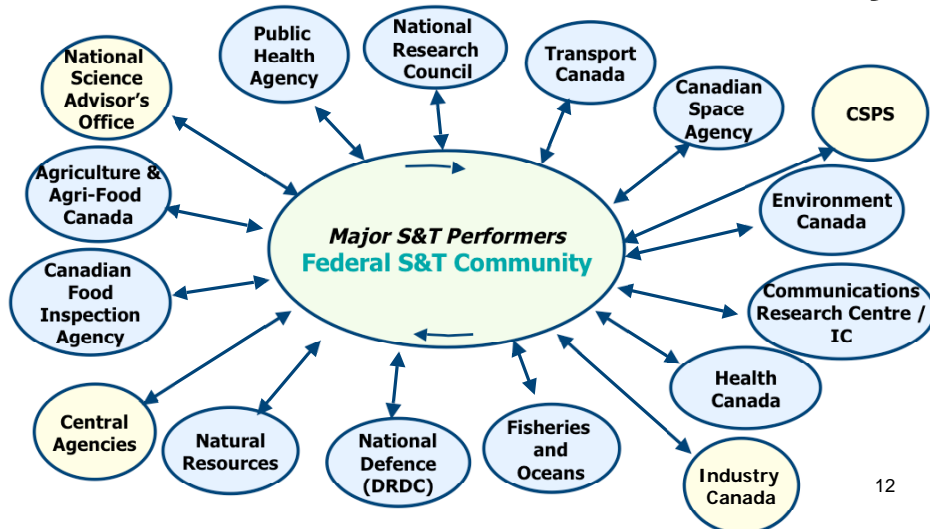
- Complex issues require collaboration:
  - Federal S&T community:
    - ADM S&T Committee
    - ADM S&T Integration Board
  - Variety of mechanisms to perform and access science needed, e.g.:
    - Partnering
    - Centres of Expertise
    - Networks of Centres of Excellence
    - Co-location with universities; etc.



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## Who we are

# The Federal S&T Community



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## Federal S&T Strategy

**Federal S&T Strategy:** *Mobilizing Science and Technology to Canada's Advantage*

- Aims to maximize Canada's **Entrepreneurial, Knowledge,** and **Talent** advantages
- Focuses S&T investment in four priority areas
  - Environment
  - Natural resources
  - Health
  - Information technology

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## Federal S&T Enterprise Approach

- Responds to S&T Strategy commitments
- Enterprise Framework provides picture of federal S&T around five priorities areas:
  - Environment
  - Health
  - Energy
  - Economy
  - Security and Defence





## Benefits of S&T Enterprise Approach

- **Will enable federally-led S&T to:**

- Articulate roles and responsibilities
- Focus on policy outcomes and priority-setting
- Communicate about federal S&T
- Highlight synergies and areas for collaboration, and
- *Strengthen linkages between S&T and Policy*



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## Conclusions

- **Most emerging issues have S&T dimension**
- **Need understanding of relationship between science for policy and evolving policy needs**
- **Policy and science inform each other as a system of systems, constantly in motion**



