SLIDES: Arctic Ecosystem Services Measurement and Modeling Project

Eric Biltonen

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Arctic Ecosystem Services Measurement and Modeling Project

Eric Biltonen, PhD
Environment Economist
Houston Advanced Research Center

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Project Objectives

- To assess and promote ecosystem management tools and metrics that may be used in Arctic marine ecosystems

- To establish a network of researchers for collaboration.
Why?

Business-relevant ecosystem services assessment tools to:

- Understand our dependencies and impacts with respect to ecosystem services in our operating areas

- Model and evaluate effects of alternative scenarios on ecosystem services.

- Consider our potential impacts in context of other ecosystem stressors (e.g., climate change, other commercial activities)
Research Approach

**Measure**
- Ecosystem attributes (data)
- Remote Sensing

**Analyze/Assess**
- Ecosystem functions (relationships)
- Quantification

**Evaluate/Predict/Compare**
- Ecosystem services (benefits)
- Computation/Modeling

**Improved management decisions / healthy ecosystems**

**Large scale**
- Impact relevant
- Cost-effective
- Safe to collect
- Environmentally-significant
- Useful for monitoring

**Science-based**
- Collaborative
- Capitalizing on new techniques

**Collaborative**
- Operationally-relevant
- Applicable to adaptive management

**Designed for**
- Clearer value tradeoffs
- Robust for risk management
- Opportunity-focused
- Integrated with socio-economic elements
Application to the Arctic

- The Arctic represents the intersection of
  - Sensitive environments
  - Strongly coupled socio-ecological systems
  - Rapid change (social, economic, environmental)

- Presents challenges for observing and characterizing the environment
  - High cost and risk of field work
  - Large natural variability and complex feedbacks
  - Vast areas with limited avenues of access

- Range of stakeholders, including communities, have a history of taking active role in environmental management and development issues
Research Approach: Valuation

- Valuation and Scenario Assessment
  - Objective: proof-of-concept for how non-monetary valuation data can be collected, assimilated, and represented in ecosystem service scenario assessments.

- Requires participation from stakeholders
  - Use participatory modeling approach to develop relative values and priorities (non-monetary valuation) among stakeholder groups related to shoreline stability and primary productivity
  - Relative values elucidated through joint stakeholder scenario development and trade-off analysis

- Outcomes:
  - Assess effectiveness of methodologies
  - Valuation (input) data for building on methods
Next steps

- Consulting with stakeholders
  - Native population
  - Scientists
  - Local government
  - Federal government
  - NGOs
- Incorporate stakeholder input into research approach and future activities
- Case studies to test approach, tools and models
Thank you!

Eric Biltonen, PhD
Environmental Economist
E-mail: ebiltonen@harc.edu