

# Ecosystem Services, Climate Change, and the Arctic Environment



ENVIRON International Corporation  
and the Fram Centre



# Welcome & Workshop Overview

- Since 1982, **ENVIRON** has worked with clients around the world to help resolve their most demanding environmental and human health issues.
- **FRAM CENTRE**- High North Research Centre for Climate and the Environment

# Welcome, *on Behalf of Your Speakers*

- Joseph Nicolette, Principal, ENVIRON International Corporation
- Lionel Camus (Framcentre – Akvaplan-niva: Tromso, Norway)
- Nina Mari Jørgensen (Norwegian Polar Institute)
- Kim Holmén, (Framcentre Norwegian Polar Institute)
- Claire Armstrong, University of Tromso
- Mark Rockel, ENVIRON, PhD natural resource economist
- Sue Ban. ENVIRON International Corporation, Alaska
- Jack Word, Principal, ENVIRON International Corporation
- Per Fauchald, (Framcentre, Norwegian Institute of Nature Research (NINA))
- Rolf Anker Ims, (University of Tromsø)

# Agenda

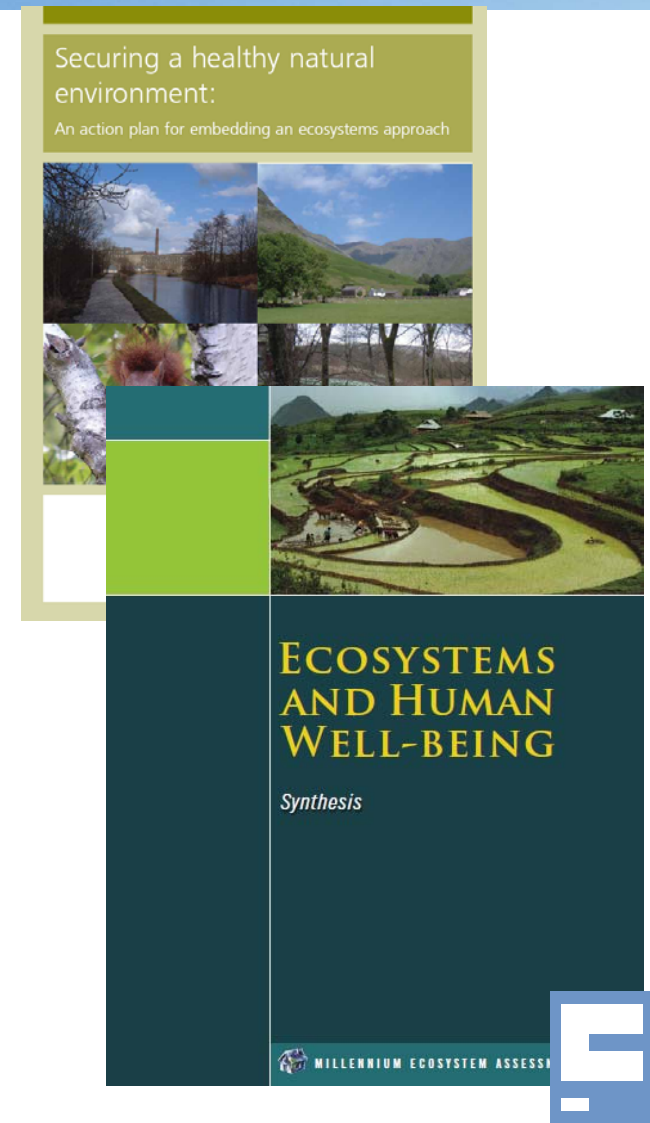
- 8:00-8:15 Introduction and Overview of Ecosystem Services, Joseph Nicolette (ENVIRON)
- 8:15-8:30 Overview of the Fram Centre and Arctic Research, Nina Jørgensen and Lionel Camus (Fram Centre)
- 8:30-8:50 Arctic Marine Ecosystem Services, Professor Claire Armstrong, (Fram Centre – The Arctic University of Norway: Tromsø, Norway)
- 8:50-9:10 Marine Mammal and Deepwater Considerations, Sue Ban and Jack Word (ENVIRON)
- 9:10-9:30 Physical Changes in the Arctic, International Director Kim Holmén, The Norwegian Polar Institute, The Fram Centre
- 9:30-10:00 **Coffee Break**
- 10:00-10:20 Comparing Valuation of Arctic Resources for Policy Making, Mark Rockel (ENVIRON)
- 10:20-11:30 Panel Discussion, Q&A
- 11:30-11:45 Conclusions by Joseph Nicolette, Nina Jørgensen, and Lionel Camus

# Preface

- Nowhere are the impacts of climate change more evident and staggering than in the Arctic.
- The region—which encompasses 17 percent of the globe and is almost one and a half times the size of the United States—is warming two times faster than any other region on Earth.
- Furthermore, Arctic sea ice has shrunk by 75 percent since the 1980s, according to a recent analysis, with ice-free summers in the Arctic Ocean “very likely” by midcentury
- *What does this mean for Ecosystem Services?*

# Why Ecosystem Services?

- Ecosystems provide resources and functions that we value
  - these resources and functions are valued because they provide benefits to people in a variety of forms (e.g., clean water, habitat for wildlife, aesthetics, timber, recreation opportunities)
- Because we value these benefits, we recognize that ecosystems provide a service to people
  - hence the term “*Ecosystem Services*”



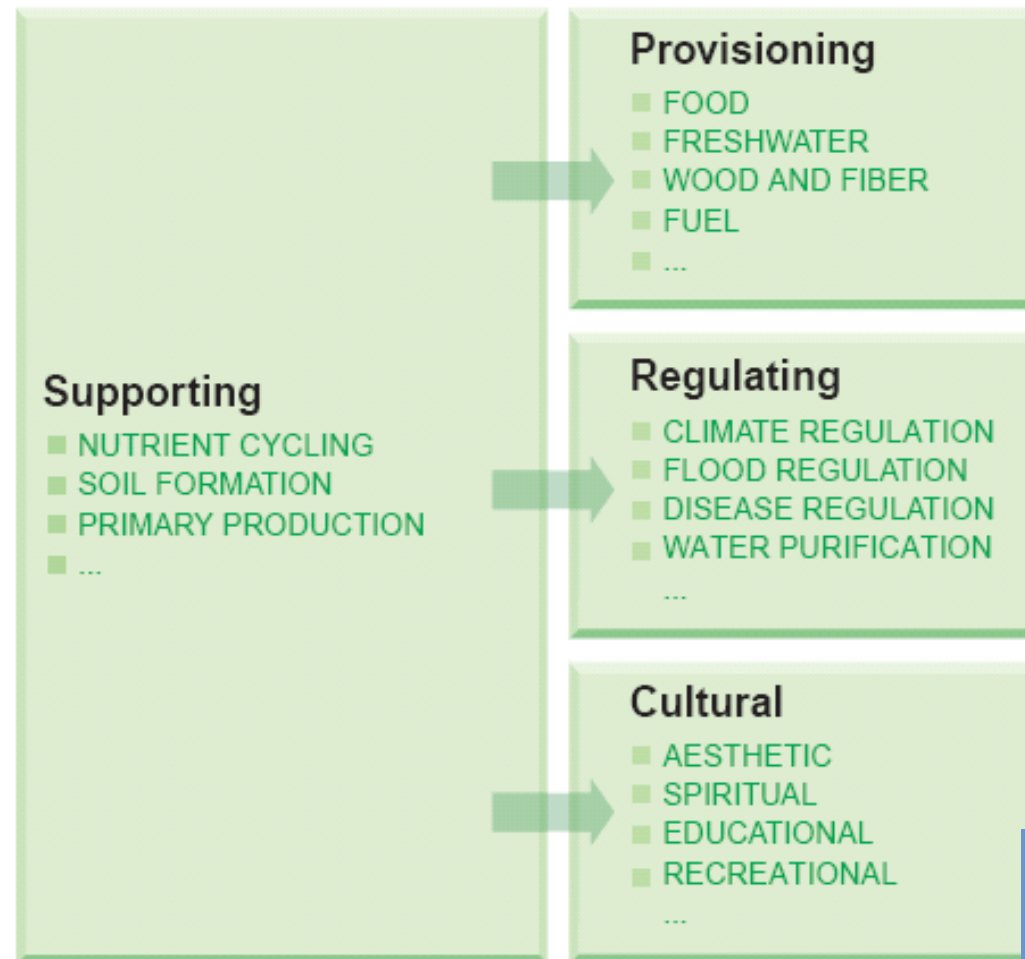
# Millennium Ecosystem Assessment

## “The benefits people obtain from ecosystems”

*Ecosystems and  
Human Well Being  
(2005)*

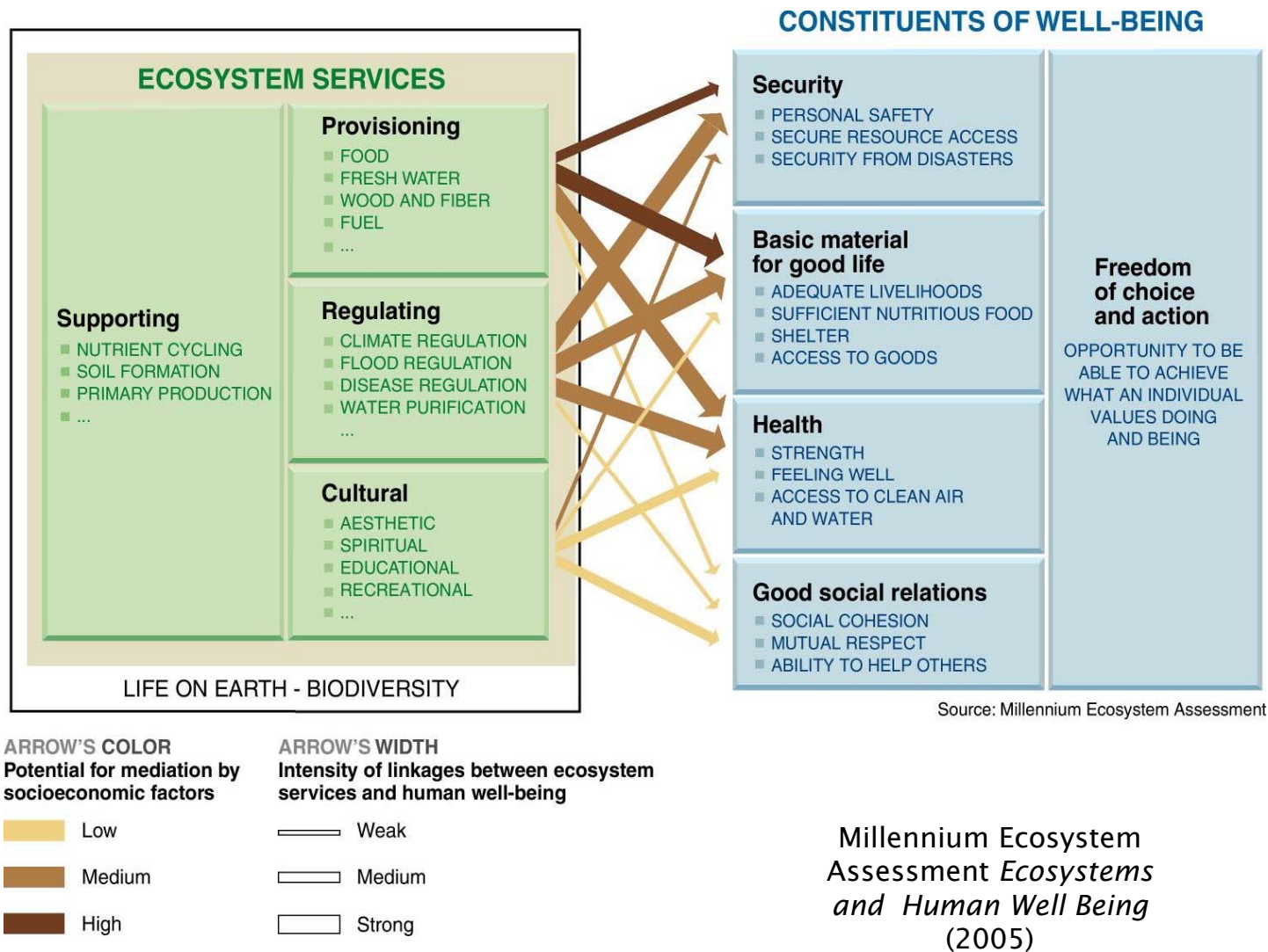
**Largest Assessment  
of the Health of  
Earth's Ecosystems**

### ECOSYSTEM SERVICES





# Consequences of Ecosystem Change for Human Well-being





# Perspective

*“Not everything that can be counted counts, and not everything that counts can be counted.”*

***Albert Einstein***

*Courts have warned against making “a fetish [of market value] since that may not be the best measure of value in some cases”*

***Ohio v. U.S. Department of the Interior 1989***



# Questions?

Text to Joe at 678-451-8288



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