

The CBD's potential to address the effects of climate change in the Arctic – Strengthening mitigation efforts and adaptive capacity

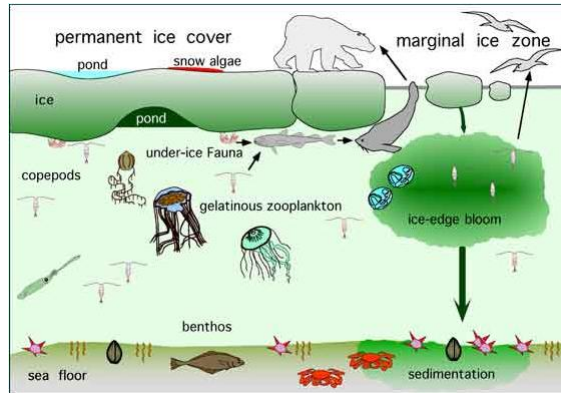
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Outline

- The effects of climate change on biological diversity in the Arctic
- Applicable treaty regimes
- The need for regime coherence
- Interpreting mitigation and adaptation in light of the CBD
- Elements of further research

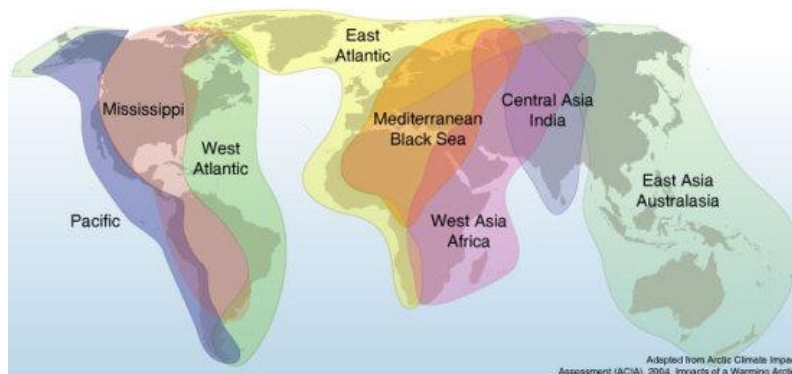
Arctic biodiversity



<http://www.sfos.uaf.edu/research/arcdi/index.html>

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Bird migration routes



Adapted from Arctic Climate Impact Assessment (ACIA), 2004. Impacts of a Warming Arctic.

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The Effects of Climate Change on Biological Diversity in the Arctic

- biodiversity, in particular marine biodiversity
 - genetic diversity
 - species variation
 - habitat or ecosystem diversity
- effects of climate change
 - shrinking of sea ice causes a loss of habitat (phytoplankton and food chain; polar bear, etc.)
 - freshwater issue
 - northward migration of invasive species (pressure on existing species)
 - thermohaline circulation
 - increasing infectious diseases (plants, animals, humans)

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Infectious diseases as a consequence of climate change (1)

Table. Main categories of drivers associated with emergence and reemergence of human pathogens

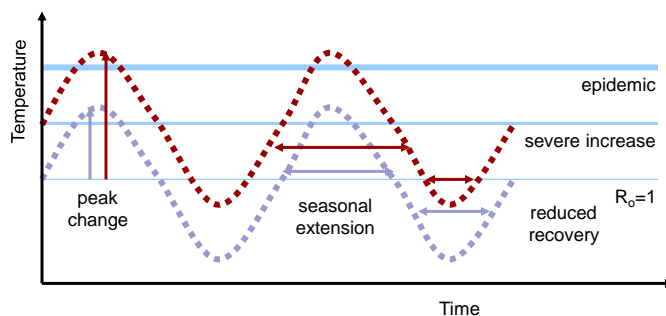
Rank*	Driver
1	Changes in land use or agricultural practices
2	Changes in human demographics and society
3	Poor population health (e.g., HIV, malnutrition)
4	Hospitals and medical procedures
5	Pathogen evolution (e.g., antimicrobial drug resistance, increased virulence)
6	Contamination of food sources or water supplies
7	International travel
8	Failure of public health programs
9	International trade
10	Climate change

*Ranked by the number of pathogen species associated with them (most to least).

Woolhouse 2005, Emerg Inf Dis, 11:1842-7

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Infectious diseases as a consequence of climate change (2)



- R reproduction factor
- $R_0 > 1$ pathogen increase
- $R_0 < 1$ pathogen decline
- temperature prior to climate change
- temperature after climate change

Harvell 2002, Science, 296:2158-62

Applicable Treaty Regimes

- Overview
 - UNFCCC
 - CBD
 - LOS
 - other MEAs
 - health (and possibly even trade) law
- Inter-relationship between various treaties and between various treaty stipulations
 - VCLTs
 - lex specialis-approach?

... in particular, the CBD

- conservation of biological diversity
- sustainable use of its components
- access and benefit sharing

- focus on conservation and/or (?) its economic incentives

- in-situ conservation (Article 8 CBD)

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The need for regime coherence

- VCLT and traditional principles
- Article 31 VCLT: interpretative approach enjoys precedence
- wording, context, object and purpose
- fragmentation vs. coherence

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Mitigation

- Article 3, para. 3, UNFCCC: „The Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects.“
- Article 4, para. 1, UNFCCC: „Formulate, implement, publish and regularly update national and, where appropriate, regional programmes containing measures to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol, and measures to facilitate adequate adaptation to climate change;“
- Article 4, para. 1, UNFCCC: „Take climate change considerations into account, to the extent feasible, in their relevant social, economic and environmental policies and actions, and employ appropriate methods, for example impact assessments, formulated and determined nationally, with a view to minimizing adverse effects on the economy, on public health and on the quality of the environment, of projects or measures undertaken by them to mitigate or adapt to climate change;“

Adaptation

- Article 2 UNFCCC: „Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.“
- Article 3 UNFCCC: „To achieve this, such policies and measures should take into account different socio-economic contexts, be comprehensive, cover all relevant sources, sinks and reservoirs of greenhouse gases and adaptation, and comprise all economic sectors.“
- various elements of Article 4 UNFCCC

Approaches of the study of the CBD Secretariat (2003)

- focus on Article 4, para. 1(b), UNFCCC
- Kyoto Protocol (5 % reduction)
 - Marrakesh Accords
 - LULUCF
 - CDM
- Article 3, para. 3, UNFCCC
- positive or negative impact of mitigation activities on biodiversity
- conservation of biodiversity may be a key objective of many adaptation activities

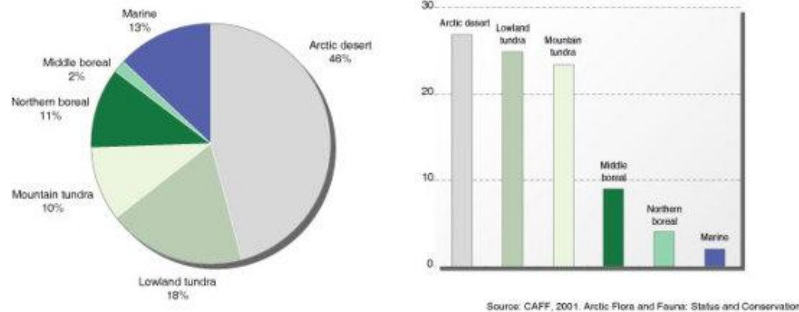
- lack of clear causal interrelationship (natural science based)
- surprisingly no mutual integration of normative elements

- limited „learning capacity“ (adaptation) of regimes

Interpreting mitigation and adaptation in light of the CBD

- „harmonious“ interpretation
- conservatory vs. dynamic approach
- study of the CBD Secretariat on interlinkages
- potential conflicts (sinks) do not apply in the present context
- Is there a need for an identification of the economic value of the Arctic?

Arctic protected areas



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Elements of further research

- Factual level
- Methodology
- Identification of appropriate regimes to be addressed
- Practice developed within the various regimes
- Prospective benefits?

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