Greenland IPY Project ***GL-IPY 001***
ECOSYSTEM WEST GREENLAND (ECOGREEN)

Aim of the Proposed Work
To establish the scientific basis (natural and social sciences) for the long-term ecosystem-based management of natural marine resources exemplified by the off shore marine ecosystem off West Greenland.
Background
Increased human impact on marine ecosystems combined with effects of global climate change heightens the need for ecosystem-based management. However, knowledge of the interaction between climate change, natural resources, human behaviour, and governance structure is fragmentary, and consequently the knowledge base for ecosystem-based management is inadequate. There is a need for co-ordination of research efforts to overcome the fragmentation of these diverse fields of enquiry. An integrated research approach is needed to develop models for ecosystem-based management. The West Greenland Ecosystem can serve as a model area for integrated studies of ecosystem, resources, and associated social factors, where general theory for ecosystem dynamics and ecosystem-based management can be developed and tested. The justifications for activities in West Greenland include;

- The Arctic marine environment is vulnerable to impacts of human activities and is of high climatic sensitivity. Greenhouse warming in the Arctic is predicted to be 2-4 times that at lower latitudes over the next century.
- The West Greenland marine ecosystem is very productive, and sustains fisheries contributing 95% of Greenland's total export value.
- Seals and whales feed off West Greenland in summer, and seabirds by the million, from the entire North Atlantic, find a critical winter habitat resource in the ice-free area and hence is a sensitive habitat for these higher trophic levels requiring the development of mitigation strategies.

Human use of the West Greenland marine ecosystem presents a complex mosaic of subsistence and recreational hunting, small- and large-scale commercial fishing, and subsistence and recreational fishing. Management systems must reckon with the wishes and influences of diverse domestic users, science-based advice from national and international bodies, and the influence of national and international public opinion.

Expected Results from the Proposed Work
The proposed project is a unique multidisciplinary integration of natural and social sciences. Improved understanding of the marine climate system and possible implications of climate change for the structure and functioning of the ecosystem will be uniquely combined with studies on social systems and governance institutions.

Development of ecosystem based management tools, taking a multidisciplinary approach by integrating natural and social sciences. Improved understanding of the marine climate system and possible implications of climate change for the structure and functioning of the eco- and social systems and governance institutions. The improved knowledge base can contribute to a sustainable management of natural resources. Training of young scientists through participation in project activities and research training.

Research Activities
The research activities comprise a wide range of methods including, ship, aeroplane and satellite surveys, tagging experiments, *in situ* and laboratory experiments, reanalysis of historical data, interviews, observations, questionnaires, economic and social data collection, deck studies and advanced modelling.
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