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Marine Mammals are in Danger due to Global Warming

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Abstract

Marine mammals have come to symbolise the dangers of global warming as a result of the major changes in Northern sea ice regimes caused by climate change. There is a conflict between adopting flexible, adaptable regulations that are likely to succeed in Northern locations and policies that have worldwide backing, such as a ban on seal or whaling hunts. This analysis concentrates on the "human dimensions" of Northern marine mammal management as opposed to the "biological dimensions" that are the subject of most wildlife policy that serve to inform policy strategy. The success of conservation is examined in connection to how people interact with one another and how governments operate. Standard evaluations of animal population danger that concentrate on direct sources of take are insufficient to address multi-cause, complex issues like habitat loss brought on by climate change or rising industrialization of the Arctic Ocean. Early conservation policy solutions focusing on the moratorium of take have eliminated or reduced such behaviours as commercialised hunting and large levels of fisheries bycatch, but they may be less applicable today as habitats and climate change become important factors in population dynamics. This essay makes the case for the need for innovative approaches to understanding and regulating interactions between people and marine mammals. The paper analyses the degree to which marine mammal management regimes in three Northern regions—Alaska, Nunavut, and the Finnish Baltic Sea coast—practice adaptive governance, that is, fostering cross-scale (local to international) understanding while giving local actors the freedom to direct the development of regulations that are ecologically sound and likely to be successful. We draw lessons from these cases and use them to suggest specific research and policy suggestions for the marine mammal policy community.

Keywords: Marine mammals; Climate change; Whaling hunts; Biological dimensions

Introduction

Many coastal communities in the North engage closely with their natural surroundings. A socio-ecological system, or SES, is the dynamic interactions between communities, their natural resources, and the social institutions created to sustain environmental advantages [1, 2]. The socioeconomic well-being of Northern peoples is significantly influenced by marine animals in terms of food and materials as well as other intangible benefits. As top predators in their environments, many marine animals also play a crucial part in maintaining high latitude ecosystems. By competing with human consumers of the same ecosystems, this function may lead to complex and contentious relationships between humans and wildlife. In many places of the world, marine mammals as a class of species have a high importance in existence [3, 4]. The importance that humans accord marine mammals as a result influences marine mammal policy decisions at the local, state, national, and international levels. As a result, marine mammals provide various, highly valued "ecosystem services" to various segments of society.

Marine mammals have come to symbolise the dangers of global warming as climate change has caused severe changes in the Northern2 sea ice regimes. Conflict arises between the requirements of balancing international laws and the establishment of flexible, adaptive institutions ideal for managing resources in a time of fast change, as Lovecraft and Meek pointed out (in their contribution above to this special area) [5, 6]. In summary, innovative approaches to understanding and regulating interactions between people and marine mammals may be needed for effective policy. Zero take policies from the past have significantly reduced commercial hunting, but they haven't been able to address actual or imagined issues with trade-offs between various ecosystem services [7, 8]. Due to the close ties between ecological conditions and communities in the North and the fact that communities and marine mammals are a part of long-lasting social-ecological systems, new governance strategies are required that will improve understanding of the system and support the creation of regulations that have the greatest chance of success.

Academics and resource managers have long recognised the value of local involvement in governance. According to the subsidiarity theory, issues are best resolved at the level of social organisation that is nearest to them. For instance, if a community overharvests animals for subsistence, people may be best placed to promote long-term local norms and harvest monitoring to avoid scarcity [9, 10]. A growing body of literature, however, highlights the significance of coordination among numerous actors at various levels of social organisation in relation to policy problems, such as the issue of "policy optics," or how the policy will appear to other stakeholders who may have significant influence over policy changes. In reality, many policy issues are difficult to pinpoint or keep track of at particular ecological or social scales because the underlying processes occur over a range of dimensions. For instance, the debate over whaling encompasses everything from small skin boats used by local populations to hunt for food to large-scale industrial operations, as well as general public opinion. Coordination and the ability to interact across scales become even more crucial for handling these issues.

A type of governance known as "adaptive governance" focuses on building local and international connections for sustainability. Since many diverse actors within and outside of the government play

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significant and perhaps overlapping roles in the implementation of policies, this model takes into account actors at various levels of social organisation [11]. Adaptive governance can enhance prospects for institutional learning and take advantage of social networks' capacity for self-organization, such as local hunting communities or municipal governments. The charismatic nature of marine mammals and the level of global concern about Arctic marine mammals in particular may make institutional reform challenging, even though these qualities are necessary for the development and application of flexible rules of marine mammal management in an era of climate change [12]. To put it another way, the very government organisations tasked with protecting marine mammals may not understand or support policy changes that could benefit from local knowledge and contextualised management. Without considering the potential advantages of the conservation hunting model as a method to meet community subsistence and other needs in a way that emphasises community stewardship, creates incentives for harvest reporting, and maintains interdependence between communities, recent discussions over the listing of polar bears as threatened under the Endangered Species Act in the United States highlighted debates over the sport hunting policies in Canada for this species [13]. According to George and Pokiak, giving polar bears a consumptive use value encourages communities to handle human interactions more carefully, which has historically been reflected in a low number of nuisance kills in Canadian towns.

Working from the premise that adaptive governance could lead to better management of marine mammals, this review looks at a number of case studies from the North and analyses how well current governance strategies address three factors crucial to the practise of managing marine mammals that can affect successful adaptive governance: the extent to which policy regimes address key drivers of resource sustainability, the effectiveness of cross-scale interactions, and an assessment of the effectiveness of existing governance mechanisms. The analysis highlights suggestions for bridges and hurdles to adaptive governance of marine mammals from a circumpolar viewpoint, drawing lessons from each site, management regime, and species [14, 15]. The study starts off with an introduction of the human aspects of wildlife management as they apply to marine mammals in the North, and then it looks at the applicability of concepts from adaptive governance to examining policy practise and recommending policy change. Each instance is examined to see how its conclusion relates to the characteristics of adaptive governance. With the understanding that adaptive governance does not represent a specific outcome or policy prescription, but rather a goal to strive for in maintaining these resources, bridges and challenges to adaptive governance of Northern marine mammals are presented across situations.

Results

The abundance of marine mammals in Walters Shoal and the area surrounding St. Paul and Amsterdam Islands supports earlier findings that these species find abrupt topographic features to be attractive.

Conclusion

This research added to the body of knowledge regarding the occurrence of marine mammals in two isolated areas of the Indian Ocean, which had previously been documented either by satellite tag localization or by opportunistic visual observations. Over 70% of the records around St. Paul and Amsterdam islands and 40% of the records in Walters Shoal indicate that bioacoustics activity has been detected there.

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Conflict of Interest

None

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