

Indigenous knowledge in the Arctic: a review of research and applications

Indigenous knowledge is the object of increasing attention in the field of Arctic research and policy making. In this article the authors first present an overview of how IK (indigenous knowledge) is being approached in the Arctic, and then indicate ways in which such knowledge might be used in the future, not only for research purposes, but also within the community.

Within the Arctic region there are some two dozen distinct indigenous peoples, whose traditional economies are based on various combinations of reindeer herding, fishing, marine mammal hunting, gathering and terrestrial hunting and trapping (Huntington *et al.* 1998). The ability of these groups to thrive in a harsh climate depends on a detailed knowledge of their environment, its patterns and anomalies, and the characteristics of the animals and plants they use for food, clothing, and shelter. While such knowledge has also been important in the pursuit of traditional activities, it is now the object of special attention because of its applicability to modern environmental research and management.

Arctic indigenous knowledge was used by explorers like Roald Amundsen, who learned all he could about clothing made from skins, snow shelters, and winter travel from the Inuit he met while sailing the Northwest Passage in 1903-06. From the late 1940s onward, scientists based at the Naval Arctic Research Laboratory in Barrow, Alaska, have gained greatly from interactions with Inupiaq field assistants (Albert 1988). For the most part these and other contributions of indigenous knowledge have gone unrecorded or have received little notice.

In the 1970s specific indigenous research began in the Arctic, starting in Canada and further developing throughout the North. This was stimulated primarily by the land claims movement in Canada, which led to the establishment and documentation of traditional use areas. These claims were substantiated by extensive mapping of hunting and travel areas and the associated ecological knowledge. These projects produced a wealth of knowledge, and also led to calls by indigenous leaders for a greater say in wildlife management.

In recent years, the number of projects devoted to the documentation and use of indigenous knowledge has increased greatly, but at the same time concerns have been voiced about the appropriateness of such use and its limitations (e.g., Cruikshank 1998). This article focuses on some of the recent research, the attention given to indigenous knowledge, and its applications in the Arctic; it concludes with several observations about the potential for further developments in this area.

Research

The documentation of indigenous knowledge in the Arctic, which began in the 1970s with land-use mapping in Canada, has expanded greatly in intensity and geographic scope in the past ten years. Many projects have dealt with the ecological aspects of indigenous knowledge, focusing either on single species such as beluga whales and caribou, or



communities such as the Gwichin of the Northwest Territories (e.g., Ferguson and Messier 1997; McDonald *et al.* 1997; Gwichin Renewable Resources Board 1998; Huntington *et al.* 1999; Mymrin *et al.* 1999).

The first objective of such projects is to document indigenous knowledge, so that it can be disseminated more widely than is possible by traditional oral means. Such knowledge is used by people from outside the community, and also serves as a secondary means of passing on important information to future generations. The projects were also intended to expand the quality and quantity of information available for environmental research and management, in order to ensure that management regulations more accurately reflect local perspectives on wildlife patterns and on the use of local resources. To some extent, the projects also sought to give indigenous peoples a greater voice in decision making and activities affecting their lands and their resources.

The concerns of communities

The increase in the number of studies devoted to indigenous knowledge has been accompanied by concerns within Arctic indigenous communities about their appropriateness. Indigenous knowledge includes far more than observations about the migratory patterns of wildlife; it also touches upon the spiritual dimensions of a person's relationship with the environment. Many people regard this as something intimate and personal, which should not be discussed with outsiders or revealed in a written document to be circulated outside the community. Just as a beating heart cannot be replaced by an

Inupiaq and Yupik elders mapping the migration routes of beluga whales in a group interview.

Photo: Ricky Nassuk Sr.

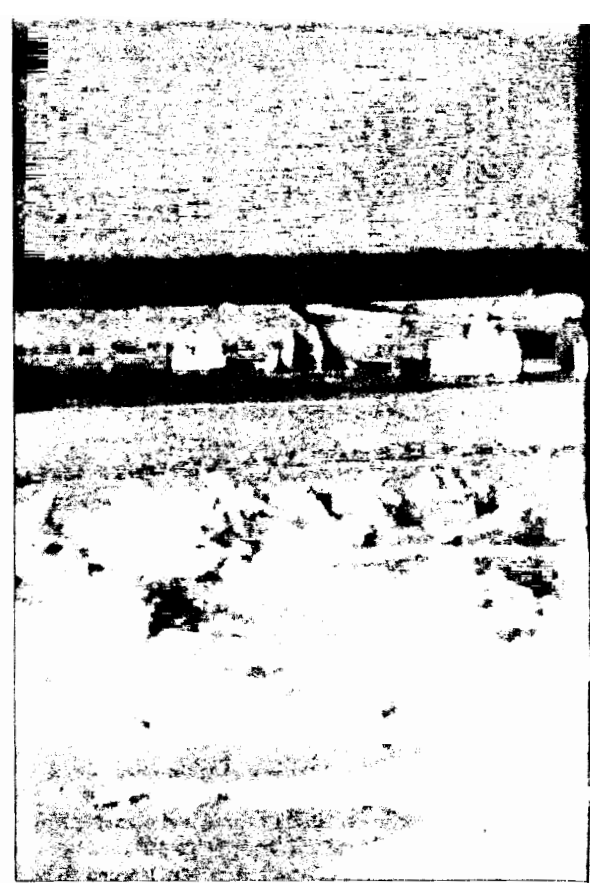
anatomy textbook, there is a sense that the written word rarely captures the depth and power of that spiritual relationship, and a central aspect of one's identity and existence is often reduced to a description of unrelated bits of knowledge. Another aspect of this concern is the conviction that animals must be treated with respect. To speak boastfully about one's hunting prowess or about being an expert—in some cases even mentioning the animal's name—is to violate the relationship by which animals offer themselves to worthy hunters, i.e., those who are humble, who share with others, who treat animals with respect. Claiming or implying that one has expert knowledge about an animal may be seen as boastful and improper.

In addition to the sensitivity of the issue, there is also a purely practical concern: communities become suspicious when they hear about pharmaceutical companies and others using information from tropical peoples to develop, market, and make a profit on new medicines, without sharing those profits with the people who provided the information in the first place. Indigenous leaders are now calling for increased local control of research projects on indigenous knowledge and in some cases, cost/benefit analyses have led to the conclusion that the benefits of research are outweighed by the potential cost. The concept of intellectual property rights as applied to indigenous knowledge remains problematic in the Arctic, although it is being increasingly discussed. The further evolution of the issue will be shaped largely by the outcome of such discussions between indigenous peoples and researchers both inside and outside the Arctic community.

Government agencies

Around the Arctic, government agencies and others concerned with environmental management and economic development are increasingly devoting attention to indigenous knowledge. The Arctic Council (a cooperative initiative of the eight Arctic nations) includes as permanent participants four organizations representing indigenous peoples: the Inuit Circumpolar Conference, the Saami Council, the Association of Indigenous Peoples of the North in Russia, and the Aleut International Association. Most of the documents and work plans of the Council and its working groups contain references to indigenous knowledge, and they have sponsored a seminar and various projects to promote the understanding and use of indigenous knowledge in environmental protection and sustainable development (Arctic Council 1996). Government agencies also describe indigenous knowledge as an important contributor to the decision-making processes pertaining to wildlife management and environmental impact assessment. That indigenous knowledge is gathered from public testimony at meetings and through original documentation projects. In Alaska, the draft environmental impact statement on the development of the Northstar oil field off the northern coast included extensive sections based on indigenous knowledge about migrating whales and other factors affecting or affected by the presence of oil drilling operations.

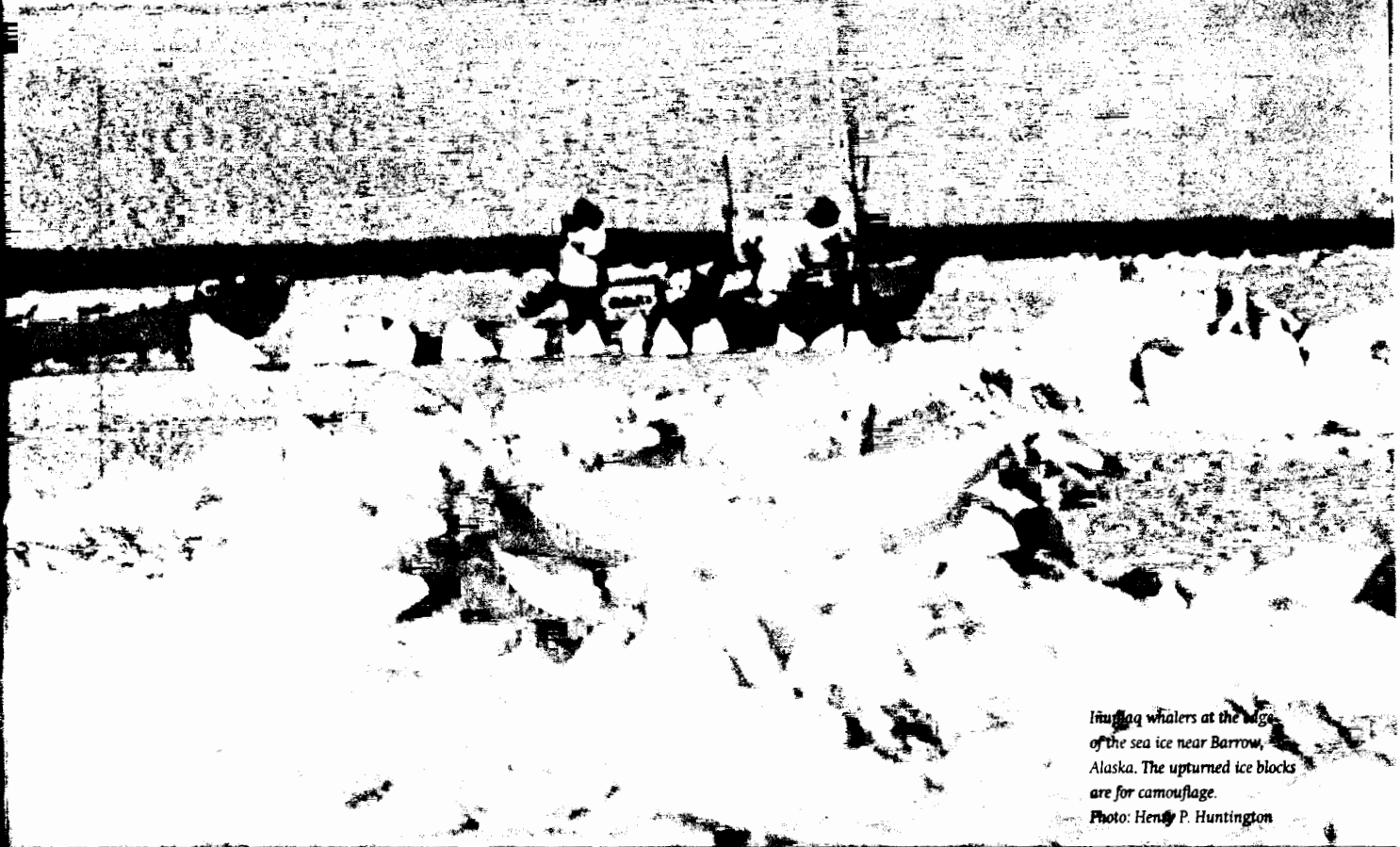
Despite the increase in attention, however, there remains a significant gap between rhetoric and reality. Information based on Western scientific studies is still frequently regarded as superior, and the time and funds made available for the inclusion of indigenous knowledge are often woefully inadequate.



Application

The application of indigenous knowledge is developing in several directions. In the field of environmental impact assessment, the use of indigenous knowledge is less well-developed, but nonetheless recognized as important (Stevenson 1996). The role of indigenous knowledge in local small-scale development in the Arctic remains largely speculative. At a recent conference on sustainable development in the Arctic, many of the recommendations referred to indigenous knowledge, but displayed little understanding of how such knowledge could be incorporated into development planning or implementation (The Northern Review 1998).

For purposes of wildlife and environmental management in Alaska and Canada, cooperative management bodies bring hunters and elders from the community together with scientists and agency managers, in order to discuss research and management issues and priorities. In these contexts, indigenous knowledge can influence decision making through the informed participation of the indigenous representatives. A case in point is the Alaska Eskimo Whaling Commission, one of the first such bodies to be set up. Eskimo whalers told scientists that bowhead whales migrate under sea ice, often travelling far out to sea, which means that population estimates based on whales that could be seen in open water near the shore were inaccurate. The scientists used this knowledge to develop techniques such as tracking whales underwater by means of hydrophones and aerial surveys, in order to estimate the numbers of whales offshore. By improving the ability of scientists to detect the migrating animals, the whalers helped generate a more accurate count of the bowhead population, which in turn enabled them to argue for a higher harvest quota.



Inuit whalers at the edge of the sea ice near Barrow, Alaska. The overturned ice blocks are for camouflage.

Photo: Henry P. Huntington

A common thread in all the various applications is the striving to base policy decisions on indigenous knowledge, whether for setting harvest quotas and areas, determining acceptable impacts and mitigation measures for industrial activities, or identifying appropriate and viable economic opportunities for small communities. While indigenous knowledge is often portrayed as an essential factor in making such decisions, the precise ways in which such knowledge is used and weighed against other factors remains unclear. Often indigenous knowledge is dismissed because of lack of external validation, or the fact that it has little direct relevance to the question at hand. By requiring that indigenous knowledge be shaped to fit the often narrow parameters of a particular decision, government agencies and others may be ignoring the need for a wider appraisal of the issue.

Conclusions

The use of indigenous knowledge in the Arctic is growing rapidly, though not without a degree of controversy and opposition. Its use in the future will depend in part on the ability of indigenous communities to determine how it is to be used and by whom. Limiting its use will limit its influence, but allowing access to all aspects of indigenous knowledge will reduce local control and trespass on the intimate and personal relationship between many indigenous people and their environment. The use of indigenous knowledge also depends on whether government agencies, scientists, and industry are willing, or can be persuaded, to give appropriate weight to such knowledge and to provide the time, funding, and opportunity to gather such knowledge and present it in an appropriate way to those involved in decision making.

In the long term the use of indigenous knowledge in the Arctic will depend on its continued

existence. Will residents of Arctic communities retain the detailed understanding of the local environment that they have built up over countless generations? Today, younger generations spend less time on the land and are less dependent on its resources; as a result they have less opportunity to learn from their elders and less incentive to do so. The loss of indigenous languages compounds the problem, as specialized terms disappear and a literal language barrier makes it difficult for elders and young people to talk to each other.

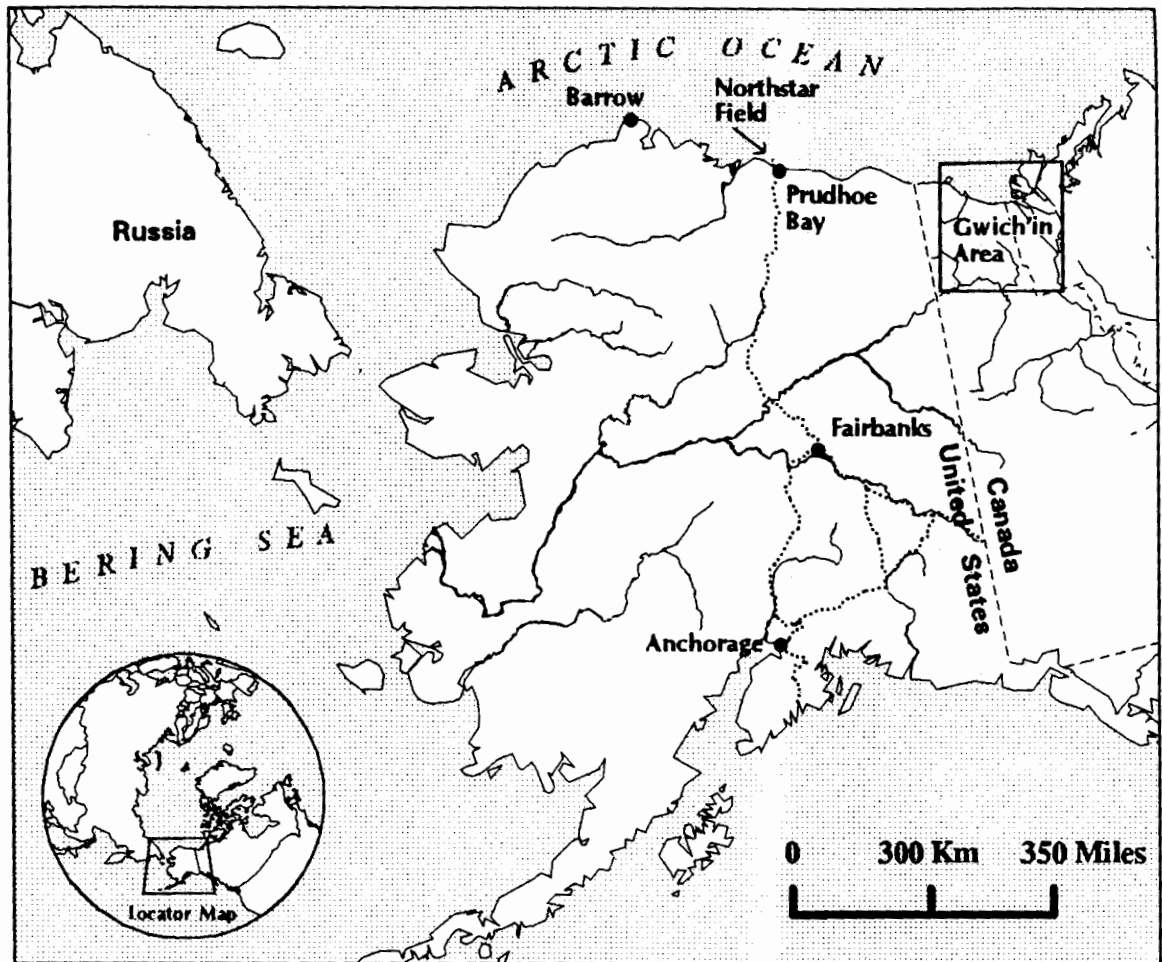
While perpetuating the use and transmission of indigenous knowledge depends on the members of the indigenous communities themselves, they can be helped or hindered by official attitudes and actions. If it is regarded as an important source of accurate information and a cornerstone of community development, indigenous communities will continue to regard it as a vital resource, well worth preserving for the benefit of future generations.

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Map of Alaska and neighbouring regions, showing the places mentioned in the text.

Map by Sharon Rudolph

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