

InfoNorth

Arctic Marine Protection

by Jeanne L. Pagnan

THERE is no universally accepted definition of the Arctic. Depending on the discipline, boundaries may be set at the Arctic Circle (66°33'N), the 10°C July isotherm, the continuous or discontinuous permafrost line, or the continuous tree line—or according to some other criterion, such as species range. The Arctic can also be defined on the basis of political boundaries. Each of the eight Arctic countries that share the approximately 15 million km² Arctic marine environment uses its own description. For the purposes of this discussion, the Arctic marine environment consists of the Arctic Ocean and the seas, major bays, and straits that surround it. These are the Bering, Chukchi, East Siberian, Laptev, Kara, White, Barents, Greenland, Labrador, Beaufort, northern Okhotsk and Norwegian Seas; Baffin, Hudson, and James Bays; and Davis Strait.

Consideration of the Arctic as a circumpolar ecosystem in its own right is relatively new, as is the recent circumpolar interest in cooperating to manage and protect it. These changed views were prompted partly by the breakdown of longstanding East-West political barriers in the 1990s and the growing recognition of the region's wealth of natural resources, particularly oil, gas, minerals, and forests. While the increased attention and activity have the potential to cause serious damage to the Arctic, they also present opportunities for northern communities to improve their economic status and become more self-reliant. The challenge is to find ways of protecting the environment while realizing at least some of the social, economic, and cultural aspirations of northern peoples. How nations deal with this challenge, both individually and cooperatively, will determine the future of the region. One encouraging sign is the formation in 1996 of the Arctic Council and its five working groups as a high-level intergovernmental forum to address environmental and sustainable development issues.

THREATS TO THE ARCTIC MARINE ENVIRONMENT

The main historical threat to the Arctic marine environment was exploitation of its wildlife. Today, there are

additional pressures, including oil, gas, and mineral exploration and development, pollution, tourism, and climate change.

From the early 1600s, there was massive commercial hunting of Arctic marine mammals. The impacts were enormous. The bowhead whale (*Balaena mysticetus*) was hunted almost to extinction in waters adjacent to the North Atlantic and in the Sea of Okhotsk. Huntington (1999) reports that over 200 000 walrus (*Odobenus rosmarus*) were taken from the Bering and Chukchi Seas by commercial whalers in the 1860s and 1870s. The northeast Atlantic population was largely extirpated before it was totally protected in the 1950s (Gjertz, 1999). And the Laptev Sea population (*Odobenus rosmarus laptevi*) was "harvested at barbaric rates" in the 1960s to feed captive animals for the fur trade (Gukow, 1999:34).

More recently, several commercial fish species have declined substantially, primarily because of overexploitation. Intensive fishing has severely depleted whitefish (*Coregonus* sp.) stocks in the Laptev Sea (Gukow, 1999), and there have been dramatic crashes of herring (*Clupea harengus*) along the coast of Norway and cod (*Gadus* sp.) along the coast of Greenland (Huntington, 2000). Despite conservation measures, including moratoriums on fishing, some stocks are not rebounding (Roed, 1998), possibly because factors such as ocean cooling are impeding recovery (Sherman, 1999). The depletion of certain fish stocks, such as Alaskan pollock (*Theragra chalcogramma*), affects nonhuman consumers as well, and such depletion may be contributing to the decline of species such as the endangered Steller sea lion (*Eumetopias jubatus*) in the Aleutian Islands (Hills, 2000).

The Arctic has long been suspected of holding massive oil, gas, and mineral deposits, and these expectations are proving true. For example, Russia's Arctic is now thought to hold the largest nickel, copper, and natural gas reserves on the planet. The Beaufort Sea is already being exploited for its petroleum reserves, and exploration is under way along the west coast of Greenland. The Svalbard region has extensive mineral and oil deposits, and Norway's offshore oil industry is an established engine for its economy. If current trends in world oil prices continue, the

Arctic could be on the verge of a major surge of extraction activity, both on shore and offshore, with concurrent impacts on the marine environment from oil and chemical spills and contamination from extraction and processing industries.

The main sources of Arctic marine pollution are oil spills and dumping, leakage of radioactive material, transboundary air pollution from industrial areas, industrial and urban waste, and agricultural runoff transported via river systems, especially in Russia. However, with the exception of areas directly affected by Russian rivers, the Arctic marine environment appears to have very low pollution levels compared with more southerly marine systems (AMAP, 1998). Nevertheless, there is no guarantee that this situation will continue, since the Arctic Ocean is a natural contaminant sink (MacDonald et al., 2000).

A rapidly growing industry in the Arctic is tourism, particularly that based from cruise ships. From 1975 to 1994, the number of cruise ships visiting Svalbard annually increased from 10 to 35, and the number of cruise passengers from 5000 to 25 000 (Kaltenborn and Hindrum, 1996). The potential for further growth might be surmised from the fact that Glacier Bay, Alaska, now receives 250 000 visitors per year. It is a pattern that will likely be repeated as Arctic countries vie for tourism dollars to bolster their economies (Pagnan, 1999). Other forms of Arctic marine visitation on the increase are scientific expeditions and whale watching, particularly in Iceland and Norway.

Arctic shipping has expanded steadily, primarily to service growing extraction industries. However, a major increase in shipping is expected if and when the Northern Sea Route (or "North-East Passage") along Russia's Arctic coast is opened. This route could be less costly than others, such as the Suez Canal, for Euro-Asiatic trade, provided ships can traverse it efficiently and avoid ice damage. New ports to receive the increased traffic and to facilitate export from natural gas fields (e.g., on the Yamal Peninsula) are already being established along the route (Granberg, 1995). If shipping increases as predicted, the threat of marine accidents resulting in ecological damage could escalate rapidly.

One of the more ominous developments is the changing climate of the Arctic. The eastern Russian Arctic and parts of Alaska and northern Eurasia have become warmer, while Greenland has shown a cooling trend. Pack ice is melting earlier (Parkinson, 2000), the ice cover is thinning, salinity has decreased in some areas, and shifts in ocean currents and circulation patterns have affected the mix of Atlantic and Pacific water (Morison et al., 2000). The halocline appears to be shrinking, and areas of high nutrient content are showing declines. There is growing evidence that at least some of these changes have already affected productivity in polar bears (Stirling et al., 1999) and ringed seals (Harwood et al., 2000). To compound this problem, increased UV-B radiation associated with loss of the ozone layer could damage Arctic flora (Gibson et al.,

2000) and fauna, particularly during sensitive growth and breeding periods in springtime.

PROTECTION MEASURES

Protecting the marine environment is a daunting task. To date, the most common way to protect the marine environment has been to regulate human activity or to set aside areas for special measures. Efforts have intensified over the past 25 years, and there is now an impressive framework of global, regional, and domestic legal instruments in the form of treaties, conventions, and laws to regulate marine activity and to establish special sites (Pagnan, 1999). Less formal arrangements are also in place, such as the efforts of the World Conservation Union (International Union for the Conservation of Nature and Natural Resources [IUCN]) to implement a Global Representative System of Marine Protected Areas (Kelleher et al., 1995) and to revitalize the Regional Seas component of the United Nations Environment Program.

Globally, the most important legal instrument is the 1982 United Nations Convention on Law of the Sea (UNCLOS) which establishes rules governing uses of the oceans and their resources. Five of the Arctic countries are party to UNCLOS, and Denmark, the United States, and Canada, though they have not signed the treaty, also abide by many of its provisions. Other important global instruments particularly relevant for marine protection are the 1946 International Convention on the Regulation of Whaling; the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Dumping Convention of 1974); the Convention for the Prevention of Pollution from Ships (MARPOL, 1973, 1978 and its Protocols); the Convention on Biological Diversity (1992); the 1995 United Nations Agreement on Straddling Stocks; the Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES, 1973); the Convention on the Conservation of Migratory Species of Wild Animals (Bonn, 1983); and the Convention Concerning the Protection of World Cultural and Natural Heritage (World Heritage Convention, 1972).

There are also several regional instruments, primarily in Europe. These include the Convention on the Protection of the Marine Environment of the North-East Atlantic (OSPAR, 1998) among the West European countries, the Convention on Conservation of European Wildlife and Natural Habitats (Berne, 1979), and the European Union Habitat and Bird Directives (1979, 1992). In North America, there is a migratory bird convention.

International cooperation to protect the Arctic marine environment also occurs under the rubric of regional and bilateral agreements, such as those between the United States and Russia, Norway and Russia, Canada and Russia, and among the Nordic countries. The North American Commission for Environmental Cooperation (NACEC) was recently established under the North American Free

Trade Agreement to promote increased protection of the environment (Hillary and Pagnan, 1999; Legare and Pagnan, 1999). North America also has a continental waterfowl management plan to restore migratory waterfowl habitat from the Arctic coast to Mexico.

Among circumpolar nations, however, there is only one legally binding treaty, the 1973 Agreement on the Conservation of Polar Bears, under which Canada, Denmark, Norway, Russia, and the United States protect denning sites and regulate hunting. More informally, there are two seabird Conservation Strategies and Action Plans in place through the Arctic Council's Conservation of Arctic Flora and Fauna Working Group, one for murrens (*Uria lomvia*, *U. aalge*) and one for eiders (*Somateria mollissima*, *S. spectabilis*, *S. fischeri* and *Polysticta stelleri*). Other important initiatives are the Regional Program of Action for the Protection of the Arctic Marine Environment from Land-Based Activities (1999) and Arctic Offshore Oil and Gas Guidelines for Regulators (1997), the upcoming Arctic Offshore Oil and Gas Guidelines for Industry by the Oil and Gas Producers Association and IUCN, and the Arctic Council's Field Guide for Oil Spill Response in Arctic Waters (1998) and Guidelines for Environmental Impact Assessment in the Arctic (1997).

In addition to the international array of agreements, each Arctic country has its own extensive legislative corpus that can be used to protect the Arctic marine environment and its biodiversity. Federal states, such as Canada, Russia, and the United States, tend to have a great many highly specific laws. Canada has over 20 pieces of legislation it can apply to marine issues, and several of the Native land-claim settlement acts incorporate marine conservation measures. The United States legislative holding is even larger, with nearly 30 pieces of legislation (Pagnan, 1999). The Nordic countries also have legislation, but less of it. For example, five of the Nordic countries have broad-based nature acts under which a wide variety of protection and conservation measures can be authorized. Greenland and Finland have enacted framework legislation directed specifically at protection of their marine environment, and both Greenland and Iceland have passed acts on hunting marine mammals.

EFFECTIVENESS

As a group, Arctic countries report that they have ample and adequate national legislation to deal with marine protection (Pagnan, 1999). Whether each country is effectively applying its legislation, however, is a question for further examination. Internationally—and sometimes domestically—enforcement mechanisms are often lacking, weak, or not easily applied. Another obstacle for international agreements is that implementation depends on the commitment of the signatories; unless the terms are in a country's national interest, moral suasion is often the only effective way to gain compliance (Legare and Pagnan, 1999).

Ultimately, these instruments must address commonly held concerns and engage local people in implementing their provisions, if they are to succeed. Therefore, the extent to which these instruments are seen to be advantageous will dictate their practical application in the Arctic (McCormick, 1999).

THE USE OF PROTECTED AREAS

One of the most common and effective methods to manage the environment has been to establish protected areas. Most countries employ a management classification system, modeled after that developed by the World Conservation Union, allowing varying degrees of human activity according to the specific objectives for the area. For example, the IUCN's Category I area (Strict Nature Reserve) excludes most human use other than that needed for scientific purposes. Category II areas (National Parks) highly restrict human activity (e.g., motorized vehicles may be prohibited, but hiking and ecotourism are allowed). Areas in Categories V and VI accommodate multiple uses, including some resource extraction. The predominant practice in the Arctic has been to establish Category I and II protected areas. Recently, the adequacy and effectiveness of this traditional approach has come under increasing scrutiny.

There are a number of initiatives to establish a network of protected areas in the Arctic. One is the Arctic Council's Circumpolar Protected Area Network (CPAN) of terrestrial and marine sites. This network is intended to link current national systems and to incorporate sub-networks of Wetlands of International Importance established under the Ramsar Convention (1971) and other internationally designated sites. The IUCN and its World Commission on Protected Areas have established an Arctic Task Force and developed a Pan-Arctic Action Plan. One important task will be to implement the IUCN's Global Representative System of Marine Protected Areas in the Arctic.

All Arctic countries are legally empowered to set aside marine areas for conservation purposes (Pagnan, 1999); indeed, they are encouraged to do so under many of the international and regional conventions. In 1998, ministers of the Arctic Council singled out the marine environment for special focus under CPAN. However, progress in establishing marine protected areas is poor and only a few exist. A major impediment is the longstanding resistance of northern communities that depend on marine resources for their livelihood and have come to consider the term "protected area" to mean "closed to human use," isolated from the surrounding society, and separated from the mainstream of socioeconomic activity. Interestingly, both those opposed to establishing protected areas and those supporting them make this assumption (Sheppard, 1998).

The negative stance toward protected areas may be changing for some, at least, where these areas are proving to enhance resources such as fisheries (Williams, 1998).

Nevertheless, as long as the concept of “protected area” is equated with prohibition, the prospect of protecting new areas in the Arctic will generate intense conflict. Over the past decade or so, with the development of the integrated ecosystem approach to conservation, specialists have come to realize that setting aside huge tracts of land or sea in which most human use is prohibited was probably overly strict, too costly, and often politically and socially counterproductive. Many managers of protected areas have concluded that this approach was based on the problematic assumption that human activity and nature conservation are intrinsically incompatible. These attitudes are also changing.

In November 1997, world specialists in protected area management met in Albany, Australia, to consider the future of protected areas and to begin sketching out a new vision for their use. The participants concluded that for protected areas to serve as a major conservation tool, they must be seen as more relevant to their surrounding societies, and be treated as valuable, irreplaceable resources that are part of a natural heritage. In other words, protected areas need to be “mainstreamed” (Sheppard, 1998).

One implication of this approach is that, when establishing new protected areas or reconsidering existing ones, countries are turning increasingly to classification categories that permit multiple human uses (Pisichev, 1995; Sheppard, 1998), as in Iceland’s Breiðafjörður marine protected area (Petersen et al., 1998). This does not mean that all protected areas should be categorized this way. There will always be ecologically sensitive sites vital to the well-being and maintenance of other species where most human activity would prove harmful. Such special sites are also a valuable and irreplaceable resource to human communities. Too often, however, they are viewed as an imposition rather than a benefit.

Protected areas are an important part of an overall marine protection strategy, but their effectiveness will be compromised unless they are integrated into broader, sustainable use plans for Arctic development. Protection of the Arctic marine environment will continue to be a monumental challenge. However, the international tools are in place and, as described above, organizations and circumpolar countries have begun cooperating to implement them through initiatives such as the Arctic Council’s CPAN and the IUCN’s Global Representative System of Marine Protected Areas in the Arctic.

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