

wished to have such a capability, it would have to venture into the highly expensive business of acquiring them. Bottom-based sonar provides capacity for monitoring submarine movements, but it is vulnerable to ice scouring. In addition, installation and maintenance of such a system in those inhospitable waters could be exceedingly expensive.

Ice-breakers and patrol aircraft serve the bulk of Canada's peacetime needs in the Arctic. Purely military countermeasures would be exceedingly expensive. Whether or not such expenses should be incurred depends on the assessment one makes of the import of the threat now posed by nuclear submarines operating under the ice.

For its part, the sub-committee believes that adequate surveillance of the Northwest Passage could be provided, for the time being, by conventionally powered submarines stationed at the entrance and the exit of the passage. Obviously, the actual areas patrolled would vary with the season and ice conditions.

The sub-committee could only obtain fragmentary information on the costs of bottom-based sonar installations. It will make no recommendation concerning such installations, but wishes to observe that such a system would be desirable if costs were not so high as to seriously impair the ability to renew or add to other elements of the maritime force, and if ice noise and scouring would not render it ineffective for significant portions of time. Should the frequency of nuclear submarine transits through Arctic waters rise substantially, Canada might have to contemplate obtaining nuclear submarines of its own. Probably the only affordable way of doing so would be to persuade an ally to provide some for Canada to operate, and to write a contract with that nation for their servicing. This approach would avoid the excessively high costs of acquiring new nuclear submarines and the infrastructure they require. The only other alternative to permitting free passage would be to call upon an ally with nuclear vessels to patrol the Arctic for us. Such an approach holds real dangers, however, because Canada's claims to Arctic waters are disputed by some allies. It would, for example, seem odd to ask the United States to guard our interest in the north since, according to VAdm Timbrell,

A (U.S.) . . . "Notice to Mariners" states that waters north of 60 degrees north — which is approximately Hudson Bay, to give . . . a geographical point of reference; the waters of the Northwest Passage and the waters leading to the Northwest Passage — are, in the eyes of the United States, international waters and are not "Canadian national waters." They do not dispute our land claims; but they dispute our control of the passage through those islands . . . as do France and Russia.¹³

The sub-committee sees no compelling reason to acquire ice-breakers for MARCOM. All the evidence it heard suggests that ice-breakers would not make effective weapons-platforms. Therefore, the sub-committee sees no purpose in altering the present arrangement whereby Canada's ice-breaking fleet is operated by the Coast Guard. Should circumstances change and should it become desirable to arm ice-breakers either with ASW helicopters or missiles, for example, MARCOM could arrange for crews to be provided to operate the on-board weapons systems. Nonetheless, the sub-committee believes that MARCOM should have at

¹³ *Ibid*, 26 May, 1981, pp. 18:13-14.