

material and intelligence support. While the question of final responsibility for specific facets of such offshore policing may rest with departments other than the Department of National Defence, the Subcommittee considers it important that the Department of National Defence maritime forces should have a limited capability and authority to support this requirement.

11.3 Bottom-based surveillance systems

The Subcommittee understands that bottom-based systems for surveillance and identification provide an excellent capability for continuous surveillance and identification of surface and subsurface maritime activity over wide areas, particularly over the continental shelf and slope.

Their use in the Arctic is made difficult by ice damage to equipment and by background ice "noise". However, given Canada's need for a subsurface surveillance capability in the Arctic, the Subcommittee recommends that research and development of bottom-based systems appropriate for Arctic operations be given high priority in order to determine whether effective operational systems could be established and at what cost.

11.4 Submarine forces

The Subcommittee closely examined the question whether Canada should acquire nuclear-powered submarines. It should be made clear that when referring to nuclear-powered submarines the Subcommittee is considering the submarines' propulsion systems and not the nature of their armament. In the past, this possibility has been rejected because of the extremely high capital costs and the substantial support costs (maintaining two crews per submarine, special communications requirements and other facilities). Canadian shipyards probably lack the expertise, at this time, to build nuclear submarines which has undoubtedly been a further deterrent.

It may be possible to substantially reduce acquisition costs by means of buying or leasing used nuclear-powered submarines. No evidence, however, was received as to what these costs might be.

If purchase costs could be greatly reduced, then the Subcommittee could more readily attach importance to the following arguments for the acquisition of the nuclear-powered submarine:

- (1) it is the only maritime vehicle capable of year round operation in Arctic waters. It would be an essential support to a bottom-based detection system. If a bottom-based system for Arctic waters proves impossible to devise, the nuclear-powered submarine would give an initial detection capability as well.
- (2) it has proven to be the most effective subsurface surveillance method. If Canadian maritime forces were equipped with a small number of nuclear-powered submarines, they could effectively complement the existing surface and air borne forces and result in increased Canadian knowledge of the activities of other submarine forces.
- (3) it offers a platform for carrying out detailed hydrographic surveys of Arctic waters. Areas of these waters have been charted during periods when the waters are open by the Canadian Hydrographic Service and Department of Transport, but this is not