

be achieved at relatively low cost,³¹ and probably in such a manner that the risks to the submarine would be sufficiently great to act as a powerful deterrent to violation of the zone. Moreover, to return again to the Swedish dilemma, mining as a deterrent would transfer the decision-making quandary entirely to the violator: it would, in effect, be an intruder activated system in which a fateful episode could be triggered only by the trespassing submarine. And finally, it would be only a peacetime zone: in times of crisis, the Canadian Government would remain free to support US naval efforts in any way that it considered appropriate, including allowing the United States unfettered use of the waters of the Archipelago.

In the context of traditional Canadian defence policy, such a policy is unusual but not bizarre. It would not affect the essential alliance relationship with the United States, but it would provide a constructive response to the basic problem which has been considered in this paper, namely the need for Canada to contribute to the conditions of stable deterrence, to ensure that Canadian policy is not prejudicial to the basic security requirements of the United States, but, if only for reasons of scarce defence resources, to avoid becoming involved in programmes designed to ensure the survivability of military assets in nuclear war-fighting environment, or designed to prosecute a 'controlled' nuclear exchange.

Finally, such a programme in the Arctic would permit greater resources to be allocated to ASW and general maritime patrol off the Atlantic and Pacific coasts, where, as noted previously, the progressive arming of the superpower navies with long-range SLCMs is likely to demand much greater surveillance capability. It would then shed a new light on the debate about the diesel vs nuclear submarine, no doubt tilting the balance in favour of the diesel.³² For example, very general estimates suggest that, for the price of twelve minimum cost nuclear submarines (the Rubis, at, say, 400 million per unit), Canada could acquire 12 diesel submarines, add

³¹ For a discussion of mine types, see the US House Armed Services Committee (HASC 99-2), Defense Department of Authorization and Oversight for FY 1986, pp. 231-232; and Defence Department Authorization and Oversight FY 1987, Part II, pp. 405-406. See also FY 1979 Arms Control Impact Statements (US GPO, Washington 1978) pp. 175-180. The CAPTOR is "a moored, influence-activated ASW mine which launches a modified M-46 torpedo against submerged submarines while rejecting surface targets." The effectiveness of mines of the CAPTOR type, which rely on acoustic homing devices, might be undermined by Soviet improvements in quieting, since the less distinctive the acoustic signature, the more indiscriminate may be the firing programme of the mine. It may also be difficult to activate and de-activate mines under ice, although in this regard there appear to be new possibilities with ice penetrating blue-green laser signals, which would allow real-time communications to the mobile mine. See *Tech Trends International*, 26 May 1986, "Arctic Tests Confirm Blue-Green Laser Communication Possible Including Subs".

³² In the considerable literature on nuclear vs diesel submarines, perhaps not surprisingly US naval experts tend to favour nuclear while those from other NATO countries make a stronger case for the diesel. A fascinating case for Canadians, however, is the Australian submarine procurement decision, on which see P. Lewis Young, "Australia's New Submarine Project: Will Asean Navies Opt for the Same?", *Asian Defence Journal*, September 1986, pp. 4-18.