conventionally–powered submarines by examining proposed air–independent propulsion (AIP) systems which would allow such submarines to operate more safely and for longer periods of time under the Arctic ice cap than is presently possible. However, since AIP technology is still under development, the extent of under–ice capabilities remains to be determined with any certainty.

Another way of enhancing the capabilities of conventionally–powered submarines in the Arctic is to locate underwater sonar systems in chokepoints in Canadian Arctic waters through which submerged submarines have to go if they use the polar route. Once alerted of the passage of an unidentified submarine, Canadian conventionally–powered submarines would be able to lie in wait for it near the edge of the ice cap. The 1987 White Paper on Defence had indicated Canada's intention to deploy fixed sonar systems in its Arctic waters, but the cancellation of the SSN purchase and the limitations of Canada's present and future conventionally–powered submarines in Arctic operations make it even more important for Canada to proceed with the development and installation of such sonar systems. The development of sonar systems which can work effectively and reliably in the harsh and noisy environment of Arctic waters presents many technological challenges, but the Committee believes that the value of these systems in the Arctic is such that research should continue.

VII The Committee recommends that the installation of fixed acoustic sensors in Arctic waters capable of detecting intrusions from all directions and providing timely data, should proceed without delay.

Pending the installation of sonar systems in the Arctic and the acquisition of new submarines, Maritime Command will have to depend on the three old Oberon class boats. However, as was pointed out to the Committee during its visit to the Submarine Service headquarters in Halifax, the old submarines may have to be taken out of service before the new boats can be delivered, especially if the decision to acquire the latter continues to be delayed. A gap between the decommissioning of the old boats and the arrival of the new ones would not only leave Maritime Command without one of its components for a few months or perhaps years, but might also allow the expertise now within the submarine service to be lost. If this occurred, the training of the crews for the new boats could be costly and time–consuming. Such a time gap could nullify some of the benefits of recent improvements to training facilities such as the purchase of an old Royal Navy Oberon class submarine to give trainees firsthand experience without diverting the three ocean–going subs from operations. The time required to build new submarines, coupled with the rapidly approaching end of the service life of the three operational subs, means that there is less and less room for manoeuvre on this issue.