resources. The ability to satisfy these non-military demands for ocean surveillance and control has to be weighed in the balance with current military commitments in the region, which involve arrangements with the United States for joint defence of 1,660,000 square km of the North Pacific. To help carry out that task, Canada currently provides one helicopter-equipped destroyer, seven other destroyers, one supply ship, four Aurora aircraft, CF-18 fighter aircraft, six small patrol ships and a small number of search and rescue aircraft. Therefore:

V. **Given the increased importance of trade and other maritime activities in the region, the Committee recommends that greater emphasis be placed on Canada's Pacific forces.**

2. The Technological Factor

In order to fulfill these commitments, Canada's maritime forces, like those of other countries, have had to keep pace with the technological revolution in naval warfare. Indeed, for over 30 years, Cold War antagonism between East and West fuelled a high stakes technological race which saw every advance in Soviet submarine technology matched by an upgrading of the anti-submarine capabilities of Western maritime forces. The Soviet Union has worked very hard over the years to reduce the noise produced by its submarines and the West has had to constantly improve its hydrophones in order to maintain its ability to monitor Soviet submarines.

Indeed, the detection of submarines still depends to a large extent on acoustic equipment. During the Second World War, navies relied on active sonar which located submerged submarines when sound waves bounced off them. Today, submarine detection depends primarily on passive sonar which receives all the sounds in the ocean, including the noise produced by a submarine. Since the ocean is a very noisy environment and since submarines are becoming very quiet, it is becoming more and more difficult to detect submarines using acoustic equipment. As a result, more research is being done to develop non-acoustic detection technology which would be able to determine the position of a submerged submarine by detecting its wake, the effects of its exhaust on the water's temperature or other features of underwater operations.

Pending a major breakthrough in non-acoustic detection research, submarine detection will continue to depend for some time on the ever-increasing sensitivity of hydrophones and the ability of computers to quickly distinguish between the noise produced by a submarine and other noises. In order to provide wide area surveillance of the oceans in a period of increasingly quiet submarines, systems like SOSUS moored to the