

Arctic Sovereignty, Submarine Operations and Water Space Management

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Photo: Formation Imaging Atlantic

HMCS Corner Brook during Operation Nanook 2007.

The Canadian government has decided to establish an armed naval presence in the Canadian Arctic with a supporting Arctic docking and refueling facility at Nanisivik. This decision reflects the requirement for Canada to assert an increased naval presence in the Arctic Ocean under Canadian jurisdiction. These ocean areas include internal waters, a 12 nautical mile (nm) territorial sea, a 24 nm contiguous zone, and a 200 nm Exclusive Economic Zone (EEZ). They also include the areas covered under the *Arctic Water Pollution Prevention Act (AWPPA)*, which was established under the UN Convention on the Law of the Sea (UNCLOS), and gives Canada the right to control shipping access to the ice-covered regions of the Arctic.

As the modest fleet of Arctic Patrol Vessels will have little or no capability to detect or monitor submarines operating or transiting through these waters, or any other underwater activity, Canada's submarine force will be needed to contribute to comprehensive Arctic surveillance. Although

the *Victoria*-class submarine does not have an under-ice capability, the mere presence of a Canadian submarine operating in the ice-free areas of the Canadian Arctic, including the chokepoints in the Northwest Passage, can have a significant impact in assessing underwater activity and the operations of non-Canadian submarines transiting or operating in these areas.

This is accomplished in two ways. The first is the actual detection of submarines by different types of organic and non-organic submarine sensors, in coordination with fixed or mobile bottom sensors, CP 140 Maritime Patrol Aircraft and Canadian Patrol Frigates. This type of operation is resource intensive, and would only be considered as a 'show of force' in times of tension or crisis against non-allied submarines. In peacetime, a Canadian submarine operating under the current NATO Water Space Management (WSM) regime is the second method available to understand allied submarine movements in the Canadian

Arctic, including the Northwest Passage. It is this second method that we will discuss here.

What is Water Space Management?

Water space management (WSM) can be thought of as somewhat analogous to a limited air traffic control system that monitors ('de-conflicts') the movements of submarines throughout the world. The concept was adopted by NATO in the early days of the Cold War, and is used by national, NATO and regional submarine operating authorities (SUBOPAUTHs) to ensure the safety of submarine operations in the world's oceans.

Using a number of different protocols and procedures, submarines are routed to their operating areas using a SUBNOTE which provides a 'moving haven' (MH) of defined dimensions (including depth) in which the submarine must remain. In days before GPS and Inertial Navigation Systems, this 'haven' was traditionally quite large – 50 nm ahead, 100 nm astern and 20 nm either side of the centre – but as navigation technology progressed the moving havens have tended to become much smaller. This allows for more submarines to be routed in closer proximity to each other without danger of mutual interference.

The actual patrol or operating area is defined by a Notice of Intention (NOI), or a Submarine Patrol Area (SPA) published by the SUBOPAUTH and providing the geographic coordinates, depth and time period in which the submarine will be operating. Submarines operating in their own territorial waters or national submarine exercise areas are usually routed using a Diving Message, which is not shared with other states. Operating a dived submarine in another state's territorial seas is considered a serious act of provocation, and consequently it is assumed by national SUBOPAUTHs in times of peace that there would be no foreign submarines in territorial seas.

There are other aspects of tactical WSM that are used when a submarine is operating in conjunction with surface and air forces to prevent tactical weapons use against a friendly submarine in times of conflict, but for the purpose of this article only the more operational aspects of WSM will be discussed.

Why would a submarine-operating state want other states to know the location of its submarines outside of its own territorial seas? In peacetime, safety of submarine movements is paramount, and all submarine Commanding Officers understand that an underwater collision will ruin their whole day. Consequently, all submarine movements



USS Scranton surfaced at the North Pole.

Photo: Internet image

are de-conflicted by ensuring that there are no other submarines operating in the same NOI, SPA or transiting in the same MH. This does not mean that the Canadian, or other national or NATO/regional, SUBOPAUTHs know the location of every submarine. Deployment areas for US Navy, Royal Navy and French Navy nuclear ballistic missile submarines (SSBNs) are closely held by their national authorities, but even these operations are de-conflicted among the three states at a high level. Covert submarine operations again are held closely by national authorities, but de-conflicted by national authorities against known allied submarine movements using the NATO and/or regional SUBOPAUTHS and the WSM system.

Why would a submarine-operating state want other states to know the location of its submarines outside of its own territorial seas?

There is a close relationship between national and NATO/allied SUBOPAUTHs, with real-time communications to exchange data and information. In the North Atlantic, the traditional area of Canadian submarine operations, the Canadian Navy established an exchange officer position at the USN Submarine Atlantic Headquarters in Norfolk, Virginia, in the early 1970s to enhance the relationship between the Canadian Navy SUBOPAUTH located in Halifax and the USN SUBOPAUTH. With the recent location of Canadian submarines in Esquimalt, British Columbia, a similar position has been established in Pearl Harbor at the USN Submarine Pacific Headquarters.

The WSM system was established to ensure the safety of allied submarine operations throughout the world. One aspect of the system is not well understood and this is the ability for a submarine-operating state to temporarily de-



Photo: Formation Imaging Atlantic

HMCS Windsor returning to Halifax in 2006.

clare a Notice of Intention for submarine operations on the high seas, thus de facto controlling that area unless other states are willing to risk the safety of their submarines by not notifying the state that established the NOI of their operations. For example, using the NATO SUBOP-AUTH system, Canada established a submarine Notice of Intention (NOI) off the Grand Banks during the so-called Turbot War with Spain in 1995, and declared this NOI to NATO using WSM protocols. Whether or not a Canadian submarine was ever deployed in the area with a heavy-weight torpedo capability was not important – what was important is that NATO SUBOPAUTHs, including Spain, were aware that if another submarine entered the NOI, a potential safety issue could occur. This may or may not have helped de-escalate the situation, but it was certainly one tool the Canadian government used to resolve this unfortunate incident.

WSM and Canadian Arctic Sovereignty

How do submarine operations and WSM affect Canadian Arctic sovereignty? First, operating a submarine in the Canadian Arctic, and chokepoints in the Northwest Passage, and declaring these operations to non-Canadian SUBOPAUTHs, indicates to other states that Canada has the capability to control the water column in ocean areas claimed by Canada, even if only for part of the year. Second, although the WSM system is not meant to prevent other states' submarines from operating in the Canadian Arctic under the control of Canada (with the exception of internal waters and territorial seas), it will ensure that when a Canadian submarine NOI is established, other allied states which want to take their submarines through the NOI need to de-conflict their submarines' movement with the Canadian SUBOPAUTH to ensure the safety of both states' submarines.

Over time, this will allow Canada to understand the level of underwater activity in the Canadian Arctic. The judicious establishment of submarine NOIs in chokepoints and other areas limited by depth and geography would make it difficult for other states' submarines covertly to go under or around the operating envelope of the *Victoria*-class submarines without being detected. Finally, operating Canadian submarines in the Arctic, even if limited by time of year due to ice, will increase our understanding of the undersea oceanographic environment, and enhance the capability of the Canadian Forces to operate in Canada's north.

Conclusion

Depending on the time of year and ice conditions, the *Victoria*-class has the capability to operate in the Canadian Arctic and chokepoints of the Northwest Passage. HMCS *Corner Brook*, a *Victoria*-class submarine, completed a very successful deployment in the Northern Labrador Sea and Davis Strait in August of this year. If predictions about global warming are accurate, ice coverage in the Arctic will be reduced, the ice edge will recede and the potential areas for operating Canadian submarines will increase significantly. Demonstrating to Canadians and non-Canadians alike that Canada has the will and the capability to assert sovereignty in the seas of the Arctic claimed by it will become more important as global warming allows the increased exploitation of the Arctic seabed, and Canada makes claims to extend its continental shelf under the UNCLOS treaty. The use of the current NATO and allied water space management regimes will not only allow Canada to operate submarines safely in the Canadian Arctic, but will assist Canada in gaining an understanding of other submarine movements and other underwater activity in these waters. The WSM system is an important tool in this endeavour, but only if Canada maintains a viable and capable submarine force.

Returning to the analogy of an air traffic control system, Canada would have little credibility in declaring sovereignty over air space without a fighter interceptor capability to enforce its claim. Likewise, without submarines, Canada will be excluded from sharing in the NATO and allied WSM systems, and will not be in a position to enforce sovereignty by monitoring submarine and undersea activity in the Canadian Arctic, and control the movement of submarines in the Northwest Passage. 🇨🇦

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