THE NEED FOR A CO-OPERATIVE APPROACH WITH NON-MILITARY USERS

The Prevention of Mutual Interference Within the Subsea Littoral

The 2009 collision between two Royal Navy and French Navy submarines highlights the inherent risk of â€˜flying blindâ€™, and the ever-present danger that submerged activities present. Notwithstanding the diplomatic intricacies of operating nuclear deterrent submarine patrols, informed commentary suggests that the collision could be attributed to three factors: (1) Franceâ€™s non-participation in the NATO waterspace management organisation (having ceased being a member of NATO in 1966); (2) the evolved silence of operational submarines and the relative effectiveness of sonars against silenced submarines and (3) bad luck. Specifically, the root of the problem was procedural. So what?

The fact that the submarines of two submarine operating countries actually collided highlights two things. Firstly, that each had a common interest in a particular area of water column and secondly, both were aware of a standing waterspace management procedure that had existed since the 1960s.

With this in mind, the collision occurred despite the fact that it really could have been avoided altogether, without divulging operational security details to either party. France rejoined NATO in 2009 after this incident.

Navies have standing practices to de-conflict military activities, both within their own community, and across other navies that are allied to it. Advice of activities is forwarded to, for example, the responsible Submarine Operating Authority (SUBOPAUTH) who will re-route their own and allied submarines, if prudent, or otherwise provide advice to the informing agency to reconsider its own activities temporarily.

This aspect of a SUBOPAUTH's remit is, simply, a de-confliction agency for underwater movements. With the same good faith held by air traffic controllers, a SUBOPAUTH analyses movements within its area of responsibility, then identifying and resolving potential submerged collisions. This is typically, however, achieved through prior notification of intended activities, in lieu of dynamic de-confliction, like air traffic control.

SUBOPAUTHs, under that specific term, are typically NATO/Allied organisations established through discrete national bilateral agreements. It is expected that those countries operating naval submarines, and not belonging to NATO or the Alliance, would have a similar regime enacted for the same reasons of de-confliction. SUBOPAUTHs are not constrained by the Law of the Sea Convention, and are typically large swathes of ocean. Australia, for example, has a responsibility for safe submarine operations in an area covering its Exclusive Economic Zone, whereas the adjacent United States Navy area covers a region from the western Pacific Ocean through to the Middle East.

Some activities, such as live gunnery firings using high-explosive munitions, require special clearance in order to avoid damaging submarine sensors. In circumstances where submarine re-routing is not an option, the conflicting activity is advised to reconsider the time

and space it requires. The use of the SUBOPAUTH to ensure submerged safety is virtually seamless. The use of such an agency permits a high degree of risk management, and allows both submerged and surface-based activities to proceed unhindered.

Civilian versus Military

Sometimes this isn't enough to prevent mutual interference, though.

Recently, some academic institutions have deployed acoustic data collection buoys to support biological research, inadvertently, in areas known to support standing - and relatively public - submarine operations. This is obviously not an ideal situation.

The potential damage to such buoys is high, as is the potential unwanted collection of data originating from the submarine, wishing to remain incognito. This situation could have been avoided if an agency, similar in operation to a nation's SUBOPAUTH, were able to advise on the deployment of the buoys, and establish a dialogue between it and the university to seek mutually beneficial outcomes.

It can be seen that there are many probable situations, hinted at through just two real-world examples, where the need for better notification and co-ordination of underwater activities is required between Naval and non-military users.

Most civilian underwater tasks have direct parallels with military missions, such as Intelligence, Surveillance and Reconnaissance (ISR), hydrographic survey and Rapid Environmental Assessment, Mine Counter-Measures (MCM) when viewed as a form of underwater feature survey. Underwater Battle Damage and Repair (UBDR), though forseeably limited when diving to depths delineated by a relatively shallow hull draught, has the potential to extend beyond 30-50m as the concept of Sea Basing is developed and a capability need for deep-diving is developed.

Demonstrated commercial abilities in short-notice surveys in congested littoral waters to permit passage of a high-value vessel into port or anchorage could cause concern to navies worldwide.

There are now many occasions in which industry wishes to use the same water column concurrently as does an adjacent navy. The emphasis on a navy's ability to tactically operate in littoral and coastal regions to facilitate amphibious operations, often in resource-rich areas, will ensure that the risk of mutual interference in each party's activities, will increase.

Cluttered Environments

Increasing use of Unmanned Underwater Vehicles (UUVs) (covering both Autonomous Underwater Vehicles and Remotely Operated Vehicles), in the conduct of civilian subsea activities is not new. The ability to gather oceanographic, seismic, hydrographic and other data, at the required quality, in a timely manner without the need to necessarily expend cash on humans or ships, while simultaneously managing business risk more effectively, is proving to be an attractive alternative to traditional data collection methods. The up-take of this technology by the commercial sector has been far greater than demonstrated by most navies. A glance at the internet or in a professional journal will reveal a plethora of civilian subsea companies offering a range of UUV services. Pipeline route and inspection surveys, underwater photography, hydrographic surveys and hull and infrastructure inspection surveys are a sample of these services.

Add to this academic research UUVs, and those UUVs employed by national environmental agencies and it is easy to see that these capabilities are for the longer-term. The inevitable decrease in acquisition and operating costs will permit more subsea companies to take up this capability, and thus quickly creating and compounding a cluttered environment. Extending the proliferation of UUVs to privately operated submarines for tourism and research and it is clear to see the need for such a co-ordinating body is required.

Transparency

Concurrent operations within the water column is not an issue if those operations are transparent to all, or most, users of it. This is not presently the case. No governing authority, nationally or internationally like the International Civil Aviation Organisation (ICAO), currently has oversight on the non-military movement of foreign bodies through the water.

Functioning similar to a SUBOPAUTH, a governing body would co-ordinate, synchronise and de-conflict use of the water column within a designated geographical area, serving to streamline such a process with minimal duplication of effort and minimal inconvenience for private industry who, until now, have enjoyed relatively unfettered access to the oceans.

A comprehensive Google-based tour of the internet has revealed very little about civil-military co-operation on the seas. It seems it's mostly Gentlemen's Agreements, and ad hoc requests for details of civilian submerged operations to individual groups that enables military de-confliction, albeit microscopically, and with little to nil transparency for other water users. There appears to be no maritime parallel to the ICAO to permit Civil/Military Cooperation.

Coastal states have long had agencies that exist to facilitate the safe passage of shipping within its region. The promulgation of activities occurring below the sea surface are typically promulgated via Notice to Mariners, or via radio navigation warnings.

Exclusion Zone

An exclusion zone is often applied with all passing shipping advised to remain clear to avoid mutual interference. The exclusion is cylindrical in shape, extending indefinitely below the sea surface. This precludes submerged operations at depths potentially below the effective operating depth of a towed sonar, or seismic sounding array, for example.

The introduction of a new governing agency, either nationally or internationally, should not be viewed as a hindrance to current and future commercial or academic operations. Rather it is easily viewed as a solid means of reducing an increasing amount of risk operating within waters shared by increasing users. This has been well established in the air, via the ICAO, for many decades with excellent effect. For a Navy, this probity would permit safer submarine routing, AUV deployment and diving operations, for example. For a commercial subsea company, it would provide greater assurance that its activities' risks have been reduced to as low as reasonably practicable. Greater co-operation is required to ensure this is the case.

Industry groups, such as the International Marine Contractors Association, have already established a code of conduct for the safe operation of UUVs, hence they are already interested in decreasing risk in that activity. As an organisation with a global membership it already has significant reach into most underwater commercial activities, hence some leverage into lobbying coastal states for such a regime. Individual companies may prefer to approach individual coastal state agencies for advice on how to de-conflict its activities. Should the volume of enquiries prove sufficient, it may provoke governments to analyse the issue more deeply and explore options to reduce the inherent risks within their immediate seas.

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