SSGN: Supporting the Navy’s Irregular Warfare Campaign

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Mark Kenny is Director of the US Navy Irregular Warfare Office, and James Belz is on his staff. Here they describe the role of the submarine in the conduct of Irregular Warfare, the payloads it will carry and experimentation that will be done to ensure that new equipment is operational as early as possible.

On 26 July, the Chief of Naval Operations (CNO) announced the formation of the Navy Irregular Warfare Office (NIWO) on the Navy Staff. His direction for this office, led by Rear Admiral Mark Kenny, was to take charge of the Naval service efforts to synchronise support for Special Operations Command (SOCOM), US Geographical Combat Commanders, interagency, and coalition partners to conduct Irregular Operations. The Chief of Naval Operations also tasked NIWO to institutionalise Irregular Warfare (IW) in Navy’s planning, investment and capability development efforts.

This Irregular Warfare effort has its roots in the US Submarine Service. Beginning in 2005, the Center of Submarine Counter-terrorism Operations was formed by Rear Admiral Kenny while commanding Submarine Group Two in New London, Connecticut. Last year the command expanded its influence to surface warship and aviation support for the war on terror and was designated the Center of Expeditionary Counter-terrorism Operations. This set the stage for the CNO to formally designate the Command as Navy Irregular Warfare Office and move it to the Navy Staff in the Pentagon. The mission of NIWO expanded from purely counter-terrorism to include counter-insurgency, unconventional warfare, information operations, intelligence operations and Foreign Internal Defense.

At the centre of these efforts is the SSGN. February 2006 marked the beginning of a new era for the United States Navy. USS Ohio was recommissioned as SSGN-726, the first in a four-ship class, and the first US Submarine to carry the designation of SSGN since the USS Halibut (SSGN 587) in the 1950s. USS Michigan, USS Florida, and USS Georgia have since completed SSGN conversion. As a guided missile submarine, the primary vision for the new Ohio-class SSGNs is that of a submarine capable of carrying a large number of Tomahawk cruise missiles. With the ability to carry up to 154 Tomahawks, the new ships meet the primary vision superbly – but they do much more than just support cruise missile strikes. Storage space and berthing have been added to enable the sustainment of up to 66 embarked Special Operations Forces (SOF) personnel. Every SSGN of the new class has been upgraded to include a Battle Management Center – a large open space where mission planning for either submarine or Special Operating Forces (SOF) missions may be conducted. They are also capable of mounting up to two Dry-Deck Shelters (DDS) or one DDS and one Advanced SEAL Delivery System (ASDS). These can deploy SEALs or SOF equipment, either wet or dry, while the submarine stays submerged. Given all this, it’s easy to see that this new breed of submarine will change how people think about submarines and submarine missions, and make it a quintessential IW platform.

The greatest change to the SSGN is the conversion of the former ballistic missile tubes into new mission configurable tubes. Each tube can nominally be filled with a Tomahawk Vertical Launch System (VLS) compartment holding seven cruise missiles. However, the real strength lies in the ability of these tubes to hold other payloads. Alternative payload modules, both in development today and in the future, can replace the standard Tomahawk compartment. In order to communicate and control the new payloads, an Interface Module with a common, accepted standard is being developed. This will yield truly reconfigurable tubes by allowing the payload to be merely swapped. Several different payloads are
currently being designed, and are discussed below. Even more power lies in the ability to deploy future payloads on the current platform, thereby maintaining the relevancy and value of SSGN, with payloads not yet even imagined.

**Payloads**

There are several payloads in design and currently being engineered. All are designed to increase the ‘field of regard’ of the submarine. The ‘field of regard’ refers to the area the submarine is able to observe, collect and then affect. Using this definition, most payloads will be off-hull sensors. Sensor payloads under development include a submerged launched Unmanned Aerial Vehicle (UAV), a remotely launched Unmanned Underwater Vehicle (UUV), and a SOF Equipment Wet Stowage module. This module enables SOF to potentially store everything from Combat Rubber Raiding Craft to the gasoline that fuels them – things that are not allowed into the closed atmosphere of the submarine itself. This tube will be accessible while submerged and enable large loads to be deployed that would be cumbersome or too heavy to lift through the DDS hatch.

**Experimentation and the FRTP**

The Fleet Readiness Training Period (FRTP) is the submarine’s training period consisting of time spent preparing for deployment. In the past, this 12–18 month period allowed for testing of new and proven technologies in the continental US (CONUS) during naval exercises or tactical development exercises (TACDEVEX). With only four ships in the class, and a strong emphasis on maintaining a forward deployed presence, there is little time available within the FRTP for testing these new payloads. When the SSGN deploys, it will typically be gone for 13–15 months. To mitigate this loss of development time, every time an SSGN deploys, it will have at least one configurable tube specifically set aside for experimentation. This will provide the opportunity for new technologies to be operationally demonstrated in actual field conditions and be more readily available to forward deployed commanders. This is not to say that untested, experimental technologies will be tested in theatre, but rather the time historically spent refining CONOPs and flushing out TTPs will be done forward. All technology deployed to an operational AOR will have been proven and certified prior to deploying.

Several technologies have already been successfully brought forward this way. Referred to as a ‘spiral approach’ to development, it deploys the 80% solution to gain the immediate benefit and then refines it in an operational setting. For example, a submerged launched UAV is desired. While the engineering solution to the deployment and retrieval of a submerged UAV has not yet been completed, waiting for the entire solution keeps the submarine’s visual field of regard at the same range it has been for decades. By designing and deploying a bridge-launched UAV vice a submerged launched one, using currently available technology, many of the issues that would have come to light with the final solution can
now be examined and solved (i.e., command, control and communications). At the same time, the submarine can have an immediate impact and see over the horizon by deploying this sensor now. The solution to a submerged launch can continue to be engineered and eventually incorporated into the submarine’s payload as it becomes available. This evolutionary approach to deploying new capability optimises our use of funds in the current fiscally-constrained environment by bringing capability to bear as early as possible, while still providing an ability to refine CONOPs and TTPs. All of this can be accomplished while spiralling the equipment’s development.

Another technology that is being accelerated into the fight by NIWO is the Sea Stalker Unmanned Undersea Vehicle. This large-diameter UUV will be launched from a SSGN’s drydeck shelter and have the ability to lurk off a coast and collect intelligence and conduct surveillance. Much like the UAV effort, this capability will go from concept to operational combat in less than a year.

**A Versatile Platform**

With only a four-ship SSGN class, some may find it difficult to justify investing in multiple payloads for this platform. This will not be an issue, since the value of the reconfigurable tubes was recognised. The third flight of the Virginia-class submarine (beginning with USS North Dakota (SSN784)) will have two reconfigurable tubes installed and many of these payloads will be operated from US surface warships. These will be exactly the same as the converted ballistic missile tubes on the SSGNs, and will be able to utilise many of the payloads developed for the SSGN platform. This will ensure that any payload gains made in the SSGNs are leveraged across the Virginia-class SSNs and surface warships.

With the new reconfigurable tubes and the experimental tube designation, the SSGN is making a drastic change in the way the Navy conducts business. The ability to develop and integrate new payloads will allow the SSGN and Virginia-class, as well as the future surface warship, especially the Littoral Combat Ship (LCS), to have a level of flexibility previously unknown to warships. The new payloads will allow the submarine and LCS to extend their reach out from the sea to areas overland, or to operate more effectively in waters previously considered inaccessible. The SSGN will provide the US Navy with a versatile, stealthy platform capable of supporting a wide variety of missions in one of the most fiscally and experimentally constrained times in our history.

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