Technology makes subs essential

From A1

Pittsburgh and the USS Louisville out of San Diego — fired just 12 missiles in Desert Storm, about 4 percent of the weapons fired from Navy ships.

In 2001's Operation Enduring Freedom against Taliban and al-Qaida targets, submarines fired about 37 percent of the weapons launched, and the number will likely be at least that high when the final tally is made in Iraq this year — although the Navy has said more than 800 Tomahawks were fired into Iraq, but it has not yet disclosed how many came from submarines.

"It's pretty apparent that from the Joint Forces commander's perspective, the submarine has become the Tomahawk shooter's platform of choice," said retired Capt. James H. Patton Jr., president of Submarine Tactics and Technology in North Stonington.

The submarine's nuclear power plant has long been its key strength, and in an era when trouble spots crop up quickly it has become even more important.

"That is the premier advantage they have — with their speed and endurance, they can be on station anywhere in the world within a couple of weeks," said Capt. Chester Helms, the military chairman of undersea warfare at the Naval War College in Newport, R.I.

A surface ship, which has to worry about refueling, is more limited in its ability to get on station quickly, and stay there for extended periods.

Another reason submarines are playing a more prominent role in modern warfare is the increased use of the Tomahawk missile, the primary land attack weapon for submarines and surface ships, which allows pinpoint targeting of installations such as anti-aircraft batteries from up to 1,000 miles away.

"There were a lot more Tomahawks used in this war than 12 years ago," Helms said. "If they're going to call for that many weapons, submarines are going to have to deliver some of them."

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Rapid advances in the ability of submarines to receive targeting data have allowed them to play a greater role in strike operations.

"There have been huge strides made in just the last five years in the communications capability of submarines, driven in large part by the need to integrate them into Network Centric Warfare," Helms said. "When they're at periscope depth now, they are essentially part of the 'net.' "

Net Centric Warfare is a concept that allows several linked ships to fight together. In its ultimate sense, it could allow one ship to detect a target, a second ship to fire a missile against it, and a third ship to guide the weapon.

In the war to drive Iraq out of Kuwait in 1991, the information "pipe" going into a submarine was limited, in text terms, to something less than 60 words per second.

At that rate, a page of typed material might take 5 seconds to transmit, and downloading dozens of pages of classified messages meant spending 15 or 20 minutes at or near the surface, where a submarine is most vulnerable, and where waves could easily disrupt the data stream, requiring the process be restarted.

Providence was the first submarine to receive the HDR (high data rate) antenna, however, which gives it the capability to download an entire library in about the time it would have formerly taken to download a paperback.

"There have been reports that a submarine can download a mission and reprogram a weapon in something like 15 minutes now, which is considerably faster than 12 years ago," said Helms. "That makes submarines considerably more flexible now than they were then."

Kan, the Providence skipper, said an important aspect of the new information age for submarines is it allows a submarine commander to choose the information he downloads, which will cut down on the volume and improve efficiency.

"As a department head I used to get 200 messages a day dumped in my 'in' basket — I only cared about 5 percent of them, but I had to look at all of them to decide which ones they were," Kan said. "Now, with web-centric command and control, I can go in and pull the data that I want, instead of having all this data I don't need thrown at me. It gives you a much cleaner, clearer view of the road."

Modern naval warfare concepts such as the Chief of Naval Operations' plans for Sea Strike and Sea Shield are all driven by high-volume access to quality data, Kan said, and modern submarine communications are ready to deliver it.

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Retired Navy Capt. Raymond D. Woolrich of Waterford, who commanded the USS Trepang in the 1980s, said the natural stealth of a submarine imparts a tremendous advantage to modern war planners, in a couple of ways.

In World War II and throughout the Cold War, stealth was important so a submarine could sneak up on an enemy. In an era of "asymmetric warfare," stealth is important so an enemy cannot sneak up on you.

As the war against Iraq has shown, you can position a dozen submarines in a relatively confined space such as the Red Sea with no force protection. Modern antiship weapons and terrorists in small boats laden with explosives might threaten surface ships, but you can't strike what you can't see.

"They can also respond rapidly, they can operate covertly, and they're not causing an international incident because they appear to pose a threat to either a hostile or a friendly country," Woolrich said.

"You really give a lot of flexibility to the National Command Authority when you have submarines in the area," Woolrich said. And by adapting new technologies to a century-old platform, he said, submarines are likely to become even more valuable in the future.

The Navy is in the middle of a program to convert four older Ohio-class ballistic missile submarines so they will be able to carry up to 154 Tomahawks and dozens of special force commandos. In addition, the Navy is nearly ready to deploy the next-generation cruise missile, the Tactical Tomahawk, which can be reprogrammed in flight.

Woolrich envisions an era when submarines can put Navy Seals ashore to reconnoiter an enemy position, and then call in a strike. Submarines could launch a Tomahawk that could even track down a mobile target.

"Targeting is going to keep getting better and better and easier and easier," Woolrich said. "It's going to change the concept of submarine operations."

Retired Vice Adm. Bernard M. Kauderer, a former commander of the Atlantic submarine force, said the war in Iraq "is clearly an indicator of how submarines will be involved in strike warfare in the future, and is a sort of mini-view of what our joint force commanders and the Joint Chiefs of Staff can expect once the SSGNs are converted, commissioned and on patrol.

"Once those SSGNs are in position, you've got a survivable, floating magazine that can respond quickly and accurately," Kauderer said.

"Then they have the ability to turn around, to head to a tender, reload and return to the scene of action, all without having to have a logistics train behind them, because they don't need to be refueled," Kauderer said. "That's a capability that no other force has."

Patton said another reason submarines are playing a greater role in modern conflict is "we finally got out from under our basket — we finally let the rest of the Navy know what we could do."

He said as information about submarine capabilities has been shared with other arms of the service, there has been a greater respect for what they bring to the battle group.

"A lot of the credit for that belongs to guys like (Adm. Frank L.) Skip Bowman (the commander of Naval Reactors), who is operating at very high levels telling that submarines can be a player," Patton said.

But he said while land attack missions have become the new primary mission of the submarine force, it cannot forget the mission that consumed it for the last 40 years — anti-submarine warfare, or ASW.

Forged in undersea cat-and-mouse games with Soviet submarines, ASW is a skill that relies more on technique than does a land attack, which is largely procedural, he said. Both are difficult, and both are important, he said, but they are entirely different sets of skills.

"It's the difference between playing baseball and playing piano," Patton said. "We've got to make sure we keep both skill sets current, in case we ever need them."

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■ *Lt. Cmdr. Thad Nisbett, above center, watches over the fire control stations in the control room of the USS Providence during a round of Tomahawk cruise missile strikes against Iraq in the Red Sea March 22.*

■ *Left, the officers and senior crew members of the Providence gather in the ward room March 18 for a pre-strike briefing during operations in the Red Sea.*

■ *MM3 Anthony Thompson, bottom photo, uses a flashlight to watch the track of a Tomahawk as the crew loads the missile into the horizontal launch tube aboard the Providence in the Eastern Mediterranean Sea March 13.*

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