AMERICAN SSN FLEET SHRINKS

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The U.S. Navy recently received the tenth of 30 Virginia class SSNs (nuclear attack sub). The Minnesota (SSN 783) arrived 11 months ahead of schedule and is the last of ten Block II Virginias. Five years ago the Navy got its fifth Virginia eight months ahead of schedule and under budget as well. The Virginia's are taking 5-6 years to build and are arriving at the rate of one a year. That will increase to one or two a year in order to replace the aging Los Angeles class boats.

The Virginias cost about $2.2 billion each. They displace 7,800 tons and are 114.9 meters (377 feet) long and 10.36 meters (34 feet) wide. Top speed is over 50 kilometers an hour max depth is more than 250 meters (over 800 feet). The Virginians are armed with Tomahawk cruise missiles (in 12 vertical launching tubes) and four 53.3 cm (21 inch) torpedo tubes that can fire MK 48 torpedoes or naval mines.

More important are the large number of electronic systems carried. These make the Virginias more difficult to detect, which enables these subs to be more effective at espionage and scouting. The electronics can also quickly detect and identify incoming torpedoes and rapidly use countermeasures. The passive (listen only) sonar system is backed by a huge library of sounds. Virginias are also designed to operate in shallow waters and carry a SEAL Delivery Vehicle (sort of a minisub for getting SEALs ashore) outside the sub. With a dozen or so SEALs on board a Virginia will be carrying nearly 150 people.

Virginia's nuclear reactors are the new type that does not have to be refueled, having sufficient nuclear material to last 33 years. The reactors generate enough heat to provide 40,000 horsepower, as well as ample electricity for all the electronics. The block II models used less costly construction techniques while the eight Block III boats will have some design changes and new technology.

The U.S. currently has three classes of SSN. Most are the 6,900 ton Los Angeles-class SSNs. Sixty-two of these submarines were built, and 41 are still in service. Armed with four 53.3 cm torpedo tubes, they carry twenty-six weapons for those tubes (either the Mk 48 torpedoes or BGM-109 Tomahawk cruise missiles). The last 31 Los Angeles-class SSNs added the Mk 45 vertical-launch system (VLS), which carries another twelve Tomahawks. If built today these late model Los Angeles class boats would cost about $1.5 billion each. The first of these entered service in 1976 and the last one in 1996. These boats can last 30-35 years before they must be retired or undergo extensive (over half a billion dollars worth) of refurbishment and refueling. This can take 4-5 years and will keep the sub going for another 10-15 years. But there's barely enough money to keep building Virginias and no time or cash to refurb elderly Los Angeles class boats. The American SSN fleet will shrink over the next two decades by at least a dozen boats (from 55 to under 45.)

Twenty-nine 9,000 ton Seawolf-class SSNs were supposed to replace the Los Angeles boats but Seawolf proved too expensive. Only three were built. The Seawolf was designed for the Cold War, carrying fifty weapons (torpedoes, cruise missiles, or Harpoon anti-ship missiles) for its eight 660 mm (26-inch) torpedo tubes. Seawolf was fast (top speed of over 60 kilometers an hour) and much quieter than the Los Angeles boats. To replace the un-built Seawolfs the Virginia-class was designed. Think of it as a Los Angeles size hull with a lot of Seawolf technology installed. The Virginia class boats ended up costing about half as much as the Seawolfs. But that was largely possible because the Virginias used a lot of the new technology developed for Seawolf.