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> **Michael Peck, War Is Boring:** *"This isn't just a game. It's a simulation that's as close as many of us will ever get to real Pentagon simulation. C:MANO, as fans call it, is a real-time game that boasts an incredibly rich—and unclassified—database of the aircraft and ships of the Cold War and beyond. [...] I strongly suspect that this game won't prove any less accurate than the government's tippity-top-secret simulations."*

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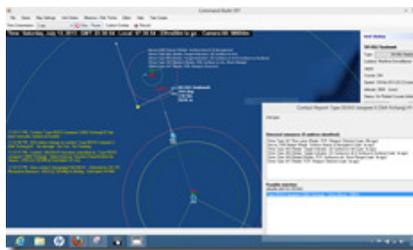
STURGEON-CLASS SSN

By **Dimitris V. Dranidis**

General

Users: United States

Roles & Missions: The Sturgeon-class submarines were built primarily for anti-submarine warfare and intelligence-gathering missions in the late 1960s and 1970s. Using the same propulsion system as their smaller predecessors of the SSN-585 Skipjack and SSN-594 Permit classes, the larger Sturgeons sacrificed speed but gained markedly imp roved stealth, much improved weapons & sensors, and extensive ELINT equipment. The emphasis on intelligence-gathering and other special operations was a particular hallmark of the Sturgeons, and a significant part of their career was devoted to such tasking (see also the "JED Special" section on this issue). Attracting little publicity during its heyday (as is typical with sub ops), this class was the platform of choice for many of the covert Cold War missions for which submarines are now famous (including the particularly daring insertions into the Barents and Okhotsk seas, tapping the ultra-secret communications cables of the two main Soviet fleets)[1].

The Sturgeons were also among the first US subs purpose-designed to operate in the polar ice cap: the sail-mounted dive planes could rotate to a vertical position for breaking through the ice when surfacing in Arctic regions.

Beginning with SSN-678 Archerfish, units of this class had a 10-foot longer hull, giving them more living and working space than previous submarines of the Sturgeon Class. This also facilitated the temporary hosting of SpecOps teams.

A total of six Sturgeon-class boats were modified to carry the SEAL Dry Deck Shelter [DDS], one in 1982 and five between 1988 and 1991. These boats (SSN 678-680, 682, 684, 686) were listed as "DDS Capable" - either permanently fitted with the DDS or trained with them. In this configuration, they were primarily tasked with the covert insertion of SpecOps troops from an attached Dry Deck Shelter (DDS). The Dry Deck Shelter is a submersible launch hanger with a hyperbaric chamber that attaches to the ship's Weapon Shipping Hatch. The DDS provides the most tactically practical means of SEAL delivery due to its size, capabilities, and location on the ship.

After a 5-year study was completed on the class, the design life was extended from 20 years to 30 years, with a possible extension to 33 years on a case-by-case basis. However, all boats of this class were retired prior to this limit during the 90s, in order to avoid expensive reactor refueling operations.

Strengths: The Sturgeon class was from the outset designed to effectively perform covert operations in addition to the more "traditional" ASW/ASuW/CVBG-escort duties. This meant optimization for stealth (very low noise levels), habitability for prolonged operations (ample internal space both for crew and SpecOps visitors) and electronic surveillance sensors. Together with these unique virtues (many of which were sacrificed for the sake of speed in the succeeding Los Angeles), the class benefited from the more general fleet-wide improvements being introduced in the 60s and 70s: improved bow (spherical) and towed sonar arrays, improved weapons (in particular the Mk48 torpedo and the UGM-84 Harpoon missiles) and so forth. In terms of quieting and sensors, the Sturgeons represented the apogee of the USN's technological superiority over the Soviet Navy: the most modern contemporary direct adversaries included the noisy Victor I/IIs and Alfas, and the Sturgeons were regularly able to track and trail them even in close proximity without counter-detection (the Soviets would soon get wiser and mass-produce the significantly improved Victor III).
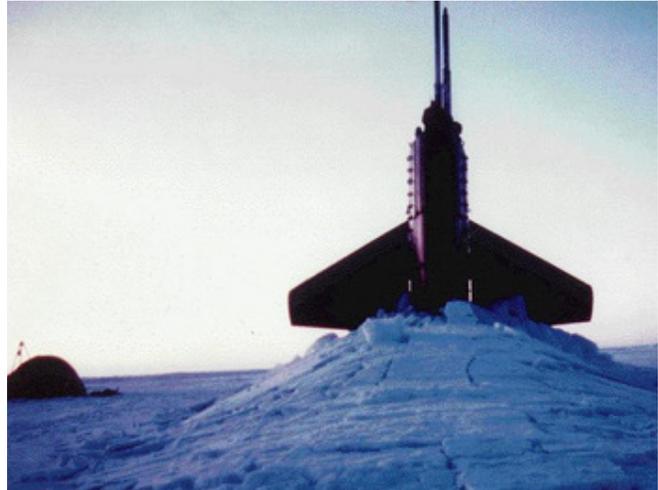
A Sturgeon-class boat breaks through the ice pack in an Arctic exercise

Weaknesses: There aren't a lot of negatives that can be mentioned about this class, other than the relatively low maximum speed of 30kts. While perfectly adequate for CVBG escort, this meant that sometimes an alerted Soviet sub could outrun its Sturgeon trailer (whether it could also outrun an Mk48 fired at close range is another point altogether). It also meant that, if by some chance detected during a "sensitive" mission, the sub might have trouble outrunning its border-patrol chasers (this could be a troublesome situation if the ROEs definitely prohibited the use of weapons even in self-defence; and such ROEs might not be unlikely considering the nature of such missions).

Deployment & Scenario Use: The Sturgeons saw a rich career throughout their operational lives, serving with all US fleets and performing all duties related to submarines – with particular emphasis on missions that usually do not grab headlines. They are ideal for ELINT-snooping setups (particularly the USS Narwhal with her ultra-quiet natural circulation powerplant) at all the doorsteps of the four Soviet fleets, plus other coastal installations of interest. SEAL team insertions are also one of the strong cards of the class, and these make for some interesting scenario opportunities – for example, using them to neutralize key facilities (SAM/SSM/radar/C3I installations etc.) that may otherwise greatly hinder the operations of other friendly forces. Their greatly improved stealth over previous classes also makes them natural boomer-trailers and gatekeepers off Kola and Kamchatka. Finally, they are equally suited to most of the other, more "traditional" roles such as CVBG shotgun escort, anti-shipping attacks etc.

Game stats:
Length: 92.4m
Displacement: 4460t
Crew: 107
Max Depth: 400m
Damage Points: 76

Equipment: SSN-637 Sturgeon (1980) – DB2000 v6.4

Radar

Name	Max Range	Abilities	Notes
AN/BPS-15	35nm	Surface Search Range Information Bearing Information	

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[1] *For a more detailed and thorough description of just what this class covertly accomplished in the 60s, 70s and even late 80s, the book "Blind Man's Bluff" is a highly recommended read.*

Electronic Warfare

Name	Max Range	Abilities	Notes
AN/WLQ-4	890nm	Surface Search Air Search Bearing Information Classification	Passive RWR/ESM/ELINT

Sonar

Name	Max Range	Abilities	Notes
AN/BQR-15	69nm	Sub Search Bearing Information	Towed Array
AN/BQS-13E	3nm	Sub Search Range Information Bearing Information	Active-only sonar
AN/BQS-14	3nm	Sub Search Range Information Bearing Information	Active-only sonar
AN/BQQ-2	39nm	Sub Search Range Information Bearing Information Altitude Information	Active/Passive sonar

Mounts

Mount	Properties	Weapons (per mount)
2x 533mm Mk68 TT *(1980/SSN/Mk48)*	ROF: 5 Capacity: 1 Armor: None	1x Mk48 Mod 3 *(20nm)* (max. 1) *0x UUM-44A SUBROC (max. 1)*
2x 533mm Mk68 TT *(1980/SSN/UUM-44A)*	ROF: 5 Capacity: 1 Armor: None	*0x Mk48 Mod 3 (20nm) (max. 1)* 1x UUM-44A SUBROC (max. 1)
2x CSA Mk1 Internal *(x2/1980s/Sture)*	ROF: 1 Capacity: 2 Armor: None	2x ADC Mk2 Mod 0 Decoy *(1980s)* (max. 2)

Magazines

Magazine	Properties	Stores
533mm Torpedo *(1980/Sturgeon)*	ROF: 300 Capacity: 15 Armor: None	13x Mk48 Mod 3 (20nm) (max. 15) 2x UUM-44A SUBROC (max. 15)
CSA Mk1 Signal Ejector *(1980/Stu)*	ROF: 60 Capacity: 20 Armor: None	20x ADC Mk2 Mod 0 Decoy (1980s) (max. 20)

Versions (H3-DB2000 v6.4)

- **SSN 637 Sturgeon (1980)**: As described.

- **SSN 637 Sturgeon (1981):** New weapons (fired from TTs):
  - Mk48 Mod 4 torpedo
  - UGM-84A Harpoon IP
  - UGM-84C Harpoon IB

- **SSN 637 Sturgeon (1985):** New weapons (fired from TTs):
  - UGM-109A Tomahawk TLAM-N
  - UGM-109B Tomahawk TASM

- ➢ **SSN 637 Sturgeon (1986):** UGM-84A Harpoon IP removed. New weapons (fired from TTs):
  - o UGM-84D Harpoon IC
  - o UGM-109C Tomahawk TLAM-C Blk II
  - o UGM-109D Tomahawk TLAM-D Blk II

- ➢ **SSN 637 Sturgeon (1991):**
  - o TLAM-N, TASM, UGM-84C Harpoon IB and SUBROC capability removed.
  - o New weapon: Mk48 Mod 5 ADCAP torpedo
  - o New decoy: ADC Mk2 Mod 1

- ➢ **SSN 637 Sturgeon (1993):** New weapons (fired from TTs):
  - o UGM-109C Tomahawk TLAM-C Blk III
  - o UGM-109D Tomahawk TLAM-D Blk III

- ➢ **SSN 637 Sturgeon (1997):** All sub-Harpoon versions removed.

- ➢ **SSN 671 Narwhal (All dates):** Based on Sturgeon hull, but with natural-circulation reactor (ultra-quiet at low speed). Available from 1981 onwards. Mounts, weapons and sensors identical to standard Sturgeon. Line of upgrades/modifications also identical.

- ➢ **SSN 678 Archerfish DDS (All dates):** Last 10 of class were built to an extra 10-ft length. Six of the long ones (SSN 678-680, 682, 684, 686) were modified to carry a shelter for SEALs. Also increased ELINT/SIGINT sensors and different sonar set. Available from 1982 onwards. Equipment as standard Sturgeon (1981) with the following changes:
  - o New mount: DDS shelter (max. 48 SEALs)
  - o Sonar changes
    - ▪ BQQ-2 replaced by BQQ-5 bow spherical sonar
    - ▪ BQR-15 replaced by TB-23/BQ towed array
  - o New ELINT sensors:
    - ▪ WLR-4(V)
    - ▪ WLR-9
- ➢ Line of subsequent upgrades/mods identical to standard Sturgeon.

- ➢ **SSN 683 Parche (All dates):** Based on Archerfish sub-class, further modified with equipment for deep-sea recovery (used for comm taps etc.). Available from 1991 onwards. Equipment as Archerfish sub-class, line of upgrades/mods identical.

Current Service

The heaviest-modified boat of the class, USS Parche, a veteran of covert operations, is the sole remaining vessel of the class. It is due to be replaced sometime around 2004 by the third and final Seawolf-class boat, Jimmy Carter.