

# Submerged Ships: SSN, SSGN, SSBN, and **K-129**

by

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!

Take her Deep, Take her Low  
May you never have to Emergency Blow  
Out in the Ocean's Deep  
Without even a Peep

The Boomers patrol out there  
In places no one else knows where  
Silent and Deadly  
But Smooth and Stealthy...

We run silent, we run deep  
We may get little sleep  
But our pride runs just as deep  
But in the end it is all worth it<sup>1</sup>



“Our pride runs deep...”

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<sup>1</sup> Tim Butterfield. (2000). Ode to the Submariner. Online From:  
<http://www.submarinesailor.com/poetry/OdeToSubmariners.asp>

**ABSTRACT:** Well, something like one...

A good friend of mine who lives in Oklahoma City (SSN-723, by the way) sent a URL with a whole lot of pictures and comments about our Navy nuclear submarines. This article was just short of being mesmerizing to me as my history, knowledge, and interest has been mostly WWII boats - mainly *Deutsche U-Boote*. Keith's URL was so good, and so important for my research I have added selected pictures at the end of this report.

My research led me to an older book by Tom Clancy *Submarine: A Guided Tour Inside a Nuclear Warship* (1993-2002) - the boat was SSN-755 MIAMI - which was a splendid start. Clancy is good. He showcased a jolly good chapter "The British Boats: A Tour of HMS *Triumph* (S-93).

Then, I found a site that will save us all the time, energy, and sea sweat to answer the blue water tantalizing questions we have about these boats. Please see "Welcome to Submarine 101" at <http://www.rickcampbellauthor.com/styled/index.html>

Ah, the questions: What in the world is the difference between a SSN and a SSBN? How many do we have? How big are they? Are women allowed on submarines? What comes after submarines? Are there other books, movies, and URLs to read, see, and study? Yes, I do have some pertinent test questions as we go along to make sure you are listening, reading, and taking notes!

So, this paper is designed to whet your appetite about nuclear submarines and give you the direction and guidance to read, study, and enjoy the subject. Really, here is the start for all you ever wanted to know about "the most feared weapon on Earth!" *Run deep, run silent!*

Have just added this sentence so you may skip to pages 13 and 14 as it will all lead up to ***the story about K-129. This is the real overriding reason for this paper... (and, what happened to "Scorpion" in 1968?).***



***BOOM!!!!*** - A Mark 48 torpedo hit.

Question 1 - All of these boats are US except

- a. SSN
- b. SSBN
- c. SSGN
- d. K-129

Question 2 - All of these boats are Seawolf class except

- a. SSN-21
- b. SSN-22
- c. SSN-23
- d. SSN-24

Question 3 - If you were stationed on HMS *Triumph* (S-93) you could be served

- a. Bloody Mary
- b. P and Q
- c. a daily 'tot' of Pussers rum
- d. beer and wine

Question 4 - Russian class boats are

- a. Akula
- b. Sierra
- c. Oscar
- d. All of the above

Question 5 - The bridge on a submarine is called

- a. Sail
- b. Fairwater
- c. Fin
- d. All of the above.



This graphic started my first questions on how many different kind of subs and what is the difference in the classes of these subs. I will explain in at least three different ways – mostly for me because this picture above is not the whole picture. Notice some classes of boats have different lengths. The different designations of each boat signify different mission capability.

Your task is to see the classes and then know the differences between the boat designations. For instance the top three are **Los Angeles class** – with three different boats.

There are two **Seawolf class** boats shown. This is a weird but interesting class. Actually only three boats. All are different but do the same special operations – and they do not publish details.

The **Virginia class** shown with SSN-76, are being built even as we speak. There are about 18 completed out of 66 coming out two per year. They have the latest equipment but no periscopes. From the drawing above you can see it has no screw or screws but it does have a pump jet.

The last two are our big boats of the **Ohio class** and are the oldest boats. Notice toward the end of the list it shows SSBN-826 which will be the **Columbia class** and will replace the Ohio boat class.

Let's start with current boats and what is in the pipe line at Groton, Newport Beach, New London, and Norfolk (won't get into the exact history – am sure all this info is online somewhere – maybe).

**PARTIAL LIST OF USS BOATS** - The first list below shows the numbers of the boats from Nautilus (571) to Columbia (826) and just gives the history and shows some of the classes.

**PARTIAL LIST OF USS BOATS – some special events noted.**

SSN-571 Nautilus    Commissioned in 1954    In 1986 became a Museum in Groton.  
 SSN-572 Sailfish  
 SSN-573 Salmon  
 - thru  
 SSN-588 Scamp  
 SSN-589 Scorpion    Lost in accident 22 May 1968 (some say the Russians after K-129.)  
 -thru  
 SSN-593 Thresher    Lost in accident 10 April 1963  
 -thru  
 SSBN-598 George Washington    First nuclear powered ballistic missile submarine  
 -thru    a bunch of boats in this list...  
 SSN-688 Los Angeles    lead vessel for 688 class  
 -to SSN-700 Dallas    Stricken '18, museum hold – Made famous “Hunt for Red October”  
 SSN-718 Honolulu    Decom '07    End of 688 class I boats  
 SSN-719 Providence    First of 688 class II boats  
 SSN-723 Oklahoma City    Com '88    Decom 2019  
 SSGN-726 Ohio    Ohio class    These 18 boats are the Ohio class BOOMERS  
 SSGN-727 Michigan    First four in the Ohio class are SSGN  
 SSGN-728 Florida  
 SSGN-729 Georgia  
 SSBN-730 Henry M. Jackson    730 thru 743 in Ohio class are SSBNs  
 -thru  
 SSBN-743 Louisiana  
 SSN-21 Seawolf    Seawolf class of three  
 SSN-22 Connecticut  
 SSN-23 Jimmy Carter<sup>2</sup>  
 744 to 749    unassigned  
 SSN-750 Newport News    End of Flight II boats  
 SSN-751 San Juan    Los Angeles Class Flight III (improved, with AN-BSY-1)  
 -thru  
 SSN-775 Miami    Decom Mar '14. Had a fire while in dry dock.  
 -thru  
 SSN-773 Cheyenne    End of Flight III boats  
 SSN-774 Virginia    Lead in boat Virginia class    Comm Oct '04 (S9G) Groton  
 -thru  
 SSN-801 Utah  
 802 to 825 unassigned  
 SSBN-826 Columbia  
 827 to 837    For Columbia class boats.

<sup>2</sup> <https://www.popularmechanics.com/military/weapons/news/a28209/navy-spy-sub-jolly-roger-uss-jimmy-carter/>  
 Kyle Mizokami (2017). Why a U.S. Navy Spy Submarine Is Flying the Jolly Roger





I used to fly a 727 but it had three engines...this is SSGN-727 MICHIGAN the second boat in the Ohio class of 18 big **BOOMERS!**



Here is an Ohio **Boomer** in dry dock. You can count 24 missile tubes – Deadly and feared...

**Question 6** – The Ohio class

- a. lead boat is SSGN-726.
- b. has a total 18 boats.
- c. fourteen boats are SSBNs.
- d. All of the above.

**Question 7** – Which one is NOT an Ohio class boat?

- a. SSGN-727 Michigan
- b. SSGN-728 Florida
- c. SSGN-729 Georgia
- d. SSN-723 Oklahoma City

**Question 8** – The commander on the *Miami* had on his book shelve

- a. a stack of old Playboy magazines.
- b. two cookbooks his wife had given him.
- c. his graduation picture from the Naval Academy.
- d. a copy of *The Hunt for Red October*.

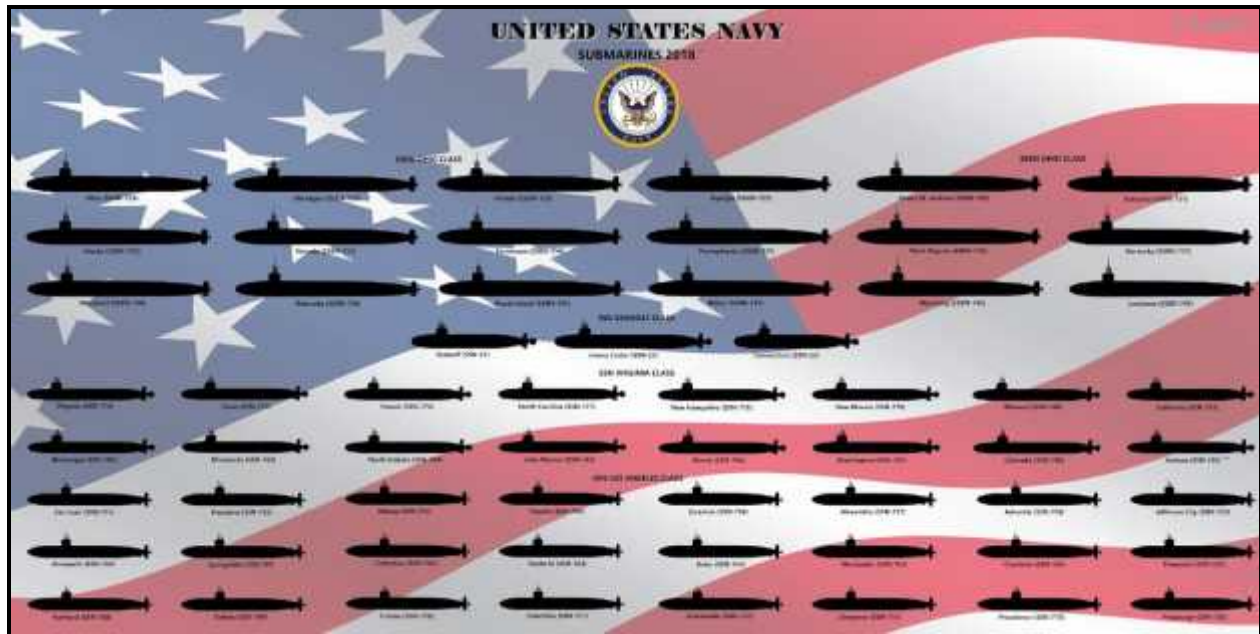
**Question 9** – Which is true for the ship control area on a Virginia class boat?

- a. is located on the same deck as the periscopes.
- b. is right next to Sonar Room.
- c. Chief of the Watch is between the helmsman and planesman.
- d. None of the above.

**Question 10** – The largest submarine in the US Navy is

- a. SSN-700 Dallas
- b. SSN-775 Texas
- c. SSRN-586 Triton
- d. SSBN-735 Pennsylvania





<https://www.popularmechanics.com/military/navy-ships/a19746695/us-navy-subs-infographic/>

“The eighteen submarines at the top of the graphic are **Ohio-class** vessels. Built in the 1980s, the *Ohio*-class boats are armed with Trident D-5 submarine launched ballistic missiles. Their only job is to take nuclear missiles to sea where they are effectively invulnerable, deterring other countries from launching a surprise attack. **Fourteen Ohios** remain on the nuclear deterrence mission, while **four Ohios** were made redundant by arms control agreements and converted to each carry 154 Tomahawk land attack cruise missiles.

The three submarines in the middle are the **Seawolf-class attack submarines**. Designed during the Cold War to go after deep-diving Soviet submarines and operate under polar ice, the Seawolves are large, heavy, highly capable attack boats. One of them, USS *Jimmy Carter*, is known informally as a spy boat that avoids publicity and is believed to carry out highly classified missions<sup>3</sup>. Carter was built with a Multi Mission Platform hull insert making it capable of launching and recovering underwater undersea vehicles, SEAL mini-submarines, and who knows what else.

The remaining submarines are the 48 **Los Angeles- and Virginia-class nuclear attack submarines**. These and the *Seawolf* boats are the real hunter-killers of the fleet, with the mission of stalking and killing enemy submarines and surface ships. They also carry Tomahawk cruise missiles for land attack missions and are a part of every deployed US carrier battle group to seek out and destroy enemy submarines.

The number of submarines in the U.S. fleet is a moving target: each year two more *Virginia*-class boats roll off production lines and older *Los Angeles*-class boats are retired. The navy is also considering boosting construction to three submarines a year, which would grow the size of the undersea fleet. Starting in 2029, the Ohio-class submarines will be replaced by **the new Columbia-class ballistic missile submarines** currently under development.” [Note: This from the URL above – highlights and underlines mine.]

<sup>3</sup> See footnote below PARTIAL LIST on SSN Jimmy Carter and the Jolly Roger article.

## ATTACK SUBMARINES – SSN

[https://www.navy.mil/navydata/fact\\_display.asp?cid=4100&tid=100&ct=4](https://www.navy.mil/navydata/fact_display.asp?cid=4100&tid=100&ct=4)

### Description

Attack submarines are designed to seek and destroy enemy submarines and surface ships; project power ashore with Tomahawk cruise missiles and Special Operation Forces (SOF); carry out Intelligence, Surveillance and Reconnaissance (ISR) missions; support battle group operations; and engage in mine warfare.

The Navy has three classes of SSNs in service. Los Angeles-class (SSN 688) submarines are the backbone of the submarine force, with approximately 40 now in commission. Thirty of those are equipped with 12 Vertical Launch System (VLS) tubes for firing Tomahawk cruise missiles.

The Navy also has three Seawolf-class submarines. Commissioned July 19, 1997, USS Seawolf (SSN 21) is exceptionally quiet, fast, well-armed, and equipped with advanced sensors. Though lacking VLS, the Seawolf class has eight torpedo tubes and can hold up to 50 weapons in its torpedo room. The third ship of the class, USS Jimmy Carter (SSN 23), has a 100-foot hull extension called the multi-mission platform. This hull section provides for additional payloads to accommodate advanced technology used to carry out classified research and development and for enhanced warfighting capabilities.

The Navy continues to build the next-generation attack submarine, the Virginia (SSN 774) class. More than a dozen Virginias have been commissioned to date, and they will replace Los Angeles Class submarines as they retire. The Virginia class has several innovations that significantly enhance its warfighting capabilities, including in littoral -- or coastal -- operations. Virginia class SSNs have a fly-by-wire ship control system that provides improved shallow-water ship handling. The class has special features to support SOF, including a reconfigurable torpedo room which can accommodate a large number of SOF and all their equipment for prolonged deployments and future off-board payloads.

## FLEET BALLISTIC MISSILE SUBMARINES – SSBN

[https://www.navy.mil/navydata/fact\\_display.asp?cid=4100&tid=200&ct=4](https://www.navy.mil/navydata/fact_display.asp?cid=4100&tid=200&ct=4)

Since the 1960s, strategic deterrence has been the SSBN's sole mission, providing the United States with its most survivable and enduring nuclear strike capability.

The Navy's ballistic missile submarines, often referred to as "boomers," serve as an undetectable launch platform for submarine-launched ballistic missiles (SLBMs). They are designed specifically for stealth and the precise delivery of nuclear warheads.

Each of the 14 Ohio-class SSBNs originally carried up to 24 SLBMs with multiple, independently-targeted warheads. However, under provisions of the New Strategic Arms Reduction Treaty, each submarine has had four of its missile tubes permanently deactivated and now carry a maximum of 20 missiles. The SSBN's strategic weapon is the Trident II D5 missile, which provides increased range and accuracy over the now out-of-service Trident I C4 missile.

SSBNs are specifically designed for extended deterrent patrols. The Ohio-class design allows the submarines to operate for 15 or more years between major overhauls. On average, the submarines spend 77 days at sea followed by 35 days in-port for maintenance. Each SSBN has two crews, Blue and Gold, which alternate manning the submarines and taking them on patrol.

### General Characteristics, **Ohio Class**

**Builder:** General Dynamics Electric Boat Division

**Propulsion:** One nuclear reactor, one shaft

**Crew:** 15 Officers, 144 Enlisted

**Armament:** Up to 154 Tomahawk missiles, Mk48 torpedoes; 4 torpedo tubes.

USS Henry M. Jackson (SSBN 730), Bangor, Washington

USS Alabama (SSBN 731), Bangor, Washington

USS Alaska (SSBN 732), Kings Bay, Georgia

USS Nevada (SSBN 733), Bangor, Washington

USS Tennessee (SSBN 734), Kings Bay, Georgia

USS Pennsylvania (SSBN 735), Bangor, Washington

USS West Virginia (SSBN 736), Kings Bay, Georgia

USS Kentucky (SSBN 737), Bangor, Washington

USS Maryland (SSBN 738), Kings Bay, Georgia

USS Nebraska (SSBN 739), Bangor, Washington

USS Rhode Island (SSBN 740), Kings Bay, Georgia

USS Maine (SSBN 741), Bangor, Washington

USS Wyoming (SSBN 742), Kings Bay, Georgia

USS Louisiana (SSBN 743), Bangor, Washington

### Navy Awards Contract for **Columbia Class** Submarine Development

Release Date: 9/21/2017 5:10:00 PM

WASHINGTON (NNS) -- The Navy awarded a \$5.1 billion contract to General Dynamics Electric Boat for Integrated Product and Process Development (IPPD) of the Columbia Class submarine Sept. 21.

The IPPD contract award is for the design, completion, component and technology development and prototyping efforts for the Columbia Class Fleet Ballistic Missile Submarines (SSBNs).

The 12-ship Columbia Class will replace the existing Ohio Class nuclear ballistic submarine force, which provides our Nation with a credible and survivable sea-based strategic deterrent. The first patrol of the lead ship, **SSBN 826**, is scheduled for fiscal year 2031.



## GUIDED MISSILE SUBMARINES – SSGN

[https://www.navy.mil/navydata/fact\\_display.asp?cid=4100&tid=300&ct=4](https://www.navy.mil/navydata/fact_display.asp?cid=4100&tid=300&ct=4)

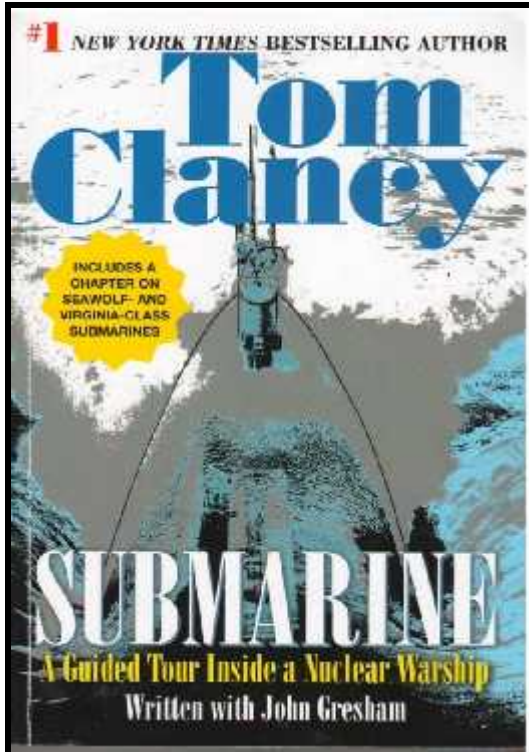
USS Ohio (SSGN 726), Bangor, Washington  
USS Michigan (SSGN 727), Bangor, Washington  
USS Florida (SSGN 728), Kings Bay, Georgia  
USS Georgia (SSGN 729), Kings Bay, Georgia

The 1994 Nuclear Posture Review determined that the United States needed only 14 of its 18 SSBNs to meet the nation's strategic force needs. Therefore, the Navy decided to transform four Ohio-class submarines into conventional land attack and SOF platforms. This allowed the Navy to leverage existing submarine technology while at the same time expanding capability to meet the current and future needs of U.S. combatant commanders.

The SSGN Program Office refueled and converted four SSBNs into SSGNs in a little more than five years at a significantly lower cost and less time than building a new platform. USS Ohio (SSGN 726) entered the shipyard on Nov. 15, 2002, completed conversion in December 2005 and deployed for the first time in October 2007. USS Florida (SSGN 728) commenced its refueling and conversion in August 2003 and returned to the fleet in April 2006. USS Michigan (SSGN 727) started its shipyard availability in October 2004 and delivered in November 2006. USS Georgia (SSGN 729) completed conversion in December 2007.

Combined, the four SSGNs represent more than half of the Submarine Force's vertical launch payload capacity with each SSGN capable of carrying up to 154 Tomahawk land-attack cruise missiles. The missiles are loaded in seven-shot Multiple-All-Up-Round Canisters (MACs) in up to 22 missile tubes. These missile tubes can also accommodate additional storage canisters for SOF equipment, food, and other consumables to extend the submarines' ability to remain forward deployed in support of combatant commanders' tasking. The missile tubes are also able to accommodate future payloads such as new types of missiles, unmanned aerial vehicles, and unmanned undersea vehicles.





There are more books but this one is a good primer. Clancy gives a tour of USS *Miami* (SSN-755), HMS *Triumph* (S-93, and a run down on the boats left over from the Soviet Union “evil empire.” Of interest as noted on the cover are two chapters on **Seawolf and Virginia Class** Submarines.



Maybe a good cover for a submarine book?





Screen shot of Captain First Rank Dmitri "Demi" Zubov who stars in the movie "Phantom."

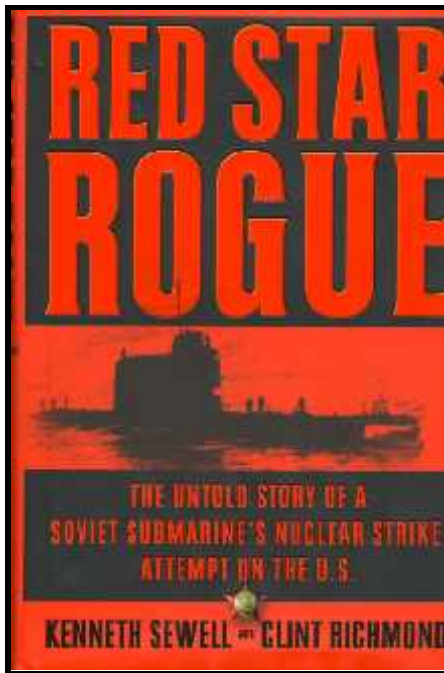


Inspired by actual events. Think K-129 (Golf II-type ), with three one-megaton ballistic missiles, on the way with "eleven strangers" (KGB) to a point about 350 miles north of Honolulu and launches one of the missiles toward Pearl Harbor. ***You really need to see just how "inspired" this movie is.***



“There are only two reasons why a boat would go rogue. One is to defect and the other is to start a war...and I don’t think we are defecting” (movie trailer<sup>4</sup>). Ed Harris at his best.

(Only Patton and Rommel looked this good in a dress hat.)



This book is the **K-129** in my title. This is the no sh\*t story. This reflects why we have our **BOOMERS** and why the US Navy (and others) are running silent – and deep. You should know the truth about this boat and what happened on March 7, 1968.

***This paper was written just for this book.*** We all need to know. Do you agree? (you will...)

<sup>4</sup> Movie trailer online at: <https://www.youtube.com/watch?v=R-8h-eGVShA>



## END OF THE SHOW! – to a “dark and silent world”

Would like to tout again the Web site by Rick Campbell - “[Welcome to Submarine 101](http://www.rickcampbellauthor.com/styled/index.html)” at <http://www.rickcampbellauthor.com/styled/index.html>

He does the honorable job of laying out the types, armament, crews, daily routine, and deployment information...then he gets really navy with it and goes into some pranks, unusual operations, and when things go wrong. He has a real nice Web site and rivals the German *Kriegsmarine* in 1939-1945 at [www.uboat.net](http://www.uboat.net)

Booklist says his book *The Trident Deception* “is the best novel about a submarine since Tom Clancy’s classic *The Hunt For Red October*.”

Want to borrow a picture from the control room to show an item of interest to me as I didn’t know a helmsman from a planesman until I got to this picture in the control room. This picture is shown both in the 101 and in the list at the end of this paper.



Of course, the diving officer sits between the helmsman and the planesman ordering them what to do. This “two-man control has been a hall mark of U.S. design philosophy for generations” (Clancy, p. 63). So, which one is which? Who controls the rudder(s) and/or bow planes? – maybe the stern planes - or both? Oh, and how about the sail planes? Rather than give you multiple choice I will let you do the homework...wasn’t easy, by the way.

Dang. This arrangement won’t work on the Virginia class boats. The watchstanders have been replaced with “...wait for it...a Pilot and Co-Pilot who sit at the Ship Control Panel (Campbell). These boats don’t even have periscopes! Can you believe it? Before you know it they will be having women stationed on these boats! ...Wait for it...’women may serve’ - was announced in 2010.

For your entertainment here are some of the pictures for the last part of the paper. Enjoy.

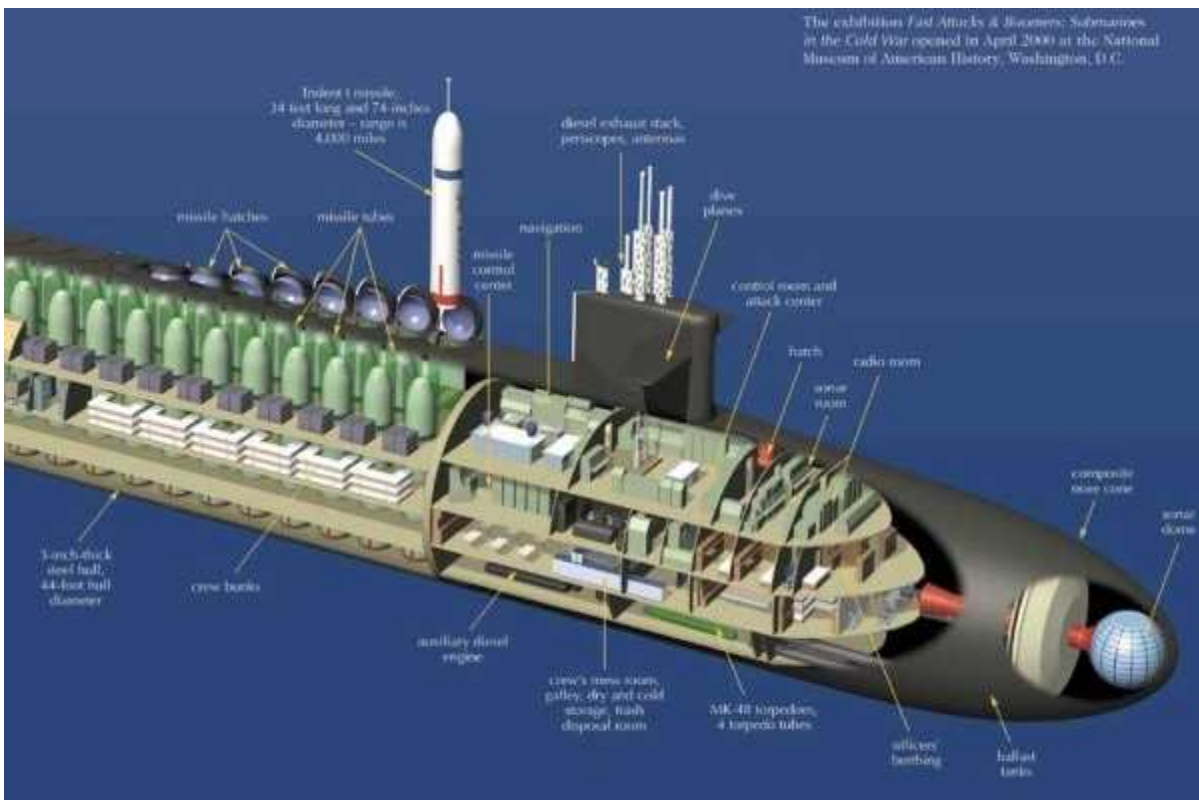
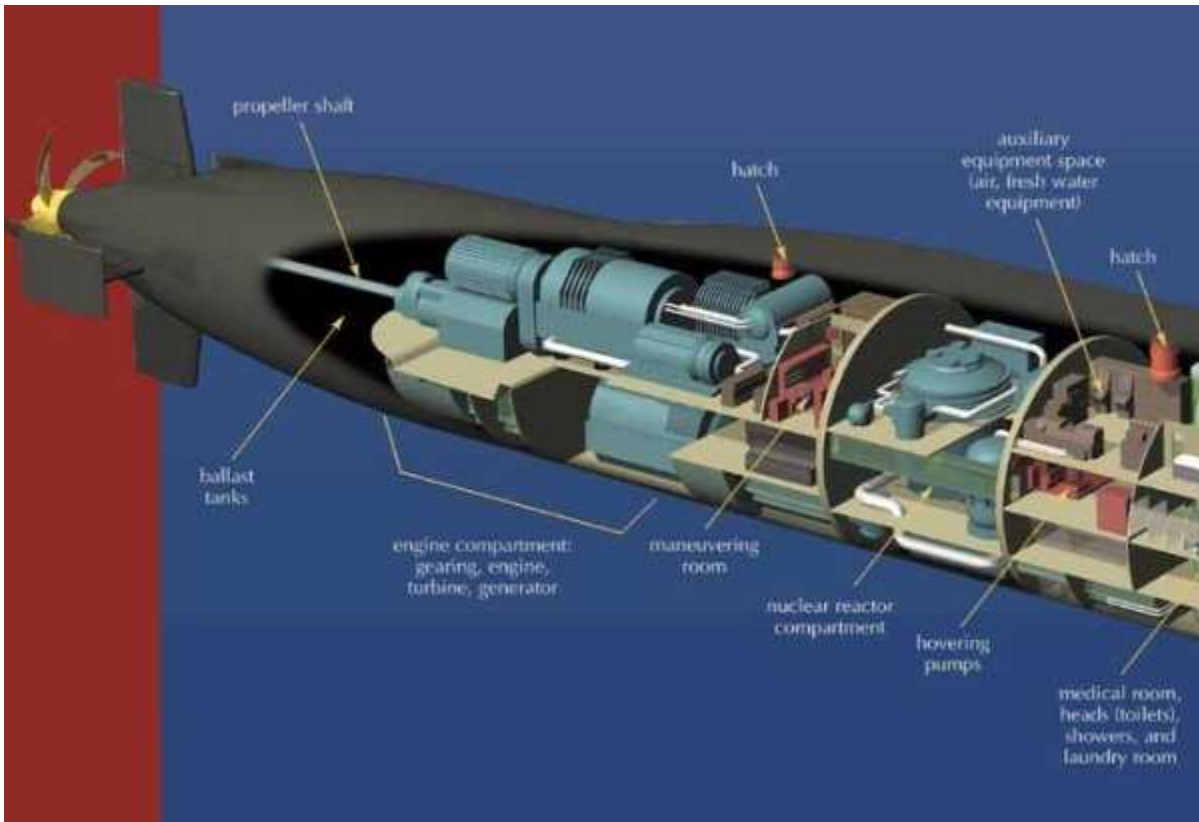


USS Michigan SSBN 727 (Gold) returning from her 50<sup>th</sup> tour on November 18th.

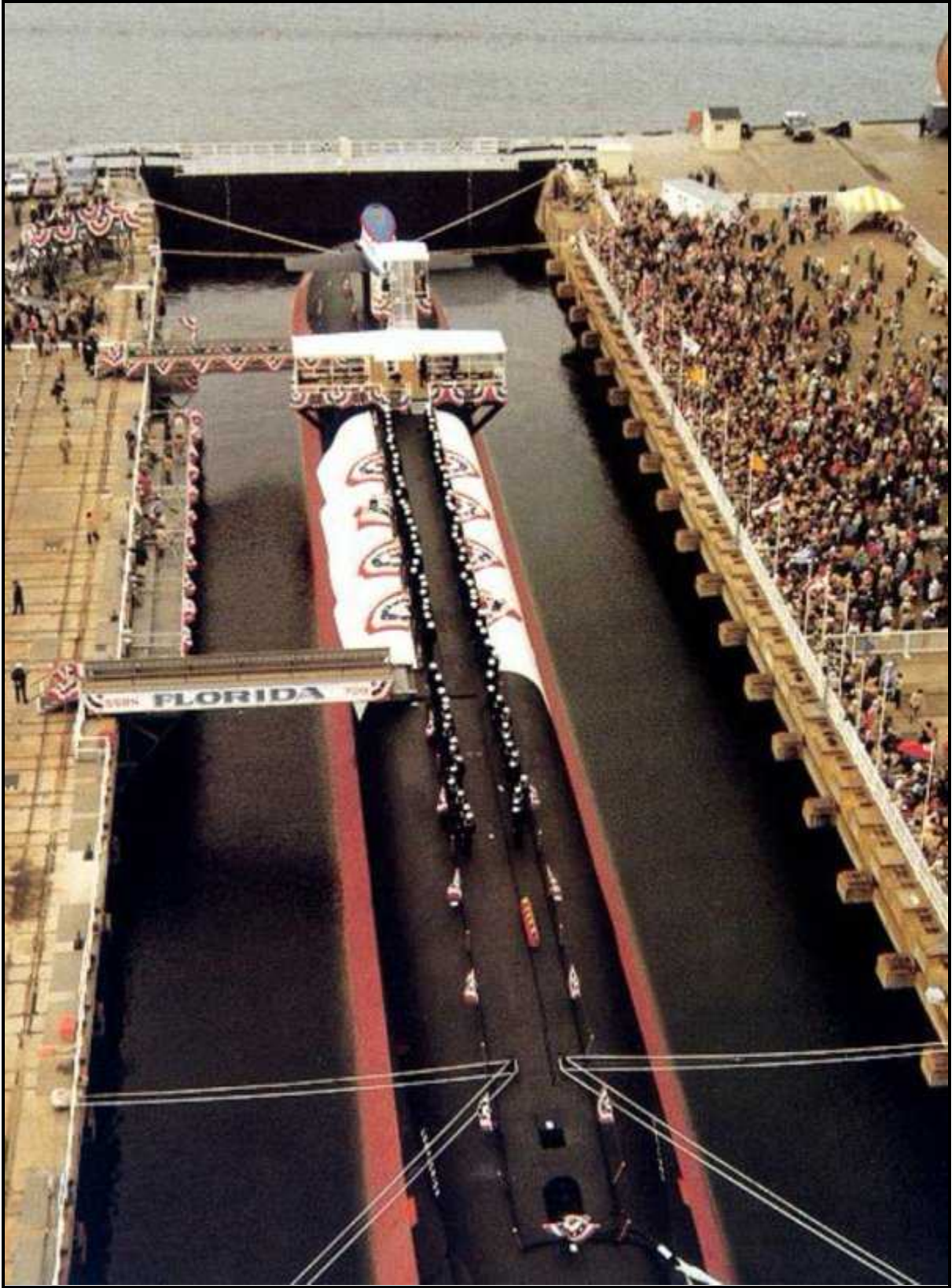
















**The 8 oldest of 14 SSBN carry the following nuclear armament: 24 Trident I/C4 missiles that cover a range of 4,600 miles.**



**A single missile carries 8 thermonuclear warheads that can break-off to hit up to 8 targets with 100 kilotons of TNT (total of 800 kt. of TNT).**



They can convert 2 of the 22 tubes into swimmer lockout chambers for Navy SEALs or Marine special operation scout teams.



Thank you to the few who stay under water to provide us with the last line of defense.

END