

**FORCES UTILIZATION**  
**NAVY RESPONSE**

**REQUEST FOR INFORMATION #1**  
**SUBMARINE PERSONNEL**  
**ASSIGNMENT**

DACOWITS requests the Navy provide a detailed briefing, which explains why all classes of submarines are closed to the assignment of women. In April 1994, SECNAV directed the Navy to conduct annual assessments of the feasibility of assigning women to submarines. DACOWITS requests copies of the original SAIC study dated 1 February 1995 and any subsequent updates.

Among the issues to be addressed are the notional career path for a submarine warfare officer and questions concerning several classes of submarines. Specifically:

- Virginia class submarines. Explain why during the maturation of the design, plans are not being modified to include accommodations for women. Identification of operational equipment which would have to be removed to berth women aboard the Virginia class submarine.
- Trident class submarines. Explanation of actions necessary to reconfigure the submarine to accommodate the assignment of women.
- All other classes of submarines. Explanation of constraints upon assignment of women (broken down by officer and enlisted) including cost, feasibility, operational concerns and habitability.

**FORCES UTILIZATION**  
**NAVY RESPONSE**

**REQUEST FOR INFORMATION #1**  
**SUBMARINE PERSONNEL**  
**ASSIGNMENT**

**NAVY RESPONSE**

**Governing Directives:**

SECNAVINST 1300.12B Assignment of Women Members in the Department of the Navy  
OPNAVINST 9640.1A Shipboard Habitability Program

**Response:**

*DACOWITS requests the Navy provide a detailed briefing, which explains why all classes of submarines are closed to the assignment of women.*

The Navy is committed to assigning women to all seagoing billets, wherever this can be practicably accommodated, while providing necessary privacy and habitability arrangements for both genders. Over the past decade, the Navy has made great strides in providing women full career opportunities, opening the majority of our ships at sea to the assignment of women. Women have been incorporated into the nuclear propulsion field for several years, and are currently serving successfully in officer and enlisted billets aboard our nuclear powered aircraft carriers.

Women have proven to be capable in the surface and aviation communities, and therefore assigning them to submarines offers potential advantages. A policy allowing assignment of women in submarines would expand the talent pool of individuals who might be interested in and eligible for submarines. For instance, five of the top ten midshipmen from the 1999 graduating class of the US Naval Academy were women. Despite these potential long term benefits however, our current policy is not to assign women to submarines as explained below.

The FY 94 National Defense Authorization Act lifted the statutory prohibition against assignment of women to combat units. Following extensive review and recommendations by the Presidential Commission on Assignment of Women in the Armed Forces, SECNAV specified submarine warfare remain closed to women. SECDEF approved the recommendation.

In April 1994, SECNAV directed CNO to conduct annual reviews of the policy on assigning women to submarines, with a view toward accommodating women in this field to the fullest extent practicable. As a result, the Director, Submarine Warfare (N87) commissioned a study (*Submarine Assignment Policy Assessment*), which identified several issues of concern. The study concluded that it would be unlikely that new information would become available at a pace which would warrant annual reviews. Following a review of the study, the CNO recommended continuing the policy of not assigning women to submarines. A copy of the February 1995 study was provided to DACOWITS in June 1999. ✧

In July 1995, SECNAV concurred with the CNO's recommendation not to open submarines to women. He specified that the issue was to be assessed as the Navy's experience evolved in the Women at Sea program on surface combatants. To date, the information which has become available in the Women at Sea program does not provide a basis for changing this policy.

**FORCES UTILIZATION**  
**NAVY RESPONSE**

**REQUEST FOR INFORMATION #1**  
**SUBMARINE PERSONNEL**  
**ASSIGNMENT**

Therefore, in accordance with SECNAVINST 1300.12B, Assignment of Women Members in the Department of the Navy, submarines remain closed to women.

**FORCES UTILIZATION  
NAVY RESPONSE**

**REQUEST FOR INFORMATION #1  
SUBMARINE PERSONNEL  
ASSIGNMENT**

OPNAVINST 9640.1 sets the policy for habitability standards onboard submarines and surface ships. Living conditions aboard most Navy ships are less than generous. In a recent SECNAV letter to the Fleet (9 Feb 99), he stated "we are also questioning the habitability standards on board our ships, why are we the lowest among NATO nations...". Living conditions aboard submarines are considerably more constrained than for other types of Navy ships. The severe constraints on submarine design dictate the more cramped living conditions characteristic of submarine duty. A comparison of the established minimum habitability standards for submarines and surface ships highlights the expectation of more constrained storage and living areas that exist in submarines.

Standard	Submarine	Surface Ship (150' - 300')
Unencumbered deck space in sleeping areas (square feet per person)	Officer - 6 ft <sup>2</sup>	Officer - 20 ft <sup>2</sup>
Unobstructed passage width between rows of crew bunks	18"	24"
Drawer/locker storage space per person (cubic feet)	Officer - 15 ft <sup>3</sup> CPO - 10 ft <sup>3</sup> Enlisted - 3 ft <sup>3</sup>	Officer - 19.75 ft <sup>3</sup> CPO - 14 ft <sup>3</sup> Enlisted - 7.5 ft <sup>3</sup>
Size of messing facilities (% seated)	Officer - 75% Crew + CPO - 35%	Officer - 100% CPO - 100% Crew - 35%
Showers	Separate facilities for Officer, CPO and crew (1 for each 50 enlisted)	Separate facilities for Officer, CPO and crew 1 for each 25 enlisted
Sanitary spaces in working areas	Urinal in the engine room	Facilities close to working spaces
Water closets	Officer - 1 per 10 CPO - 1 per 12 Crew - 1 per 20	Officers - 1 per 10-15 CPO - 1 per 10-15 Crew - 1 per 23-28
Berthing accommodations	Minimize "hot bunking"	One per each assigned personnel
Male/Female facilities	Not required	Each group must have separate berthing and sanitary facilities

**FORCES UTILIZATION**  
**NAVY RESPONSE**

**REQUEST FOR INFORMATION #1**  
**SUBMARINE PERSONNEL**  
**ASSIGNMENT**

Achieving the modicum of privacy that would be acceptable for a mixed-gender crew would be problematical on a submarine. In addition to having more restrictive design criteria than surface ships, current classes of submarines do not even meet the minimum OPNAV habitability standards in several areas. The Board of Inspection and Survey (INSURV) has consistently cited the following examples of submarine habitability discrepancies during the new construction inspections of both TRIDENT and LOS ANGELES class submarines:

- Inadequate number of bunks for assigned personnel
- Number of crew chairs and desk space is inadequate
- Berthing lockers are too small
- Crew's mess seating capacity too small
- Wardroom seating capacity is inadequate
- No sanitary facilities in the engine room
- No stowage for common area chairs
- Headroom – various spaces do not meet standards
- Passageway clearances – several areas do not meet standards

Any modifications or additions to the living spaces to accommodate mixed gender crews onboard submarines would either:

- Further reduce existing below-standard conditions (for both genders); or
- Require the removal of equipment as a space and weight trade-off, which would result in reduced operational capabilities of the ship; or
- In the extreme, require lengthening the ship to obtain additional space and weight margin. This option would be very costly.

A driving factor in the privacy and habitability concerns onboard all submarines is the collocation of showers and toilet facilities, necessitated by the limited available space. Also, none of the current classes of submarines (including the Virginia class) meet the CNO standards with respect to the sanitary facility ratio per number of Officer/CPO/Enlisted personnel, even before considering modifications to the facilities to accommodate mixed gender crews. Finally, a submarine's daily routine necessitates high traffic periods, requiring numerous personnel to use the same limited sanitary facilities during the same time periods. The common practice onboard some surface ships of using a sign to indicate occupancy by a male/female crewmember would not work satisfactorily for long periods onboard a submarine.

Based on extensive depot level maintenance experience and current submarine operational requirements, the direct and indirect costs of modifying current classes of submarines to accommodate mixed gender crews could be very high. There have been no detailed design studies performed that assess in detail the impact and cost of improving the habitability spaces onboard submarines to meet the OPNAV standards, much less to achieve privacy necessary to accommodate a mixed-gender crew. However the Navy Inspector General, in Issue Paper S-04, *Habitability on Fast Attack Submarines*, February 1998, stated that "compared to surface ship designs, submarine

**FORCES UTILIZATION**  
**NAVY RESPONSE**

**REQUEST FOR INFORMATION #1**  
**SUBMARINE PERSONNEL**  
**ASSIGNMENT**

hull designs suffer significantly more performance degradation and cost increase for the same increase in crew living area (volume)".

At the same time, the opportunity cost of taking submarines off line to support major shipboard modifications to accommodate mixed gender crews would significantly impact the submarine force's already strained ability to meet valid operational requirements. At 58 SSN's today, and falling toward 50 by 2003, even though the Fleet CINCs have stated a need for 72 SSN's to carry out their heavy multi-mission tasking, the submarine force is stretched thin to meet demands.

**FORCES UTILIZATION**  
**NAVY RESPONSE**

**REQUEST FOR INFORMATION #1**  
**SUBMARINE PERSONNEL**  
**ASSIGNMENT**

*Virginia Class Submarines. Explain why, during the maturation of the design, plans are not being modified to include accommodations for women. Identification of operational equipment which would have to be removed to berth women aboard the Virginia class submarine.*

Due to their very unique space limitations, equipment density, design constraints and extended mission requirements, providing the necessary privacy to properly accommodate mixed gender crews on a Virginia submarine would entail significant expense and/or loss in mission effectiveness. The Virginia class has been designed to be smaller than the preceding Seawolf class, to reduce acquisition costs.

The Virginia class entered the conceptual design phase in the early 1990's with the functional arrangement design complete in 1994. The February 1995 study (*Submarine Assignment Policy Assessment*) identified several issues of concern with regard to assignment of mixed gender crews to submarines. Principal among the concerns were the reduced space and weight margins available on submarines for the modifications necessary to achieve privacy standards consistent with OPNAV directives on habitability. This included the New Attack Submarine (now called the Virginia class), which had been rigorously designed to meet future submarine needs in a smaller, more affordable platform. Based on SECNAV approval of the study findings, the design of the Virginia class was continued without incorporating modifications for the assignment of women. The construction of the first two ships in the class has begun.

The Navy Inspector General Issue Paper S-04, *Habitability on Fast Attack Submarines*, February 1998 stated "we found that a general decline in SSN habitability is, in fact occurring. Living space allocated to crew comfort (e.g. mess decks, wardroom, CPO quarters, head facilities, etc.) is less in 688 class SSNs than on 637s. Living spaces in Seawolf class SSNs and projected living spaces in Virginia will be less than onboard 688s". The issue paper also stated that inspectors were surprised to note the extent to which temporary berthing had become the norm. Submarines routinely carry skid bunks in the torpedo room on lengthy deployments, transforming a portion of the torpedo room into open bay berthing and thereby reducing the submarines weapons payload.

No specific studies have been done to determine if any equipment would have to be removed to accommodate women in the Virginia class. However, a submarine is constructed very differently than a surface vessel. It is more analogous to an "undersea aircraft" with space at the highest premium. Officer, Chief Petty Officer (CPO), and Crew berthing areas in submarines are provided in compartments which also contain auxiliary equipment, provisions/parts stowage, weapons stowage, and combat systems electronics. Critical electronic, hydraulic and high-pressure air piping pass through submarine berthing spaces. Every cubic foot of these compartments is accounted for, and has multiple uses. Redesignation of space to accommodate specialized crew berthing (separate women Officer, CPO, and Crew berthing areas/sanitary facilities) would result in reduction of the ship's already limited habitability, as well as potentially impacting the ship's endurance and/or mission capability.

**FORCES UTILIZATION**  
**NAVY RESPONSE**

**REQUEST FOR INFORMATION #1**  
**SUBMARINE PERSONNEL**  
**ASSIGNMENT**

*Trident Class Submarines. Explanation of actions necessary to reconfigure the submarine to accommodate the assignment of women.*

The habitability requirements set forth in OPNAVINST 9640.1 require that officer, Chief Petty Officer (CPO) and crew berthing and sanitary facilities be separate. In addition, female officer, CPO and crew berthing and sanitary facilities are to be separate from those of their male counterparts. Assuming a female component of 10-15% (consistent with Navy ship's which have been modified to accommodate assignment of mixed gender crews), several major modifications would have to be accomplished to accommodate assignment of women to Trident class submarines:

- Officers. Berthing for female officers could be provided by dedication of an existing two or three-person stateroom. Separate sanitary facilities dedicated for female officers would have to be added.
- CPOs. There are no separate berthing or sanitary facilities that could be reassigned for female CPOs. Redesign and modifications would be required to provide separate berthing and sanitary facilities for male and female CPOs.
- Enlisted crewmembers. Trident submarines berth about 120 enlisted members in nine-man bunkrooms. Female crewmembers could be assigned to the ship in up to multiples of nine. However, no separate sanitary facilities are available. Simple redesignation of one of the two washrooms for use by nine or less women would impose inequitable burdens on the 120 male crewmembers who presently use these two washrooms.
- Redesignation of space to accommodate specialized crew berthing (separate women Officer, CPO, and Crew berthing areas/sanitary facilities) would result in reduction of the ship's already limited habitability (for both genders), as well as potentially impacting the ship's endurance and/or mission capability.

There has been no detailed assessment of the extent and impact of design modifications required to reconfigure a Trident class submarine for a mixed gender crew. However, as addressed, based on extensive depot level maintenance experience, the direct and indirect costs could be very high.

In addition to the direct and indirect costs of modifying Trident class submarines to accommodate assignment of women crewmembers, the factor of officer career path limitations is of significance, in considering whether modifying the Trident class alone is warranted. Today, submarine officers are assignable to either an SSN or SSBN for any of their 4 (or more) sea tours during their careers. There have been considerations that women could be assigned to only Trident class submarines. The difficulty with this solution is that it would create a two-tiered officer community: one group that can serve on any submarine, and one that can only be assigned to Tridents. One of the principle tenets of submarine officer detailing is the general intention that officers serve on both types of submarines in order to broaden their experience in each. Without this mixing, it would become increasingly difficult to maintain a properly balanced and experienced officer community. The skills and professional insights of the more senior officers (department head and above) are enhanced by service on both SSN/SSBN as they rise through the ranks. A Trident-only career path for women would therefore disadvantage them in any fair selection process for command screening or promotion. Additionally, the quality of life onboard an SSBN is



**FORCES UTILIZATION**  
**NAVY RESPONSE**

**REQUEST FOR INFORMATION #1**  
**SUBMARINE PERSONNEL**  
**ASSIGNMENT**

considered higher by many submariners, due among other factors to its dual crew manning, modern base facilities, and a more routine operating schedule. Allowing women to serve on only SSBNs may be perceived as an inequity within the community, by both officers and enlisted sailors.

**FORCES UTILIZATION**  
**NAVY RESPONSE**

**REQUEST FOR INFORMATION #1**  
**SUBMARINE PERSONNEL**  
**ASSIGNMENT**

*A notional career path for a submarine officer follows:*

Initial Pipeline Training (18 months)

Junior Officer Sea Tour (36 months)

Junior Officer Shore Tour (24 months)

Submarine Department Head Training Pipeline (6 months)

Department Head Sea Tour (36 months)

Post Department Head Shore Tour (24 months)

Executive Officer Tour (24 months)

Post Executive Officer Shore Tour (24 months)

Commanding Officer Training Pipeline (6 months)

Commanding Officer Tour (36 months)

**FORCES UTILIZATION**  
**NAVY RESPONSE**

**REQUEST FOR INFORMATION #1**  
**SUBMARINE PERSONNEL**  
**ASSIGNMENT**

*All other classes of submarines. Explanation of constraints upon assignment of women (broken down by officer and enlisted) including cost, feasibility, operational concerns and habitability.*

Los Angeles and Seawolf class:

To meet the OPNAV 9640.1 habitability standards, assuming a female component of 10-15%, several major modifications would have to occur on both the Los Angeles and Seawolf class submarines:

- Officers. Berthing for female officers could be provided on both classes by dedication of an existing three-man stateroom. However, major shipboard modification would be required to provide the necessary separate sanitary facilities dedicated for female officers.
- CPOs. There are no separate berthing or sanitary facilities that could be reassigned for female CPOs. Redesign and modifications would be required to provide separate berthing and sanitary facilities for male and female CPOs.
- Enlisted crewmembers' berthing. Los Angeles class submarines have four bunkrooms for enlisted members, consisting of nine, twenty-one, twenty-four and thirty-nine bunks. Seawolf class has two bunkrooms, consisting of thirty-three and fifty-six bunks without significant modifications. Female enlisted crewmembers would have to be assigned to the ship in numbers equivalent to the size of these berthing areas. Once the female berthing space is established, there would be little flexibility to increase or decrease the size of the female component. An increase/decrease in the number of females would exacerbate the existing hot bunking situation.
- Enlisted crewmembers' sanitary facilities. There are no separate sanitary facilities that could be reassigned for female crewmembers. Due to the small number of washrooms available, simple redesignation of one of the two washrooms for use by a relatively small number of female crewmembers would impose inequitable burdens on the larger portion of male crewmembers who presently use these washrooms.
- Redesignation of space to accommodate specialized crew berthing (separate women Officer, CPO, and Crew berthing areas/sanitary facilities) would result in reduction of the ship's already limited habitability (for both genders), as well as potentially impacting the ship's endurance and/or mission capability.

Based on SECNAV approval of the 1995 study and experience gained to date from the Women at Sea program, there have been no detailed assessments of the extent and impact of design modifications required to convert to a Los Angeles or Seawolf class submarine to accommodate women.

Submarine NR-1/Dolphin/DSV's/DSRV's.

These are small, one-of-a-kind platforms with unique mission requirements. Due to a lack of a sustained viable career path, it is impractical to consider any of these platforms for mixed gender crews.

**FORCES UTILIZATION**  
**NAVY RESPONSE**

**REQUEST FOR INFORMATION #1**  
**SUBMARINE PERSONNEL**  
**ASSIGNMENT**

**Conclusion:**

Due to their very unique space limitations, equipment density, design constraints in an extended mission requirements environment, submarines cannot provide the necessary privacy to properly accommodate mixed gender crews. The Navy's decision regarding the assignment of women to submarines has been reviewed, determining that no new information has become available from the Women at Sea program, which would provide a basis for changing the policy.