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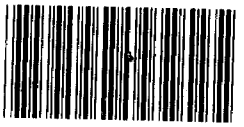
PROCUREMENT, LOGISTICS, AND READINESS DIVISION

B-203424

June 23, 1981

The Honorable Joseph P. Addabbo
Chairman, Subcommittee on Defense
Committee on Appropriations
House of Representatives



Dear Mr. Chairman:

Subject: [Navy's Berthing Facilities for Ships Undergoing Overhaul] (PLRD-81-41)

In response to your request, we have reviewed the Navy's use of berthing facilities for ships undergoing overhaul.

On March 30, 1981, we briefed your staff on the Navy's fleet modernization program and pointed out, among other things, that the Navy is purchasing 16 new berthing barges and overhauling others. Your staff expressed considerable interest in this since the Committee has long been concerned about the Navy's practice of retaining the ships' crews during overhaul.

The results of our review are presented in the enclosure which also includes several questions that we believe should be addressed by Navy planners.

As requested, we did not obtain written comments on the information gathered. We did, however, discuss the information with Navy officials and included their comments where appropriate.

Sincerely yours,

Donald J. Horan

Donald J. Horan
Director

Enclosure

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NAVY'S BERTHING FACILITIES AND CREWING PRACTICES FOR SHIPS UNDERGOING OVERHAUL

Each year the Navy overhauls about 65 ships in about 50 different locations. Since many of these locations do not have adequate nearby berthing and messing facilities for the crews of the ships being overhauled, the Navy must find housing for the crews. When barracks are not available, the Navy prefers to house crewmembers in barges because they (1) are mobile/flexible, (2) are self-contained, (3) improve administrative control over crews, and (4) provide additional overhaul needs (such as offices, shops, and storage).

The Navy believes that many of its older barges do not meet habitability standards and that it will be too expensive to modify all of them. However, the Navy believes that by modifying some of the barges and by building some new ones, it will be able to meet future overhaul berthing requirements.

NAVY REQUIREMENTS FOR BERTHING SPACES

In 1978 the Navy undertook a study to determine the adequacy of its shore and berthing barge accommodations. The Navy completed the study in July 1979 and concluded that it needed to rehabilitate 7,975 inadequate berthing spaces and to construct an additional 6,733 spaces to overcome a shortage. The following table shows how the Navy arrived at the 14,708 figure.

Personnel	Spaces
Overhaul crews	23,643
Shore based	9,633
Total	33,276
Adequate assets	
Unaccompanied enlisted personnel housing (UEPH)	10,574
Barges	2,899
Lease/contractor	6,396
Total	19,869
Shortfall	13,407

Corrective actions suggested

UEPH (rehab)	1,741	
Barges (rehab)	6,234	7,975
UEPH (new)	2,621	
Barges (new)	4,112	6,733
Total		14,708

The 14,708 suggested spaces were 1,301 more than the indicated shortfall of 13,407. The only explanation given for this in the study was that the 1,301 spaces will permit the elimination of the majority of the contractor-furnished berthing and messing in high-cost areas.

Barge versus barracks costs

In addition to determining the number of berthing spaces that should be constructed or rehabilitated, the Navy study estimated the cost of alleviating the 14,708 shortfall of adequate berthing spaces. We computed the average cost per space on the basis of the costs and number of spaces shown by the study.

	Cost	No. of spaces	Average cost per space
	(millions)		
Construct barges	$142.50	4,112	$34,654
Rehabilitate barges	32.93	6,234	5,282
Construct barracks	30.20	2,621	11,522
Rehabilitate barracks	8.00	1,741	4,595
Total	$213.63	14,708	

The Navy adopted the study and is planning to acquire the 14,708 spaces. Therefore, 10,346 barge spaces will cost $175.4 million and 4,362 barracks spaces will cost $38.2 million. Note that the average barge construction and rehabilitation costs on a per space basis are significantly larger than similar barracks costs.

We were told that as long as the facilities are near the overhaul location, the Navy generally prefers to house

the ship's crew ashore. However, we were also told that the fleet commanders strongly prefer to have their crews housed in barges because:

--Duty time is lost whenever a ship's crew is housed in Navy barracks and the duty crew must be bussed from the ship to a messing facility some distance away for the noon-day meal and then returned to the ship.

--No transportation time is lost when a berthing barge has messing as well as berthing accommodations.

--A barge can be moved next to a ship, thereby providing quicker response time during emergencies aboard the ship.

The fleet's preference for berthing barges apparently was given considerable weight in Navy plans to acquire 10,346 berthing barge spaces as opposed to 4,362 shore facility spaces. If the berthing space acquisition program continues as currently planned, total costs and costs per berthing space will be considerably more for barges than for construction on shore.

INVENTORY OBJECTIVES

The Navy has not firmed up its inventory objective for berthing barges. Currently 44 berthing barges are in the active inventory. Two more have recently been delivered and will be added to the inventory. Fourteen more have been contracted for and are expected to be delivered by July 1984. Although these would put the active inventory at 60 berthing barges, it is anticipated that the inventory will never reach 60 because some of the older barges will be phased out as some of the newer barges are phased into the inventory.

Current inventory

The Navy reported in July 1980 that it had the following non-self-propelled berthing barges in its service craft inventory.

Barracks craft (APLs)	17
Repair, berthing, and messing barges (YRBMs)	23
Unclassified miscellaneous (IXs)	4
Total	44

The Navy also reported that the barges had the following capabilities and capacities.

APLs

The Navy acquired the 17 APLs during 1944 through 1946. They provide berthing, messing, administrative, and classroom facilities. Five APLs house 132 to 266 people, five house 267 to 449, and seven house 450 to 720. In addition to the 17 APLs, 2 are on loan to foreign governments.

YRBMs

Nine YRBMs provide complete berthing, messing, administrative, and classroom facilities. Of the nine, one houses 140 people and eight house 247 to 260 people.

Fourteen YRBMs are limited to facilities for duty crews. The accommodations for 11 of these range from 100 to 124 people. The other three can accommodate 18, 22, and 87 people.

One of the YRBMs was built in 1944, the other 22 between 1955 and 1971.

IXs

Four IXs are considered part of the berthing barge inventory. Two provide berthing, messing, administrative, and classroom space for 530 people. A third is limited to duty crew facilities. The fourth, the converted troopship Gaffey completed in November 1980, can provide berthing, messing, administrative, and classroom space for 2,000 people. The date built was not reported for the duty barge; however, the others were built in 1944.

In addition to having the Gaffey, the Navy is planning to convert another troopship, the Darby, for the Norfolk/Newport News shipyards. We were told that sufficient shore accommodations are not available at either facility and that the Darby will have to be ready to accommodate the scheduled 1983 overhaul of the carrier USS Nimitz.

Locations of berthing barge inventory

The Navy reported the following locations of its berthing barge inventory as of July 1980.

APL

SUPSHIP San Diego (note a)	1
SUPSHIP Seattle	1
SUPSHIP San Francisco	1
NSY Puget Sound (note b)	2
NSY Philadelphia	3
NSY Portsmouth, N.H.	2
SUBASE Kings Bay (note c)	1
SUPSHIP Newport News	3
SUPSHIP Portsmouth, Va.	3
Total	17

YRBM

NSY Pearl Harbor	1
NSY Mare Island	3
NSY Norfolk	4
NSY Charleston	2
NSY Philadelphia	2
NSY Puget Sound	5
SUPSHIP Portsmouth, Va.	2
NSY Portsmouth, N.H.	3
SUBASE Charleston	1
Total	23

IX

NSY Puget Sound	1
SUPSHIP Seattle	2
SUPSHIP Groton	1
Total	4

a/ Supervisor of Shipbuilding, Conversion, and Repair.
b/ Naval shipyard.
c/ Submarine base.

NEW CONSTRUCTION

The fiscal year 1982 budget backup data for the Shipbuilding and Conversion, Navy (SCN) appropriation, prepared in January 1981, indicated that the Navy is acquiring 16 YRBM class barges. The mission justification states that each barge will provide berthing and messing facilities for approximately 250 personnel to support ships and submarines under construction or overhaul.

Current procurement

The barges are being acquired from Marinette Marine Corp., Marinette, Wisconsin, under two separate contracts.

The first contract covered six barges under a multiyear contract for fiscal years 1978 and 1979. Two of these barges have been delivered, two are to be delivered in June 1981, and two are to be delivered in November 1981. The type of contract is fixed price incentive with an escalation clause. The following table shows estimated contract costs.

FY	Quantity	Estimated end cost (000 omitted)
1978	4	$31,988
1979	2	15,994
Total	6	$47,982

The second contract covered 10 barges under a multiyear contract for fiscal years 1980 through 1982. None of the barges under this contract have been delivered. The first is scheduled for delivery in August 1982 and the last is expected to be delivered about July 1984. The type of contract is a fixed price without incentive and with an escalation clause. The table below shows estimated contract costs:

FY	Quantity	Estimated end cost (000 omitted)
1980	3	$25,220
1981	3	26,100
1982	4	37,300
Total	10	$88,620

OVERHAUL AND OTHER BERTHING EXPENSES

In addition to the berthing barge acquisitions being funded under the SCN appropriation, the Navy funds the following barge and berthing expenses under its Operations and Maintenance, Navy appropriation:

	Estimated costs for fiscal years					
	1980	1981	1982	1983	1984	1985
	(000 omitted)					
Berthing barge overhauls	$13,885	$ 4,905	$ 3,466	$ 7,271	$ 9,770	$11,929
Berthing barge maintenance	8,484	9,641	9,008	9,762	10,622	11,022
Fleet modernization program's barge habitability upgrade	26,930	2,800	3,000	200	0	0
Contractor-furnished berthing and leased quarters	18,698	20,706	17,265	18,835	18,970	19,991
Total	$67,997	$38,052	$32,739	$36,068	$39,362	$42,942

Navy plans include modernizing 18 berthing barges currently in the active inventory. These consist of nine APLs, six YRBMs, and three IXs.

RETAINING SHIPS' CREWS DURING OVERHAUL

The Navy has stated in its budget justifications that berthing barges are needed to provide berthing, messing, and limited repair capability to ships' crews while in overhaul or repair during the period the ship is uninhabitable. In addition, the ship's commanding officer retains a large part of the crew near the ship for (1) security reasons, including threat of fire and flooding, (2) effective work management, and (3) control of ship's personnel.

Our previous report on ship crewing

In our 1977 report, 1/ we recommended a change in the management of ships' crews while the ships are in lengthy overhaul. The report concluded that such crews could be reduced to the minimum number necessary to maintain safety of the ships and equipment. The remaining crew could be assigned to the fleet and ashore where there were critical shortages of trained and experienced personnel. Such action, according to the report, could result in additional benefits, such as improvements in fleet readiness, better use of skilled personnel, and a reduction in costs.

In commenting on our report, the Navy stated that retaining continuity of ships' crews during overhaul enables ships to obtain peak readiness sooner after completion of the overhaul. However, we found considerable turnover among ships' crews (from 32 to 64 percent). This turnover results in continual changes in crews' composition and experience.

In an August 1980 message to the Secretary of the Navy, the Commander in Chief, Pacific Fleet, discussed the readiness-degrading personnel shortages the fleet was experiencing at sea. For those ships assessed as not safe to operate because of personnel shortages, he proposed, among other things, to transfer people from ships in overhaul. The commander pointed out the undesirability of the actions outlined but believed the Navy had reached a point in fleet crewing where no other course was possible.

1/"Changes in Navy Ship Overhaul Practices Could Improve Fleet Capability and Crew Effectiveness" (FPCD-77-76, Apr. 8, 1977).

The following table shows the number of crew required during normal operations and the number retained during overhaul for four ships recently overhauled or being overhauled at Puget Sound Naval Shipyard.

Ship	Crew size: During operations	During overhaul	Percent retained during overhaul
USS Long Beach (CGN-9)	1,019	729	72
USS Plunger (SSN-595)	120	a/124	103
USS New Orleans (LPH-11)	652	525	81
USS Enterprise (CVN-65)	b/3,100	1,834	59
	4,891	3,212	

a/The Navy considers the operational crewing of submarines to be so austere that it adds additional crews during overhaul to help accomplish necessary safety functions.

b/Does not include the air wing of 2,400, all of which were reassigned before overhaul.

After discussing the decrewing of these four ships with a Navy official, we were provided with a crewing list for 38 additional ships that were recently overhauled or being overhauled. The list contained 18 submarines and 20 surface ships but did not include carriers. The percentage of crew retained on each of these ships during overhaul ranged from 87 to 121 percent.

We discussed the Navy's rationale for retaining crew during overhaul with the Deputy Director, Ships Maintenance and Modernization Division. According to the Deputy Director, the Navy's position is basically the same as it was in our 1977 report. However, he added that:

--Generally, about 10 percent of the ship's personnel were transferred to other ships. In addition, there was the normal turnover of personnel during the period the ship was in overhaul.

--It was often less expensive to retain crew for certain jobs rather than employ others.

--For many of the ships personnel, the ship's overhaul period was the only time they got shore duty with their families (the Navy authorizes the families to be moved if necessary).

--For nuclear-powered ships, the Navy would not reassign the crew responsible for the nuclear working of the ship because nuclear safety regulations do not permit the delegation of nuclear safety to others while the ship is in overhaul.

The Deputy Director also said that, at your Subcommittee's request, the Navy, on an experimental basis, decrewed the USS Conyngham during overhaul. The overhaul is complete and the Navy is preparing a report on this experiment which should be available during May or June 1981. According to the Deputy Director, the overhaul took 14 months, went 2 months over budget, and cost $12 million more than planned.

QUESTIONS FOR NAVY PLANNERS TO CONSIDER

We believe that Navy planners need to address the following questions regarding the Navy berthing space acquisition program:

--Because of the continuing critical shortage of skilled personnel, has the Navy reconsidered its policy of retaining the ship's crew at the overhaul location in favor of transferring the crew to other ships? If decrewing occurs, does the Navy plan to reduce its requirement of 14,708 new or rehabilitated berthing spaces to compensate for the reduced berthing need?

--The Navy is planning to correct its berthing space shortfall by acquiring more berthing barge spaces rather than barracks spaces. Since berthing barge space is considerably more expensive to construct or rehabilitate than barracks space, has the Navy considered all the tradeoffs for barracks versus berthing barges?

--Fleet commanders indicate that a loss of duty time occurs when a ship's crew is housed in Navy barracks and the messing facility is not located close to the ship being overhauled. If this is a major factor contributing to the preference for berthing barges, has the Navy considered other messing alternatives and cost benefits, such as constructing permanent messing facilities within walking distance of the overhaul site?

--Berthing barges are part of the service craft inventory. Has the Navy surveyed the active and inactive service craft inventory to determine whether any could be converted to berthing barge status at a lower cost than acquiring new barges?

--The acquisition of berthing barges and barracks is handled to some degree by separate organizational units within the Navy. Is the berthing acquisition program coordinated effectively and are cost-benefit studies performed so as to achieve maximum effectiveness and utilization of resources?