

Reductions in Federal Fleet Financing and
the Impact on Federal Ocean Programs

Table of Contents

	Page
Summary, Conclusions and Recommendations	i
Introduction	1
Ships Involved in Fleet Reduction, FY 72-74.	5
Summary Data Pertaining to Affected Ships	6
Impact of Reduced Funding on Ships and Programs	12
General Comments	
NOAA	
NSF	
Academic	
Other agency comparisons	
Capital Investment Losses Resulting from Lay-ups	16
Distribution and Characteristics of Remaining Federal Fleet. . .	18
Table 1 - Change in Federal Fleet Size - FY 72 through FY 74 . .	1
Table 2 - Changes in Federal Fleet Size and Funding - FY 72 through FY 74 (By Agency)	3
Table 3 - Ships Temporarily or Permanently out of Service - FY 72 through FY 74	4
Table 4 - NOAA - Program Support Related to Ship Support	10
Table 5 - Academic Ships - Project Support Related to Ship Support	11
Attachment A - Agency Lists of Federally Supported Oceanographic Ships	20
Attachment B - Geographic Distribution of Federal Fleet.	26
Attachment C - Distribution of Federal Fleet, By Size and Age	27

*This is a report prepared by the ONR/
NSF Ships Panel for ICMSE. It contains
information of interest to UNOLS.*

REDUCTIONS IN FEDERAL FLEET FINANCING
AND THE IMPACT ON FEDERAL OCEAN PROGRAMS

Introduction

This study of the fleet of ships which carry out the Federal Ocean Programs is based on data from U.S. Navy (USN), National Oceanic and Atmospheric Administration (NOAA), U.S. Coast Guard (USCG), National Science Foundation (NSF) and the Federally funded portion of the academic institutions fleet (Academic). A previous study of the support of these ships, identified collectively as the Federal Fleet, was presented to ICMSE in June 1972 and provides the point of departure for this review. A total of 90 ships were discussed in the earlier report. The same 90, plus 4 more, will be accounted for in this report as shown in Table 1, which follows:

Table 1

Changes in Federal Fleet Size - FY 72 through FY 74

	<u>By End of FY 72</u>	<u>By End of FY 74</u>
No. of ships reported	90	94
Minus		
No. of ships replaced	-3	-5
Minus		
No. of ships disposed of without replacement		-10
Minus		
No. of ships temporarily out of service	-4	-7
Minus		
Net operating fleet size	83	72

Two new replacement ships and two old ships missed in the count last year make up the increase in the number reported during the June 1972 - June 1974 period; 22 of these will either have been replaced or retired without replacement or will have entered the limbo referred to herein as "temporarily out of service" (TOS). Allowing for the planned retirement of 5 ships for which new

replacements have been built (i.e. 94 minus 5), the Federal Fleet will have been reduced during this two-year period from 89 to 79 ships still in existence and to 72 ships remaining in actual operation, full or part-time. This constitutes about an 11% reduction in total number of ships remaining and about a 15% reduction in number operating.

USCG so-called "ocean station" ships are also discussed in this report but are not included in the summary figures presented above since their ocean program mission is limited.

This report will focus attention on the ships which are either temporarily out of service (TOS) or permanently out of service (POS) as well as on several which are likely to be reduced to part-time operation (PTO). (For purposes of this report POS designates ships which are permanently disappearing from the Federal Fleet even if they may be reappearing elsewhere without benefit of Federal funding.) The objective of the report is to assess the reasons for the current status of these ships and the relationship of that status to programs which might have been carried out aboard them.

A listing of all Federal Fleet ships which were in operation during any part of FY 1973 or FY 1974 is contained in Attachment A.

Reductions in Federal Fleet Financing and the Impact on Federal Ocean Programs

Summary, Conclusions and Recommendations

Summary

- The count of ships composing the Federal Fleet will have decreased from 89 to 79 by the end of FY 1974.
- The number of ships "temporarily out of service" (TOS) will have increased from 4 to 7, leaving 72 ships in operation.
- The percentage overall reduction in operating fleet size from end of FY 1972 to end of FY 1974 will be about 15%. Excluding USN ships, which showed no change in number, the reduction in affected portions of the fleet is about 18%.
- The estimated overall reduction in fleet support dollars for the same period is \$3.1 million (from \$76.5 million to \$73.4 million) or 4%. Excluding support for USN ships, which showed an increase over the two-year period, the reduction for affected portions of the fleet is \$5.1 million or 10%.
- If cost of living increments of about 6% are taken into account, the FY 72 fleet would have cost about \$86.0 million to operate in FY 74. Therefore the real loss in fleet funding from FY 72 to FY 74 is about \$12.6 million (14.7%). Considering only the affected portions of the fleet, the real loss is \$11.3 million (19.9%).
- Program impact from ship lay-ups relates primarily to NOAA, NSF and Academic ships. Aggregate program support related to ship support in these three categories is estimated to be increasing about \$1.7 million (from \$117.9 to \$119.6 million) or 1.4% during the same two-year period.
- Three ships account for a major portion of the decline in fleet funding support, namely, Surveyor, Discoverer and Eltanin, representing an estimated current operating total of \$5.6 million. All three were laid up primarily for budgetary reasons. In each instance the program impact has been significant.
- NOAA support for all its ocean programs has increased 20% whereas its ship support budget has declined 11% in the FY 1972-1974 period. At least one additional ship year is needed to bring existing ocean research programs in the category Mapping, Charting and Survey up to full operation.

- The Ocean Fisheries and Living Marine Resources program of NOAA, conducted by the National Marine Fisheries Service, has shown an overall dollar increase of 10% in the period studied, whereas ship support has declined 15%. Although increased program support has not been sufficient to offset inflationary increases and also includes funding for new programs with minimal vessel requirements, program needs exceed available shiptime. All three TOS ships are needed.
- Academic fleet support has declined about 2%, whereas program support is estimated to be dropping 6% in the FY 1972-1974 period. Reductions in shiptime may affect some program activities which have traditionally not paid for their share of ship costs. Additional support from these latter sources is needed to maintain present operating levels.

Conclusions and Recommendations

- The decline in ship operations support in several categories of the Federal Fleet appears to compare unfavorably with increases in program support. Adjustments within agencies may be needed to restore proper balance.
- The TOS ships should be restored to full operation at the earliest possible date since they are needed for ongoing programs.
- Arrangements for multi-agency utilization and/or support of ships should be explored in detail. However, significant differences in program missions among and within agencies are reflected in the kinds of facilities required for their performance. This fact may be expected to limit interagency utilization of ships.
- TOS ships should be considered as potential replacement ships by agencies pursuing ship replacement programs, recognizing the same limitations as mentioned above.
- Since large, costly-to-operate ships are inevitable targets for budget cuts, considerable care should be taken in planning acquisition of such facilities in future years.
- Individual agency efforts to meet ship needs through charter, loan, "ships-of-opportunity" and other arrangements short of direct operation and support should be reported regularly to ICMSE for the mutual benefit of all members.
- ICMSE should approach UNOLS with the proposal that annual UNOLS schedule coordination meetings should include information concerning all interested portions of the Federal Fleet.

Table 2

Changes in Federal Fleet Size and Funding - FY 72 through FY 74

By Agency

Agency	FY 72		FY 73		FY 74		Difference Between FY 72 and FY 74
	No. of Operating Ships (Net)*	Operating Support (\$ in millions)	No. of Operating Ships (Net)*	Operating Support (\$ in millions)	No. of Operating Ships (Net)*	Operating Support (\$ in millions)	
ACADEMIC	33	\$ 16.8	33	\$ 16.9	30	\$ 16.5	- 3 \$-0.3
NOAA							
MCS	14	14.9	13	15.1	11	13.4	- 3 -1.5
OF&LR	9	2.6	11	2.7	7	2.2	- 2 -0.4
NSF	2	2.0	2	2.1	1	1.1	- 1 -0.9
USCG	9 (30)	14.2 (42.6)	8 (30)	13.4 (45.1)	7 (17)	12.2 (41.0)	- 2 (-13)
USN	16	26.0	16	25.5	16	28.0	0 +2.0
	83 (30)	\$ 76.5 (\$ 42.6)	83 (30)	\$ 75.7 (\$ 45.1)	72 (17)	\$ 73.4 (\$ 41.0)	-11 (-13)
							\$-3.1 (-1.6)

() indicates USCG ocean station ships
* Count on ships at end of each FY

Table 3

Ships Temporarily or Permanently

Out of Service - FY 72 through FY 74

AGENCY	TEMPORARILY OUT OF SERVICE	PERMANENTLY OUT OF SERVICE
ACADEMIC FLEET		*GERDA (22) PROTEUS (26) *TERITU (20) *ALAMINOS (28) GOSNOLD (30) INLAND SEAS (30) TURSIOPS (20)
NOAA		
MCS	DISCOVERER (8) SURVEYOR (13)	PATHFINDER (31)
OF&LR	CROMWELL (10) DELAWARE II (5) FREEMAN (6)	DOLPHIN (18) GILBERT (21) KELEZ (29) **ELTANIN (16)
NSF		
USCG	NORTHWIND*** WESTWIND***	ROCKAWAY (31)
USN		*KELLAR (3) *KEATHLY (27)
Total	7 Ships	15 Ships

() indicates age

* Replaced

** Transfer to Argentina being negotiated

*** In shipyard for major overhaul. Will return to service in FY 75.

Ships Involved in Fleet Reduction, FY 72-74

Table 2 details changes in the fleet on an agency-by-agency basis, showing that the major fleet changes occurred in the FY 73-74 period and that NOAA, Academic and NSF ships sustained the major cutback. USCG ships show a temporary drop in number and supporting dollars while two ships are undergoing major overhaul and modification. The USCG "ocean station" ships were also drastically affected by budget cuts in FY 73-74 but will be dealt with separately since they are not classified as part of the Federal Fleet.

Table 3 lists by agency, name and age the 22 ships which will be temporarily or permanently out of service during or by the end of FY 1974. In addition to these 22, at least five Academic ships are likely to be reduced to less than full-time operation owing to reductions in Federal support. Since Academic fleet ships derive some support from non-Federal sources, their ultimate annual support is difficult to predict in advance. Nonetheless at this juncture a total shortfall in Academic fleet funding of \$400-600K in FY 1974 is a possibility.

Excluding the five replaced ships (Gerda, Alaminos, Teritu, Kellar and Keathly), four POS's which were laid up early in FY 73 and for which no clear statements of program impact are forthcoming (Proteus, Pathfinder, Dolphin and Rockaway), and the two USCG ships (Northwind and Westwind) due to return to operation in FY 75, this report focuses on 16 ships which are of concern. They are listed below by three categories, TOS, POS and PTO, with current estimated operating cost shown in parens:

<u>TOS Ships</u>		<u>POS Ships</u>		<u>PTO Ships</u>
<u>Surveyor</u>	(1800K)	<u>Gilbert</u>	(ca400K)	5 Academic fleet ships* (representing a shortfall in funding of about 400-600K)
<u>Discoverer</u>	(1850K)	<u>Kelez</u>	(400K)	
<u>Freeman</u>	(840K)	<u>Eltanin</u>	(2,000K)	
<u>Cromwell</u>	(440K)	<u>Inland Seas</u>	(240K)	
<u>Delaware II</u>	(460K)	<u>Tursiops</u>	(110K)	
		<u>Gosnold</u>	(270K)	
	<u>\$ 5,390K</u>		<u>\$ 3,420K</u>	<u>\$ 400-600K</u>

* These are not listed by name since the final determination of which five has not been made.

Summary Data Pertaining to Affected Ships

Data pertaining to the above listed 16 ships was obtained via a questionnaire. Answers are summarized below:

- The following criteria were cited with the indicated frequency as the basis for selecting the 16 specific ships for non-support or reduced support. Several reasons were cited for some ships:

<u>Criteria</u>	<u>Frequency of Citation</u>
Age/material condition	4
Cost of operation	8
Limited operating and/or program capabilities of ship	5
Other (primarily reduced program requirement for ship)	6

- The following reasons were cited with the indicated frequency as the basis for reducing or providing no support:

<u>Reason</u>	<u>Frequency of Citation</u>
Funding not available for ship	12
Funding not available for programs using ship	0
Funding available for neither ship nor programs	4
New program directions not related to funding	0
Other (primarily program funding not sufficient from ship funding source*)	8

* Applies primarily to Academic ships which have lost some NSF ship support because NSF project support is not sufficient to warrant a higher ship support figure. Project support may be available from sources providing inadequate or no ship support.

Replies to the question, "If number of ships has decreased but related programs are continuing, how are shiptime requirements being handled?" have been interpreted to answer three implicit questions. These with their replies are as follows:

• Does the need still exist for the ship in whole or in part?

	<u>Yes</u>	<u>No</u>	<u>Yes but for programs not providing ship support</u>
TOS ships	5	0	
POS ships	5		1
PTO ships			5
	—	—	—
	10	0	6

• Where it still exists, is the need being met? and to what extent?

	<u>Yes</u>	<u>No</u>	<u>No, for programs not providing ship support</u>
TOS ships	3 (ca 43%)	2	
POS ships	4 (ca 35%)	1	1
PTO ships			5
	—	—	—
	7	3	6

• How are needs being met?

<u>TOS ships</u>	<u>Programs Accommodated by</u>	<u>Percent Accommodation</u>
<u>Discoverer</u>	<u>Researcher</u> <u>+ others</u>	35%
<u>Cromwell</u>	<u>D.S. Jordan*</u> <u>+ charters</u>	60%
<u>Delaware II</u>	<u>Charter</u> <u>+ other</u>	35%

* D.S. Jordan, Oregon and Cobb used for programs of laid up ships at expense of other programs.

<u>POS ships</u>	<u>Programs Accommodated by</u>	<u>Percent Accommodation</u>
<u>Gilbert</u>	<u>D.S. Jordan*</u> + charter	30%
<u>Kelez</u>	<u>Oregon*</u> , <u>Cobb*</u> + charter	25%
<u>Tursiops</u>	Some time sharing on other Academic ships	
<u>Eltanin</u>	If operated coopera- tively with the Argentines	50%

•Are program gaps or deficiencies developing?

Two out of five TOS ships (Cromwell and Delaware II) report "yes" with respect to:

Resource assessment

Resource management

Life studies

Four out of six POS ships report "yes" as follows:

Resource assessment 2 ships (Gilbert & Kelez)
Resource management
Life studies

U.S. Antarctic oceanographic programs
(delayed & reduced) 1 ship (Eltanin)

Development of Great Lakes programs
(delayed & reduced) 1 ship (Inland Seas)

*D.S. Jordan, Oregon and Cobb used for programs of laid up ships at expense of other programs.

Compare ship support dollars for FY 72, 73 and 74 to related program dollars.

NOAA ships (See Table 4 for detail.)

	<u>FY 72</u>	<u>FY 73</u>	<u>FY 74</u>
Project support	\$38.7	44.8	46.5
Ship support	17.5	17.9	15.6
% of project support	45.2%	39.9%	33.5%

NSF ship (Eltanin)

Project support	\$ 1.8	\$ 0.7	\$ 0.4
Ship support	1.5	1.5	0.5
% of project support	83.3%	214.3%	125%

Academic ships (See Table 5 for detail.)

Project support	\$77.4	\$73.4	\$72.7
Ship support	16.8	16.9	16.5
% of project support	21.7%	23.0%	22.7%

Table 4

NOAA-Program Support Related to Ship Support
 (\$ in thousands)

	Program Appropriations (Less Ships)		Est. 1974	Ship Operations (Direct Costs)		
	1972	1973		1972	1973	Est. 1974
Ocean Fisheries and Living Resources						
Resource surveys	\$ 2,239	\$ 2,545	\$ 2,407	\$	\$	\$
Survey data processing, analysis & dissemination	4,598	3,813	3,813			
Biological investigations	10,088	10,467	10,518			
Ecological investigations	3,424	4,324	4,141	2,583	2,735	2,015
Marine mammal conservation		650	1,600			
Subtotal	\$20,349	\$21,799	\$22,479	\$ 2,583	\$ 2,735	\$ 2,015
Mapping, Charting and Surveying Services						
Nautical charts	8,111	9,338	10,030	6,994	7,370	7,194
Ocean mapping and investigations	3,514	3,594	2,366	5,471	4,461	2,809
Coastal zone mapping & Services						
a. Estuarine and lake investigations	1,292	1,307	1,409	322	416	-0-
Ship bases and program support				1,807	2,023	2,459
Subtotal	\$12,917	\$14,239	\$13,805	\$14,594	\$14,270	\$12,462
Marine Ecosystems Analysis and Ocean Dumping						
MESA	1,576	2,545	4,043	-0-	-0-	570
GATE/GARP	1,508	3,262	6,162	-0-	130	543
FYGL	2,360	2,963	(2,162)*	324	747	-0-
Totals	\$38,710	\$44,808	\$46,489	\$17,501	\$17,882	\$15,590
Subtotal	5,444	8,770	10,205	324	877	1,113
Percent of program support				45.2%	39.9%	33.5%

* No field work in FY 1974. Not included in totals.

Table 5

Academic ShipsProject Support Related to Ship Support

Source	FY 72		FY 73		FY 74 (est)	
	Project \$\$	Ship \$\$	Project \$\$	Ship \$\$	Project \$	Ship \$\$
NSF	36.8	11.0	34.9	11.6	35.2	12.1
ONR	21.0	4.3	18.1	3.8	17.1	3.3
Other Federal	12.0		12.6		ca 12.6	
AEC	(2.7)		(2.9)			
HEW	(.3)	1.5	(.4)	1.5		1.1
Sea Grant	(4.4)		(3.9)			
Other	(4.6)		(5.4)			
State Govt.	3.5		3.5		ca 3.5	
Non-govt.	<u>4.1</u>		<u>4.3</u>		ca <u>4.3</u>	
	77.4	16.8	73.4	16.9	72.7	16.5
Percent of project support -		21.7%		23.0%		22.7

NSF and ONR data for FY 72 and FY 73 are from the respective agencies and are reasonably reliable. FY 74 figures are estimates.

Other Federal, State and Non-govt. data for FY 72 and FY 73 are from the institutions. FY 73 figures are estimated. No data is available for FY 74 and therefore level funding with FY 73 has been assumed.

The ship support data are more reliable than the project data.

Impact of Reduced Funding on Ships and Programs

General Comments - This discussion is based on information derived from the questionnaire summarized above and from narrative material provided by the agencies. Viewing the fleet as a whole, cost of operation figured prominently in decisions as to which ship should be laid up. Limited capabilities of ships combined with age and material condition approximately equaled cost as a consideration. Reduced program need for specific ships was cited in only six instances.

Declining or unrelated program funding was cited in 12 instances to explain the reason for reducing or withdrawing ship support. For well over half the ships, lack of or inadequate support for both ship and programs was also cited.

Nonetheless, for 10 of the ships continuing program need is said to exist and in 7 instances arrangements are being made to accommodate programs on other ships, often at the expense of programs normally served by these ships.

A comparison of total project dollars to total ship dollars for affected portions of the fleet are misleading and require a more detailed examination. Comments on NOAA, NSF and Academic portions of the fleet follow:

NOAA - NOAA ships are classified into two groups, those for:

Mapping, Charting and Survey (MCS)
and
Ocean Fisheries and Living Marine Resources (OF&LR)

which serve separate programs as set forth in Table 4.

Within MCS and OF&LR, the ship operation funds associated with subprograms are misleading in that ship time from those programs also support other projects such as IFYGL, GATE and MESA.

- Nautical Charts - Although ship operation support related to nautical charting has had a slight overall increase since FY 1972, the PATHFINDER (\$1.1M annually) was decommissioned during this period and the increase actually reflects the higher cost of operating the remaining vessels in that program.
- Ocean Mapping and Investigations - Termination of the marine geophysics survey and mapping program accounts for about half of the decline in program funding for "ocean mapping and investigations" (Surveyor), and was paralleled by similar decline in support for the ocean research programs

(Discoverer). Ocean research projects impacted by lay-up of Discoverer include TAGS, Gulf of Mexico Water Quality studies, etc.

The rapidly increasing demands for ship time for National Projects, particularly GATE/GARP, however, have further reduced the ship time available for ocean investigations. The NOAA ship time contribution of Oceanographer and Researcher to the GATE project during calendar year 1974 will further impact NOAA's ocean research programs. After 1974 at least one additional ship year appears to be needed to bring the ocean research programs up to full operation.

- MESA - Another rapidly growing program also has expanding ship needs, the nearshore requirements of which are presently being met by Ferrel and shared time on two OF&LR ships (Albatross IV and Oregon II). Within present resources, there is uncertainty as to how increasing future ship needs for this program will be fulfilled. The inefficiency of existing vessels on this type project has pointed out the need for a specially equipped, general purpose oceanographic ship for use in coastal areas.
- Ocean Fisheries and Living Resources (OF&LR) has undergone substantial reprogramming in the past two years to fit within limited budgets resulting in reductions to both programs and ship time availability. Efforts have been made to balance these various reductions to the extent possible by broadening the geographic coverage of ships remaining in operation, by substituting chartered ships where possible, and by shifting program emphasis to data reduction where collecting programs are perforce curtailed. Nonetheless, there is a shortage of ships and the three TOS Fisheries ships, Freeman, Delaware II and Cromwell should be reactivated as these vessels are needed to support programs involved in (1) revitalizing the New England Fisheries; (2) environmental studies; (3) Pacific resource investigations for tuna and skipjack; (4) groundfish survey in Northeast Atlantic and North Pacific. This additional ship support is required to provide biological data necessary for international negotiations (ICNAF and INPFC), better management of coastal fishery resources, and development of under-utilized species.

NSF - NSF ships include the Antarctic ships Hero and Eltanin, the latter of which is presently out of service. Negotiations are underway to transfer this ship to Argentina where it will continue to operate as an Antarctic ship conducting cooperative US-Argentine scientific programs. Under this arrangement NSF will contribute approximately \$500K per

year for the ship. If this arrangement develops successfully, the impact of the NSF lay-up of the ship will be considerably muted. Since this is the only major U.S. research ship which has supported programs in the Antarctic region, its disappearance would leave a significant gap in coverage of the world oceans.

Academic Ships - The Academic portion of the Federal Fleet constitutes a special problem since these ships are not wholly funded from Federal sources (about 5% from non-Federal sources) and the levels of support from Federal agencies varies from year to year. NSF and ONR are the principal supporters since they are also major contributors to the programs carried out by the academic community aboard these ships. It will be noted in Table 5, however, that a substantial amount of project support derives from other Federal, State and private sources which contribute a disproportionately small amount of ship support. The extent to which this project support relates to ship use is, however, difficult to ascertain. ONR provides ship support in approximately the same ratio to project support as is provided in toto, with the possibility of some drop off in percentage in FY 74. NSF, on the other hand, has consistently provided a larger share, which has served in part as a subsidy for projects supported by the multiplicity of other Federal and non-Federal sources. Faced with a declining budget for ship support in FY 1974 (based on Budget to Congress), NSF cautioned the community that its limited funds must be used first and foremost to provide shiptime for NSF funded projects. Congress has expressed concern over the prospect of Academic fleet lay-ups and a reappropriation of the NSF appropriation for FY 1974 increased the budget line item for ship operations support to approximately \$12.1 million as shown in Table 5. Even with the higher level of NSF support, it appears likely that there will be some reduction in operations (PTO's), and shiptime may not be available for some non-NSF/ONR projects. These are identified on Table 5 as "all other Federal and non-Federal" projects totaling \$19-20 million, at least some of which have well substantiated shiptime needs. NSF support at the anticipated FY 1974 level (i.e. \$12.1 million) will cover shiptime requirements of all NSF funded projects as well as some which do not supply their own ship support. In future years it is likely that the margin of NSF supported shiptime available for "other" projects will decline.

Actual lay-ups of Academic fleet ships by end of FY 1974 will be limited to three small ships (Inland Seas, Turslops and Gosnold) one of which (Inland Seas) may be replaced in part through other agency arrangements. The five PTO ships, however, pose a problem for future years unless growing support from other sources materializes. Reduced operations may be sustained for a year but will ultimately lead to lay-up if full funding is not restored. Disappearance of several more ships from the Academic sector could be expected to delimit shiptime available for funded NSF and ONR programs.

Other Agency Comparisons - Navy appears to be weathering this year of reduced funding even better than reported earlier. The Hayes had been

scheduled to remain in shipyard for repairs for a substantial part of FY 74 but was back in operation by mid-August following a 5-month yard period. Lee and Sands, earlier reported as uncertain, are fully funded for FY 74, although FY 75 may be in doubt. Navy reports "some cutback" in Naval Oceanographic budgets but these were not related to data collection. Some loss in data reduction capability has resulted, however.

Coast Guard "ocean station" ship are dropping in count from 33 to 17 in the two-year period covered by this report and are losing their ocean station maintenance role. The last of the ocean stations, namely Bravo in the North Atlantic and November in the Pacific, will close on 30 June 1974. The remaining 17 ships will thereafter be used for fishing treaty law enforcement, search and rescue, cadet training and refresher training functions, which are not new functions for these ships but which are increasing. Withdrawal from the ocean station program means termination of the time series meteorological and oceanographic data collection, which was carried out for more than twenty years. This action will create a significant gap in data collection for the entire Federal Ocean Program.

Capital Investment Losses Resulting From Lay-ups

With the exception of Eltanin, the POS ships covered in this report are old, generally in poor condition and represent no major capital loss. They are a loss in the sense that they are disappearing without replacement and therefore are contributing to the decline in Federal Fleet size.

Continuing PTO status for the ships in that category beyond this year could result in several future lay-ups among that group. For the period of this report, however, none of them constitute a capital investment loss.

This section will, therefore, deal with the five TOS ships (Surveyor, Discoverer, Freeman, Cromwell and Delaware II) plus Eltanin. The following data from the questionnaire is presented as pertinent:

- Cost of maintaining ships in current status versus current operating costs.

<u>Ship</u>	<u>Current Costs</u>	<u>Full Operating Costs (Est.)</u>
<u>Surveyor</u>	\$ 113K	\$1,800K
<u>Discoverer</u>	160	1,850
<u>Freeman</u>	48	840
<u>Cromwell</u>	5	440
<u>Delaware II</u>	50	460
<u>Eltanin</u>	500	1,800
Total	\$ 876K	\$7,190K

- Original cost of construction versus estimated replacement cost.

<u>Ship</u>	<u>Initial Cost</u>	<u>Replacement Cost (Est.)</u>
<u>Surveyor</u>	\$ 6.8	\$14.0
<u>Discoverer</u>	8.8	14.0
<u>Freeman</u>	3.4	5.5
<u>Cromwell</u>	1.7	3.5
<u>Delaware II</u>	1.5	3.5
<u>Eltanin</u>	3.8	12.0
	\$26.0 million	\$52.5 million

• Estimated reactivation costs.

<u>Ship</u>	<u>Cost (Est.)</u>
<u>Surveyor</u>	\$300K
<u>Discoverer</u>	350
<u>Freeman</u>	885
<u>Cromwell</u>	445
<u>Delaware II</u>	147
<u>Eltanin*</u>	—*
	—————
	\$2,127K

The net saving in operating costs for the six ships is approximately \$6.3 million. Assuming amortization over a 20-year period and no greater deterioration rate in TOS status than in operation, the loss per year in unused capital structures based on initial construction costs is \$1.30 million or \$2.63 million based on present-day prices. Hidden costs such as those related to loss of skills of displaced personnel are difficult to access, but also contribute to the total loss associated with the laying up of ships. Thus the real value savings from lay-up of good useable ships is less than is generally understood.

* Not relevant

Distribution and Characteristics of Remaining Federal Fleet

Attachment B shows the geographic distribution of the ships still in operation (including two USCG ships which will return to service next year). Overall the division of ship resources appears to be relatively good between east and west coasts, but the Great Lakes, Gulf, Hawaii and Alaska appear to be less well covered. Distribution of ships per se, however, may be less significant a factor than development of appropriate programs to match the need to investigate these areas. Availability of ships of proper design may also be more important than availability of ships per se. The sudden dislocation (lay-up) of a number of ships in the Federal Fleet as a result of pressures on ocean program budgets may reflect some degree of mismatch between program needs and capabilities per se or per unit cost of existing ships. Given rapidly rising costs, there is a clear requirement for low cost flexible use ships along with a suitable mix of special purpose ships.

Attachment C examines the age of fleet ships by agency and size categories. Taken as a whole, 34% of the ships remaining in the Federal Fleet are more than 15 years old. By agency the distribution of old ships is:

<u>Agency</u>	<u>No. of Ships</u>	<u>Over 15 Years</u>	<u>Percentage</u>
Navy	16	4	25%
NOAA-MCS	13	0	0
NOAA-OF&LR	10	4	40%
USCG	9	9	100%
NSF	1	0	0
Academic	30	10	33%

Replacement ship construction programs are at low ebb, with two ice-breakers under construction by USCG, one academic ship funded for construction and a possible second under consideration in FY 1974. Since all five TOS ships are less than 15 years old, other agencies should consider using them as replacements if the operator agencies do not plan to restore them to service. A limitation on such alternate use, however, is the fact that ships are not universally applicable for all missions.

Since this report deals with problems of continued support for the Federal Fleet, it is worthy of note that more than half of the remaining ships are more than 200 ft. in length, which in turn means they are very costly to operate. Three very large ships (Eltanin, Discoverer and Surveyor) were victims of recent budget cuts, suggesting that the role of such ships in the future Federal Fleet may require careful appraisal.

AGENCY LISTS OF FEDERALLY SUPPORTED OCEANOGRAPHIC SHIPS

U.S. Navy - Oceanographic Ships

	<u>June 72</u>	<u>Sept. 73</u>
Number of ships reported.	18	16
Size range.	208-454 ft. l.o.a.	

	<u>FY 73</u>	<u>FY 74</u>
Number fully funded.	15	15
Number partially funded.	1	1
Number not funded for operation.	0	0

<u>Ship</u>	<u>Age</u>	<u>Length</u>	<u>Funding in (k)</u>		<u>Op. Status</u>	
			<u>FY 73</u>	<u>FY 74</u>	<u>FY 73</u>	<u>FY 74</u>
USNS BOWDITCH (C)	29	454	2,200	2,420	FTO	FTO
USNS DUTTON (C)	29	454	2,200	2,420	"	"
USNS MICHELSON (C)	29	454	2,100	2,310	"	"
USNS CHAUVENET	4	393	2,200	2,420	"	"
USNS HARKNESS	4	393	2,000	2,200	"	"
USNS WILKES	2	287	1,500	1,650	"	"
USNS WYMAN	2	286	1,600	1,760	"	"
USNS SILAS BENT	8	285	1,600	1,760	"	"
USNS KANE	6	285	1,700	1,870	"	"
USNS MIZAF (C)	16	266	1,400	1,540	"	"
USNS HAYES	2	246	1,500	1,650	PTO	PTO
USNS S. P. LEE	5	209	1,100	1,210	FTO	FTO
USNS LYNCH	8	209	1,100	1,210	"	"
USNS BARTLETT	4	208	1,100	1,210	"	"
USNS SANDS	9	208	1,100	1,210	"	"
USNS DE STEIGUER	4	208	1,100	1,210	"	"

Legend: (C) - converted
 FTO - full time operation
 PTO - part time operation

TOS - temporarily out of service
 POS - permanently out of service

NOAA - Ocean Fisheries & Living Resources Ships

	<u>June 72</u>	<u>Sept. 73</u>		
Number of ships reported.	12	12		
Size range. 74-215 ft. l.o.a.				
			<u>FY 73</u>	<u>FY 74</u>
Number fully funded.			7	7
Number partially funded.			4	0
Number not funded for operation.			1	5

<u>Ship</u>	<u>Age</u>	<u>Length</u>	<u>Funding in (k)</u>		<u>Op. Status</u>	
			<u>FY 73</u>	<u>FY 74</u>	<u>FY 73</u>	<u>FY 74</u>
MILLER FREEMAN	6	215	74	47	TOS	TOS
ALABATROSS IV	9	187	427	559	FTO	FTO
GEORGE B. KELEZ (C)	29	177	393	0	PTO	POS
DAVID STARR JORDAN	6	171	448	457	FTO	FTO
OREGON II	4	170	251	414	FTO	FTO
TOWNSEND CROMWELL	10	158	372	5	PTO	TOS
DELAWARE II	5	156	158	50	PTO	TOS
CHARLES H. GILBERT	21	123	0	0	PTO	POS
OREGON	27	100	302	265	FTO	FTO
MURRE II	30	86	0	76	FTO	FTO
JOHN N. COBB	21	93	254	230	FTO	FTO
GEORGE M. BOWERS	16	74	56	87	FTO	FTO

NOAA - Mapping, Charting and Surveying Ships

	<u>June 72</u>	<u>Sept. 73</u>		
Number of ships reported.	14	13		
Size range. 90-303 ft. l.o.a.				
			<u>FY 73</u>	<u>FY 74</u>
Number fully funded.			11	11
Number partially funded.			2	0
Number not funded for operation.			0	2

<u>Ship</u>	<u>Age</u>	<u>Length</u>	<u>Funding in (k)</u>		<u>Op. Status</u>	
			<u>FY 73</u>	<u>FY 74</u>	<u>FY 73</u>	<u>FY 74</u>
DISCOVERER	7	303	1,304	150	PTO	TOS
OCEANOGRAPHER	7	303	1,759	1,619	FTO	FTO
SURVEYOR	13	292	793	150	PTO	TOS
RESEARCHER	4	278	1,482	1,460	FTO	FTO
FAIRWEATHER	5	231	1,169	1,252	FTO	FTO
MT. MITCHELL	6	231	1,318	1,252	FTO	FTO
RANIER	5	231	1,311	1,253	FTO	FTO
DAVIDSON	7	175	768	747	FTO	FTO
MCARTHUR	7	175	1,000	747	FTO	FTO
PIERCE	10	164	663	747	FTO	FTO
WHITING	10	163	658	747	FTO	FTO
FERREL	5	133	416	355	FTO	FTO
RUDE & HECK	7	90	483	488	FTO	FTO

U.S. Coast Guard - General Oceanographic Ships

	<u>June 72</u>	<u>Sept. 73</u>
Number of ships reported.	10	9
Size range.	180-310 ft. l.o.a.	

	<u>FY 73</u>	<u>FY 74</u>
Number fully funded.	8	7
Number partially funded.	0	0
Number not funded for operation.	1	2

<u>Ship</u>	<u>Age</u>	<u>Length</u>	<u>Funding in (k)</u>		<u>Op. Status</u>	
			<u>FY 73</u>	<u>FY 74</u>	<u>FY 73</u>	<u>FY 74</u>
GLACIER (C)	19	310	2,394	2,538	FTO	FTO
BURTON ISLAND	27	269	2,082	2,207	"	"
EDISTO	26	269	2,354	2,495	"	"
NORTHWIND*	28	269	1,989	59	"	TOS
SOUTHWIND	30	269	1,079	1,144	"	FTO
STATEN ISLAND	30	269	2,012	2,133	"	"
WESTWIND*	29	269	59	59	TOS	TOS
ACUSHNET (C)	30	213	890	943	FTO	FTO
EVERGREEN (C)	30	180	581	616	"	"

*FRAM - part of FY 73 & FY 74

U. S. Coast Guard - Ocean Station Ships

	<u>June 72</u>	<u>Sept. 73</u>
Number of ships reported.	33	30
Size range. 255-378 ft. l.o.a.		

	<u>FY 73</u>	<u>FY 74</u>
Number fully funded.	27	17
Number partially funded.	3	7
Number not funded for operation.	0	6

Ship	Age	Length	Funding in (k)		Op. Status		
			FY 73	FY 74	FY 73	FY 74	FY 75
BOUTWELL	} 1-6	378	1,767	1,873	FTO	FTO	
CHASE		"	"	"	"	"	
DALLAS		"	"	"	"	"	
GALLATIN		"	"	"	"	"	
HAMILTON		"	"	"	"	"	
MILLION		"	"	"	"	"	
MORGANTHAU		"	"	"	"	"	
RUSH		"	"	"	"	"	
SHERMAN		"	"	"	"	"	
MONROE		"	"	"	"	"	
JARVIS	"	"	"	"	"		
MIDGETT	"	"	"	"	"		
BIBB	36	327	1,436	1,522	"	"	
CAMPBELL	37	"	"	"	"	"	
DUANE	"	"	"	"	"	"	
INGHAM	"	"	"	"	"	"	
TANEY	"	"	"	"	"	"	

The following ships are being decommissioned during the period 1 March 1973 - 1 June 1974:

SPENCER	37	327	1,136	1,522	FTO	PTO	POS
GRI SHAM	37	311	1,032	-0-	PTO	POS	POS
ANDROSOCOGGIN	27	255	827	-0-	PTO	POS	POS
CHAUTAUQUA	28	"	1,585	1,680	FTO	PTO	POS
ESCANABA	27	"	1,522	-0-	FTO	POS	POS
KLAMATH	27	"	1,172	-0-	PTO	POS	POS
MENDOTA	27	"	1,414	1,499	FTO	PTO	POS
MINNETONKA	28	"	1,519	1,610	FTO	PTO	POS
OWASCO	27	"	1,033	-0-	FTO	POS	POS
PONCHARTRAIN	28	"	1,562	1,656	FTO	PTO	POS
WACHUSETT	27	"	1,304	1,382	FTO	PTO	POS
WINNEBAGO	28	"	822	-0-	FTO	POS	POS
WINONA	27	"	1,478	1,567	FTO	PTO	POS

National Science Foundation

	<u>June 72</u>	<u>Sept. 73</u>
Number of ships reported.	2	2
Size range. 125-266 ft. l.o.a.		

	<u>FY 73</u>	<u>FY 74</u>
Number fully funded.	1	1
Number partially funded.	1	0
Number not funded for operation.	0	1

<u>Ship</u>	<u>Age</u>	<u>Length</u>	<u>Funding in (k)</u>		<u>Op. Status</u>	
			<u>FY 73</u>	<u>FY 74</u>	<u>FY 73</u>	<u>FY 74</u>
ELTANIN (C)	16	266	1,455	500	PTO	POS
HERO	5	125	611	591	FTO	FTO

ACADEMIC INSTITUTIONS

June 72 Sept. 73

Number of ships reported. 34 33
 Size range. 50-245 ft. l.o.a.

		FY 73	FY 74
Number fully funded.		31	} 30
Number partially funded.		1	
Number not funded.		2	

Ship	Age	Length	Institution	Funding in (k)		Op. Status	
				FY 73	FY 74	FY 73	FY 74
ACONA	12	85	Alaska	219	262	FTO	
ALPHA HELIX	8	133	Calif. (SIO)	512	510	FTO	
AGASSIZ (C)	29	180	SIO	613	666	FTO	
WASHINGTON	8	209	SIO	1,279	1,023	FTO	
E. B. SCRIPPS	8	95	SIO	268	273	FTO	
MELVILLE	4	245	SIO	1,099	1,102	FTO	
OCONOSTOTA (C)	29	101	SIO	295	265	FTO	
CONRAD	11	208	LDGO	1,073	1,000	FTO	
VEMA (C)	50	197	LDGO	539	692	FTO	
EASTWARD	9	118	Duke	405	430	FTO	
TURSIOPS (C)	30	65	FSU	108	25	FTO	POS
KIT JONES (C)	35	64	Georgia	100	100	FTO	
KANA KEOKI (C)	6	156	Hawaii	988	893	FTO	
4 { MOANA WAVE ²	< 1	175	Hawaii	-0-	620	--	PTO
TERITU (C) ³	20	90	Hawaii	163	-0-	FTO	PTO
WARFIELD	6	106	Johns Hopkins	238	247	FTO	
MAURY	23	65	Johns Hopkins	55	59	FTO	
GILLISS	10	208	Miami	835	880	FTO	
ISELIN	1	170	Miami	499	546	FTO	
CALANUS	4	63	Miami	84	89	FTO	
INLAND SEAS (C)	30	114	Michigan	230	-0-	Seasonal	POS
MYSIS	11	50	Michigan	65	66	Seasonal	Seasonal
GULF STREAM (C)	10	55	Nova	55	55	FTO	
YAQUINA (C)	29	180	OSU	636	709	FTO	
CAYUSE	5	80	OSU	254	249	FTO	
TRIDENT (C)	29	180	URI	739	732	FTO	
VELERO IV	23	110	USC	341	361	FTO	
4 { ALAMINOS (C) ³	28	180	Texas A&M	586	-0-	FTO	PTO
GYRE ²	< 1	175	Texas A&M	-0-	525	--	PTO
THOMPSON	8	209	Washington	918	975	FTO	
HOH/ONAR (C)	30	65	Washington	142	151	FTO	
KNORR	3	245	WHOI	1,093	1,159	FTO	
CHAIN (C)	29	214	WHOI	1,260	1,254	FTO	
ATLANTIS II	10	210	WHOI	1,206	1,223	FTO	
GOSNOLD (C)	29	99	WHOI	108	-0-	PTO	POS

¹ Will be POS by end FY 74
² Due for completion mid 1974

³ Being replaced mid 1974
⁴ Counted as 1 equivalent ship - FTO

Attachment B

Geographic Distribution of Federal Fleet

Alaska

NORTHWIND
THOMPSON
HOH/CAR

OREGON
MURSE II
ACONA

STATEH ISLAND
COBB
DAVIDSON
FAIRWEATHER
RAMIER
MCARTER
OCEANOGRAPHER

YAQUIHA
CAYUSE

BARTLETT
BE'IT
CHAUVENET
DE STEIGUER
MICHELSON

VELERO IV
BURTON ISLAND
GLACIER

LEE
ACUSHNET
JORDAN
AGASSIZ
WASHINGTON
SCRIPPS
MELVILLE
OCONGSTOTA
ALPHA HELIX

Hawaii

MOANA WAVE
KAWA KECKI



Antarctic HERO

Distribution of Federal Fleet
By Size and Age

Size	Number of Ships	Age	
		Over 15 Years	Under 15 Years
<u>200 Feet and Over</u>			
Navy	16	4	12
NOAA-MCS	7	0	7
NOAA-OF&LR	1	0	1
USCG	8 (+17)	8 (+5)	0 (+12)
Academic	<u>8</u>	<u>1</u>	<u>7</u>
Total	40 (+17)	13 (+5)	27 (+12)
<u>100 Feet and Over</u>			
NOAA-MCS	5	0	5
NOAA-OF&LR	6	1	5
USCG	1	1	0
NSF	1	0	1
Academic	<u>13</u>	<u>6</u>	<u>7</u>
Total	26	8	18
<u>Under 100 Feet</u>			
NOAA-MCS	1	0	1
NOAA-OF&LR	3	3	0
Academic	<u>9</u>	<u>3</u>	<u>6</u>
Total	13	6	7
GRAND TOTALS	79 (+17)	27 (+5)	52 (+12)

USCG Ocean Station Ships (+)