BY THE COMPTROLLER GENERAL

Report To The Congress

OF THE UNITED STATES

Coast Guard Action Needed To Promote Safer Marine Transportation

The Coast Guard is responsible for maintaining 50,000 aids to navigation--ranging from buoys to computerized vessel traffic management systems--which mark navigational channels or warn of potential hazards. Aids to navigation become more important as marine traffic increases.

The number of serious marine accidents is growing. In 1977, 2,330 collisions, rammings, or groundings incurred losses of more than $89 million. GAO recommends ways the Coast Guard can improve its aids to navigation program.

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COMPTROLLER GENERAL OF THE UNITED STATES
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To the President of the Senate and the
Speaker of the House of Representatives

This report describes how the Department of Transportation can improve its aids to navigation program. Aids systems help insure safe marine transportation. We made this review to determine how effectively the Department of Transportation was carrying out its aids to navigation program.

We are sending copies of this report to the Director, Office of Management and Budget, and the Secretary of Transportation.

Comptroller General
of the United States

Navigation aids
Transportation Safety

Coast Guard
AGC 00164

COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

COAST GUARD ACTION NEEDED TO PROMOTE SAFER MARINE TRANSPORTATION

D I G E S T

The Coast Guard is responsible for managing the Nation's systems for marking channels and warning mariners of potential hazards--known as the aids to navigation program. Aids to navigation may be as routine as a buoy marking a channel or hazard or as complex as a vessel traffic service system employing computers, radar, and closed-circuit television.

Increased marine traffic and volume of cargo, including hazardous material, has led to a growing number of serious accidents. That is why "discrepancies"--such as buoys being offstation, missing aids relocated without adequate notice, or structural problems--need to be corrected as quickly as possible to minimize the risk to mariners and the possibility of legal action. As of October 1978, 34 lawsuits were pending with a potential cost to the Government of almost $29 million. (See p. 5.)

RECOMMENDATIONS

The Coast Guard can improve its response to aid discrepancies by:

--Establishing performance standards based on sound data rather than intuitive judgment.

--Making greater use of specially trained and equipped repair teams.

--Changing its personnel practices, especially its policy of transferring staff every 2 years.

--Maintaining an adequate inventory of spare aids and parts by reducing aid losses caused by adverse weather.

--Reassessing workload distribution for buoy and construction tenders, giving consideration to transit times and age of tenders. (See p. 25.)

A large number of sunken vessels, primarily in inland waterways, are unmarked and can pose hazards to navigation. The vessel owner is required to mark sunken vessels that pose a navigational hazard; however, the Coast Guard has discretionary authority to mark the vessels if the owner cannot or will not do so. As a matter of policy, the Coast Guard should exercise this discretionary authority. (See p. 17.)

The maritime industry is changing constantly. As changes occur in vessels, cargoes, and ports, new aids systems or changes to existing systems are required. These changes are not always made in a timely manner because the Coast Guard does not have a formal system for communicating with mariners--the most knowledgeable persons about local maritime conditions. (See p. 18.)

The Coast Guard did not evaluate simpler, less costly alternatives for vessel traffic management before establishing vessel traffic service systems in the ports of New York, New Orleans, and Houston. This has resulted in unnecessary expense to the Government and increased burdens on mariners and the Coast Guard. (See p. 34.)

RECOMMENDATIONS

The Coast Guard can improve its management of the aids to navigation program by:

--Exercising its discretionary authority to mark sunken vessels when the owners do not take such action, and, if possible, to assure removal of the vessels by either the owners or the Corps of Engineers.

--Establishing procedures for consulting and considering mariners' views on aids to

navigation and vessel traffic management systems.

--Making sure vessel traffic service systems are the least costly and most efficient systems to promote safety and facilitate commerce.

AGENCY COMMENTS

The Department of Transportation agreed to (1) study future replacement of buoy tenders, (2) consider changes to personnel rotation policy, (3) take prompt action to amend the guidance for responding to aid discrepancies, and (4) evaluate simpler, less costly vessel traffic management systems before establishing sophisticated systems. The Department, however, rejected the rest of the recommendations. (See app. III.)

GAO has assessed the Department's comments and addressed the issues raised in appropriate sections of this report.

Contents

		Page
DIGEST		i
CHAPTER		
1	INTRODUCTION	1
	Scope of review	3
2	AIDS TO NAVIGATION SYSTEM NEEDS TO BE IMPROVED	5
	Discrepancies need to be corrected in a more timely manner	5
	Buoy and construction tenders should be used more effectively	9
	Greater use should be made of aids to navigation teams	12
	Better management of personnel and spare parts needed in the aids to navigation field	13
	Sunken vessels need to be marked adequately	17
	Changes to the system need to be made more effectively	18
	Funding delays exist in implementing aids systems	24
	Recommendations	25
	Agency comments and our evaluation	26
3	VESSEL TRAFFIC MANAGEMENT SYSTEMS HAVE NOT BEEN PROPERLY PLANNED OR MANAGED	27
	Probable overstatement of VTS impact in preventing marine accidents	28
	Implementation of simpler, less burdensome VTS alternatives has been limited	31
	Effectiveness of VTS hampered by phased-purchase approach and lack of mariner cooperation	32
	Conclusions	34
	Recommendations	34
	Agency comments	35
APPENDIX		
I	Aids to navigation servicing vessels	36
II	Buoy characteristics	43
III	Agency comments	55

ABBREVIATIONS

ANT	aid to navigation team
GAO	General Accounting Office
LLTV	low-light level television
LORAN	long-range aid to navigation
VMRS	vessel movement reporting system
VTS	vessel traffic service

CHAPTER 1

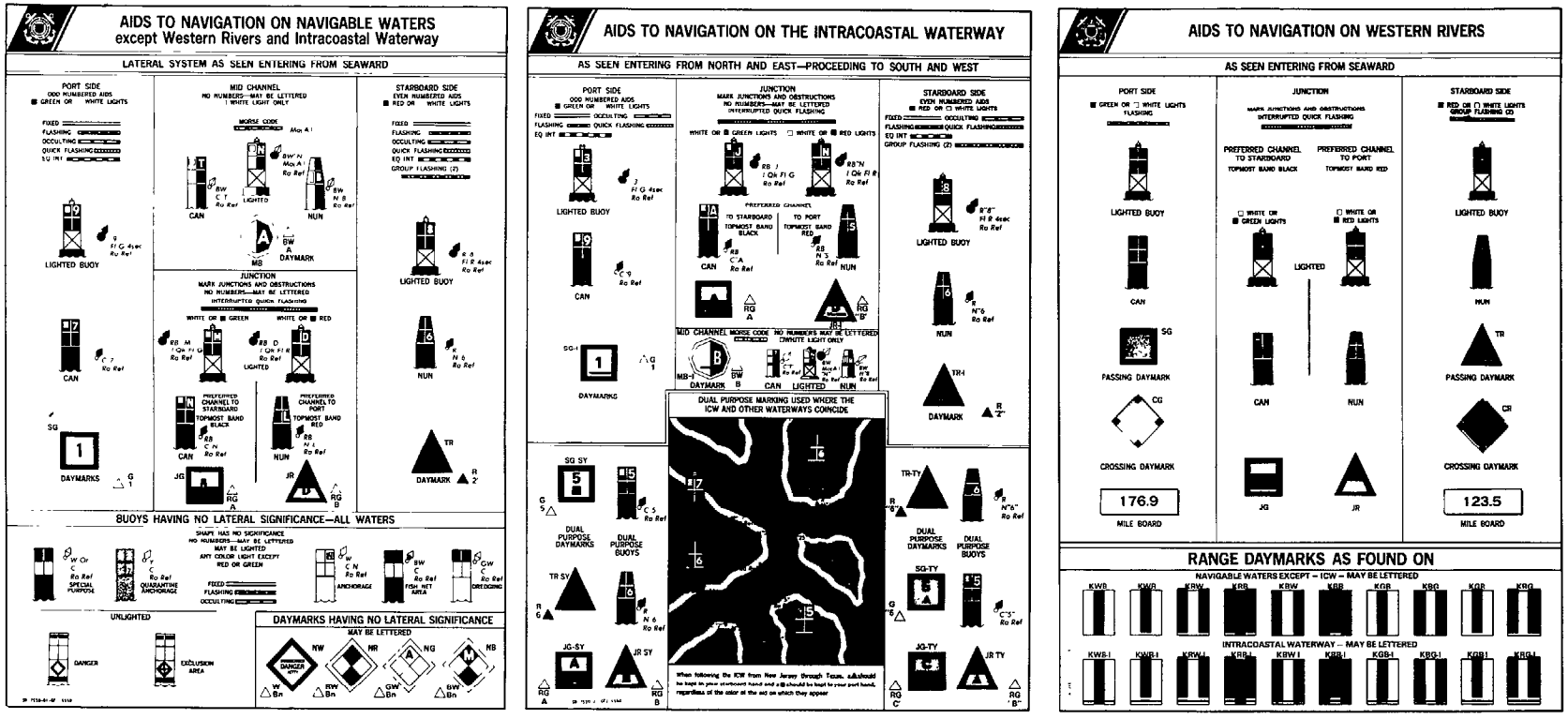
INTRODUCTION

What is a marine aid to navigation? Basically, it is anything external to a vessel that indicates a channel or a hazard in the waterway to a mariner. An aid can be as simple as willow wands stuck in the bottom along the edge of a channel or it can be a sophisticated vessel traffic service (VTS) system employing radar, closed-circuit television, and computers. However, the Coast Guard does not consider the VTS systems as part of its definition of aids to navigation. Regardless of their complexity, aids to navigation exist to provide safe transport and efficient vessel movement through a waterway. The floating buoy is probably the most common aid to navigation. (Fig. 1 indicates the standard buoyage system in the United States.)

Since the founding of the United States, the Congress has recognized the need for a uniform Federal system of aids to navigation. The ninth law passed by the first session of the Congress in 1789 allocated money for building and maintaining lighthouses and for buying and transferring lighthouses and floating aids from the various States. From the original 19 aids transferred from State to Federal control, the number of aids to navigation has grown to the nearly 50,000 currently in use. These aids include buoys, beacons, lighthouses, lightships, and VTS systems. Even though the number of aids maintained by the Coast Guard has increased, the number of buoy tenders to maintain aids has decreased. (Buoy tenders are vessels used to service and maintain aids to navigation.) Various types of tenders are shown in appendix I.

The responsibility for establishing and maintaining these aids has been delegated to many different branches of the Government since the system was federalized. However, since 1939, the Coast Guard has been given the authority to establish, service, and maintain aids in all navigable waters in the United States, its territories and possessions, and its military installations.

The number of vessels and the volume of cargo handled by U.S. ports has grown, which has increased the importance of the aids to navigation program. Increased marine traffic and volume of cargo, including hazardous material, has led to serious accidents, as shown in the following table.



SOURCE: U.S. COAST GUARD

FIGURE 1

Marine Accidents

	Fiscal year			
	1971	1973	1975	1977
Collisions, rammings, and groundings	1,723	1,914	2,121	2,330
Estimated losses from collisions, rammings, and groundings (in thousands of dollars)	$41,557	$82,688	$123,827	$89,595

Technological advances, including development of better reflective materials, paints, and more reliable lighting systems, allowed the Coast Guard to improve its aid equipment. Depending on light characteristics, aid lights can last 2 years without requiring new light bulbs or batteries.

The Ports and Waterways Safety Act of 1972 (Public Law 92-340) authorized the Coast Guard to establish, operate, and maintain VTS systems in congested waterways to prevent vessel accidents. The Coast Guard was also made responsible for identifying the ports and waterways where VTS systems are needed and the level of sophistication needed for the systems. To date, the Coast Guard is planning to establish or has established sophisticated VTS systems in six U.S. ports.

SCOPE OF REVIEW

Our review of the Coast Guard's aids to navigation program involved work at the headquarters level, at four Coast Guard district offices, and at aids to navigation facilities within these districts. The second district includes inland waterways; the third and fifth districts include the mid-Atlantic coast; and the eighth district includes the Gulf coast. We also visited the New York, New Orleans, and Houston/Galveston VTS system centers. 1/

We examined the policies, regulations, practices, and procedures governing the short-range aids to navigation program at each organizational level visited. In addition, we reviewed various aids to navigation administrative records and interviewed both the Coast Guard personnel who

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1/Our review excluded only the long-range navigational systems such as LORAN-A and LORAN-C.

actually perform the aids to navigation work and the Coast Guard officials responsible for administering the aids to navigation program at each organizational level.

We analyzed the Coast Guard response to reported problems in aids to navigation systems within each district visited. Using Coast Guard records, we analyzed the time required to correct problems.

Finally, we interviewed mariners who use the waterways in each district visited to obtain their views on how well the Coast Guard is fulfilling its aids to navigation functions. Where possible, we investigated alleged problems.

CHAPTER 2

AIDS TO NAVIGATION SYSTEM NEEDS TO BE IMPROVED

The Coast Guard prides itself on the tradition of providing maximum service with minimum resources and generally has done a good job with the resources available. However, we noted areas where improvements need to be made in the aids to navigation system:

--Discrepancies need to be corrected in a more timely manner.

--Sunken wrecks need to be adequately marked.

--Changes to the system need to be made more effectively.

We also found the Coast Guard had experienced funding delays in implementing new aid systems and changes to existing systems. The Coast Guard does not view this as a problem affecting safe and efficient marine traffic, because the delays are attributable directly to the high priority given projects that are more important and of greater benefit to marine safety.

DISCREPANCIES NEED TO BE CORRECTED IN A MORE TIMELY MANNER

Discrepancies to the navigational aids system such as buoys being offstation, aids being relocated without adequate notice, and other structural deficiencies need to be corrected as quickly as possible in order to minimize the risk to mariners and the resulting possibility of legal action. Our review showed that the Coast Guard has generally not been able to meet the criteria established in its "Aids to Navigation Manual" for correcting such discrepancies. We believe that significant improvements could be achieved through (1) more effective use of buoy and construction tenders, (2) greater use of aids to navigation teams (ANTs), (3) better personnel management, and (4) better management of spare parts and supplies.

Accidents occurring as a result of discrepancies in the aids to navigation system can result in a claim for damages or a legal suit. The Coast Guard estimates that it receives an average of $2 million annually in claims as a result of offstation buoys and has paid out over $3 million for this reason since 1963 as a result of judgments or out-of-court settlements. In addition, 56 lawsuits have been filed since 1963 as a result of aid discrepancies--38 of

which occurred in the past 5 years. As of October 1978, 34 suits are pending with a potential cost of $29 million as a result of aid discrepancies.

Coast Guard headquarters recommends that districts categorize each aid as either immediate, priority, or routine in order to determine which discrepancies to correct first. Aids categorized as immediate must be corrected as soon as a discrepancy report is received, priority aids must be corrected within 24 hours of a discrepancy report, and routine aids must be corrected within 48 hours of a report. 1/

Although the benefits of setting priorities for aids as recommended is obvious in terms of achieving more timely response, none of the coastal district offices we visited had done so. Coast Guard district and local officials generally agreed, however, that any discrepancy should be corrected within 48 hours.

We examined discrepancies reported at the third, fifth, and eighth districts during July and October 1977 and April 1978 and found that this goal had not been met in that the response time exceeded 48 hours in 91 percent of the cases. as shown in the following table.

1/There is a fourth category for correcting aid discrepancies which states that unlighted aids in infrequently used waters may go uncorrected until the next maintenance cycle. Since the districts do not categorize the aids into any of the four groupings, we could not identify specific aids in this category. However, most of the aids included in our review were not in the fourth category, either because of their location or the fact that they were lighted.

District	Discrepancies examined (note a)	Number of days to correct discrepancies				
		0-2	3-5	6-30	31-60	over 60
Third	422	39	34	112	98	139
Fifth	251	29	23	62	41	96
Eighth	228	16	20	75	51	66
Total	901	84	77	249	190	301
Percent	100	9	9	28	21	33

a/We included all discrepancies where aids were either missing, destroyed, offstation, or extinguished and had not been temporarily corrected.

In the second Coast Guard district, which encompasses the inland river systems, aid discrepancy records for July and October 1977 and March 1978 showed that Coast Guard response time ranged from 1 week to over 24 weeks. As the following table shows, response time on the district's major waterways exceeded 1 week for about 80 percent of the discrepancies reported.

Major waterways	Discrepancies reported	Number of weeks to correct discrepancies				
		0-1	2-4	5-12	13-24	over 24
Lower Mississippi River (note a)	53	15	4	2	0	32
Ohio River	36	4	9	1	0	22
Tennessee River	12	4	4	0	0	4
Upper Mississippi River	56	9	7	1	2	37
Total	157	32	24	4	2	95
Percent	100	20	15	3	1	61

a/Aids in the lower Mississippi are not charted, but the aid discrepancies included have specific locations and mark hazards to navigation such as sunken vessels, dikes, or revetments.

Although coastal mariners we interviewed generally felt that the Coast Guard was doing a good job with the resources it had, mariners using the inland waterways said the Coast Guard's response time to discrepancies was unacceptable. Coast Guard officials agreed response time was often lengthy but stated that many aids go uncorrected for extended periods during the winter months due to icy or other rough weather conditions. However, the statistics developed during our review specifically excluded these months.

Coast Guard officials contended that some redundancy is built into the system so that one discrepancy has no impact on a mariner's ability to safely travel a channel, allowing the Coast Guard more time to correct discrepancies. Yet when asked why aids were not categorized by importance, Coast Guard officials stated that "all aids are critical." Although some redundancy does exist, we believe that all aids should be corrected, as required by the "Coast Guard Aids to Navigation Manual," because the redundant aids have not been identified as such and the situation could become critical if a sufficient number of aids are not functioning effectively. In addition, we believe that aids or aid systems should be categorized to insure a timely response in promoting marine safety and facilitating commerce.

The Department of Transportation, in commenting on our draft report, said that the performance standards were established administratively, on an intuitive judgment basis, with the well-intentioned purpose of providing uniformity of practice. The Department conceded, however, that the Coast Guard has failed to modify its policy when experience has shown that the response to discrepancies requires consideration of too many factors to issue guidance in the form of specific time limits. The Department added that the reason for not responding to discrepancies is not inability to respond, but a judgment that response within the time limit is not necessary and would use resources ineffectively. Categorization of discrepancies, and of routine discrepancies in particular, into rigidly defined increments of time for response has proven impractical and unnecessary.

Because the performance standards for responding to aid discrepancies are based on intuitive judgment, as opposed to sound data, adherence to the standards can result in ineffective use of resources. In our opinion, specific criteria for responding to aid discrepancies is sorely needed to assure marine traffic safety. The Department's position

that existing criteria are based on intuitive judgments does not in any way minimize the fact that corrections to discrepancies in the aids system take too long; to the contrary, it highlights the need to develop realistic criteria based on sound data to ensure that discrepancies are corrected in a timely and uniform manner. This criteria, if established, should recognize that some aid discrepancies may require immediate attention while others can be delayed.

BUOY AND CONSTRUCTION TENDERS SHOULD BE USED MORE EFFECTIVELY

More tenders are needed in the aids to navigation program, according to the 1975 Coast Guard Cutter Plan which forecasts tender needs through 1986. The age of many tenders and the distances they travel would seem to support such a position. However, our review indicated that improvements could be made in the time required to respond to discrepancies in the aids system if the Coast Guard made better use of existing tenders by increasing operating time for response to emergencies. We believe this option should be considered as an alternative to acquiring new tenders. The following table shows the amount of time tenders were used in the second, third, fifth, and eighth districts for maintaining aids during calendar years 1976 and 1977.

	Time spent maintaining aids	Time spent on tender maintenance	Time spent in standby status
	(percent)		
River tenders (note a)	26	14	60
Coastal tenders (notes a and b)	22	23	55

a/Percent of total time maintaining aids includes all time the tenders were away from their home port.

b/Percent of total time maintaining aids includes all mission operating hours, such as aids to navigation work, search and rescue, training missions, and other Coast Guard mission uses.

The Department commented that standby time includes a lot of time when tenders are not underway but are committed to servicing of aids to navigation, such as sleeping during

an overnight stop while deployed to service aids, constructing or servicing fixed aids, loading or unloading aids and related material, and waiting for bad weather to clear.

We believe the high percentage of time Coast Guard tenders spend in standby status indicates they could be used more effectively for correcting emergency aid discrepancies. During standby, vessels are mechanically ready and able, within 24 hours, to maintain aids to navigation and respond to emergencies. The lengthy time required to respond to discrepancies suggests that greater consideration should be given to more effective use of tenders. This view is supported by the fact that many aid to navigation officials believed that (1) tenders are not being used excessively and (2) response time for correcting discrepancies was inadequate.

The second district apparently recognized the need for more operating time and increased the number of people assigned to 15 of its 18 river tenders so that tenders could spend more time on the river tending aids without imposing undue hardships on the crew. (Crews could be rotated and would not have to make every aids patrol.) However, the district decommissioned four tenders at about the same time, so the remaining tenders ended up with more miles to patrol. Consequently, the increase in personnel generally has not resulted in a significant increase in the time a tender is on the river.

Another possibility for improving the use of tenders is to reduce the time spent in transit for scheduled and unscheduled maintenance. Our review showed that much of what the Coast Guard considers to be operating time was actually time spent in transit to aids assigned at distant locations.

The tender at Greenville, Mississippi, has been assigned aids which range from only 6 miles down river to approximately 127 miles up river, so that it must spend 3 to 4 days to reach the upper end of its run. Department officials informed us that there was no suitable port nearer the center of the assignment area, and although the present arrangement was less than ideal, it was not a major problem. They stated that tenders were assigned in the second district after careful examination of alternatives and none existed to improve the overall situation.

However, our analysis of alternatives considered in the recent second district study showed that tender locations

were not considered. We believe a comprehensive assessment of tender locations and assignment areas is necessary to minimize transit time.

For example, in the second district the Coast Guard relief cutter at Pine Bluff, Arkansas, must travel approximately 600 miles round trip, twice a year, through areas where three other tenders are assigned, to reach an area assigned to it--about half way between Natchez, Mississippi, and Baton Rouge, Louisiana, on the Black-Ouachita Rivers. In our opinion, the Coast Guard could reduce transit time and increase use of tenders by assigning the aid responsibility to the tender in the area. Department officials said that this trip is coordinated, whenever possible, with a scheduled relief period of another tender to reduce transit time. If one of the tenders through whose area it travels were sent to the Black-Ouachita instead, that tender would require temporary relief in its regular duties. Thus, an unnecessary and undesirable increase in the use of the older relief tender on the lower Mississippi would be required, without any reduction in the total distance traveled by the two tenders. In scheduling tenders, the Department considers relief cycles of other tenders. In our opinion, its scheduling should consider minimizing transit time as well.

Excess transit time was also evident in coastal districts. In the fifth district there are three large tenders located in Chesapeake Bay--a 180-foot seagoing and a 157-foot coastal tender in Portsmouth, Virginia, and a 157-foot coastal tender in Baltimore, Maryland. Both of the Portsmouth-based tenders travel significant distances to maintain aids in the same areas of the Potomac River. The tender based in Baltimore, however, is responsible for maintaining aids in a much smaller area and already maintains aids at the mouth of the Potomac. We believe transit time could be reduced significantly if the Potomac aids were maintained by the Baltimore tender rather than the Portsmouth tenders.

Department officials said that the assignment of home ports and servicing responsibilities to buoy tenders is the result of the following considerations:

--Availability of the facilities and services necessary to berth, support, and maintain a ship.

--Availability of a suitable community in which the ship crew and their families can live.

--Availability of adequate transportation facilities and access for the delivery of aids to navigation and other materials and supplies.

--Differences in the capabilities of different ships.

--Constraints imposed by requirements to serve Coast Guard missions other than aids to navigation.

Because most buoy and construction tenders' home ports have been established for many years, we could not determine if these factors were considered when the present locations were decided. We believe they should be considered.

The advanced age of certain tenders is another factor to be considered in improving the navigation aids system. A larger percentage of the tenders are over 30 years old--all of the seagoing tenders, the majority of the coastal tenders, and many of the inland river tenders were built before 1945. Considering the age and importance of the buoy tenders, it is reasonable to expect the Coast Guard would have replacement tenders at least in the design stage. The Coast Guard is planning to buy 10 or 11 new harbor tugboats which will replace older ones that were built in 1939 and 1943. However, Coast Guard officials stated very little has been done to prepare for tender replacement, even though production from design to final product takes 4 to 5 years to complete.

Department officials said that all the ships have been renovated to some degree. The majority have had renovations to major mechanical systems, which are related most directly to the condition and capability of each ship. Additional renovations are being considered as an alternative to replacement with new ships. The Coast Guard is also studying future replacement of tenders. In its study, the Coast Guard should recognize that these vessels require considerable maintenance as previously shown--about 1 day of maintenance is required for every day of operation.

GREATER USE SHOULD BE MADE OF AIDS TO NAVIGATION TEAMS

A 1970 study, funded by the Coast Guard, 1/ which recommended conversion of fixed aids to floating aids (buoys to beacons) also recommended establishing aids to navigation teams (ANTs) as a method of reducing time lost responding to discrepant aids. ANTs are units of specially trained personnel which have small, high-speed boats and can respond

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1/"Study of the Servicing System for Short-Range Aids to Navigation," Booz Allen Applied Research, Inc., Nov. 1970.

to aid discrepancies more rapidly and at less cost than buoy tenders. In addition to responding to discrepancies, ANTs perform normal aid maintenance, which usually includes only those cases that do not require removal of the buoy or its mooring from the water. ANTs with 45- to 65-foot buoy boats, however, are capable of working the smaller buoys even if the buoy or mooring must be removed.

ANT success has been demonstrated. In the Galveston, Texas, area the ANT has primary responsibility for 530 aids, including over 130 buoys, and the ANT at Curtis Bay, Maryland, has primary responsibility for almost 1,000 aids. However, in spite of ANTs' proven success, some districts do not use them.

The second district seems particularly suited for ANTs. It has most of the inland waterway system; buoys are small; and sudden changes in the river require prompt response. However, even though Coast Guard officials and mariners agree that ANTs would be advantageous, none have been established and the Coast Guard does not plan to establish them.

Department officials said that the same factors affecting tender locations also affect ANTs locations. They added that ANTs have been successful, generally, where they have been established. No ANT, however, is assigned to work comparable to that required on the Lower Mississippi.

We have observed the success of ANTs in the fifth and eighth districts, and we disagree with the Department's position regarding the use of ANTs in the second district. We observed ANTs maintaining aids in situations comparable to the inland waterways in the other districts, such as maintenance of small, unlighted buoys and range lights and operating in areas with currents.

BETTER MANAGEMENT OF PERSONNEL AND SPARE PARTS NEEDED IN THE AIDS TO NAVIGATION FIELD

The Coast Guard could improve its ability to establish and maintain an effective aids to navigation program by changing its policy of transferring staff every 2 years. Coast Guard officials agreed that aids to navigation personnel must be familiar with the waterways, vessel conditions, and mariner concerns related to their areas. However, the Coast Guard's transfer policy rarely allows personnel to remain in place long enough to gain this knowledge.

For example, in New York members of the Hudson River Pilots Association spent over 2 years writing letters to and meeting with the Coast Guard to convince it of their need for ice buoys in the upper Hudson River during the winter. However, by the time the officer they were dealing with was familiar enough with the problem to agree to take action, he was transferred and a new officer took over. Then the process of justifying the need for ice buoys began all over.

In the second district, Coast Guard personnel assigned to river tenders serve for 2 years. Both Coast Guard and towing industry personnel believe this time is too short and does not give personnel time to become knowledgeable about the rivers and aid problems before being transferred.

The Coast Guard's frequent rotation policy also affects the aids to navigation formal training program. Officials at the Coast Guard aids to navigation school stated that 60 percent of the problems they face are directly related to the transfer policy. Teachers with the necessary experience in the aids area are difficult to find. Additionally, the level of the courses offered is limited because students know little or nothing about aids when they arrive at the school. Training in areas such as how to manage aids to navigation units is not given because students must be taught aids to navigation basics.

According to the Department, a better system for assignment of enlisted personnel to the various aids to navigation training courses will be used in fiscal year 1979. This supposedly will not only improve the skill level of personnel involved with aids but also will provide a pool of trained people.

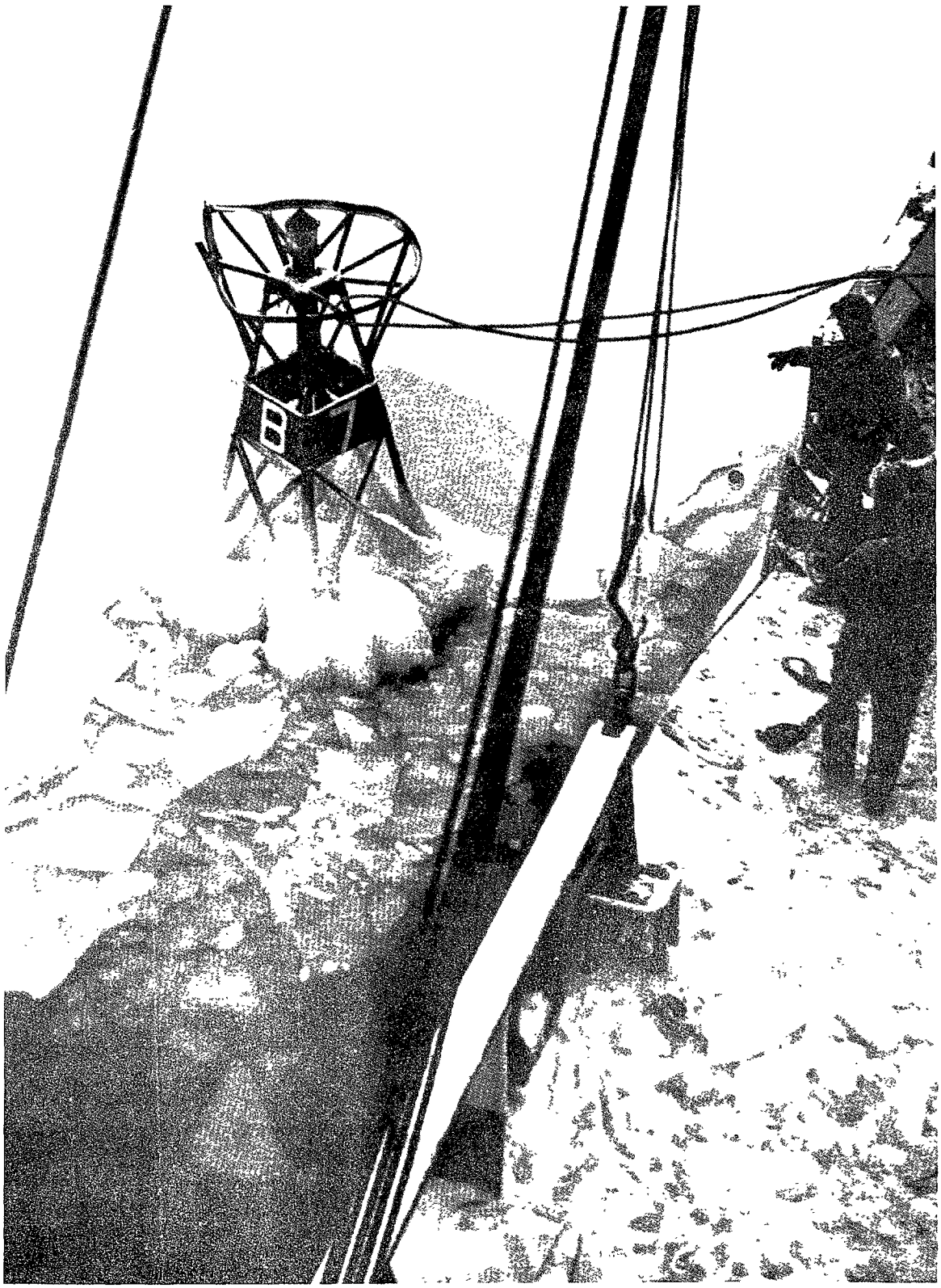
Our review of the Coast Guard's management of its spare parts inventory showed that a shortage of aids and supplies exists. The most frequent shortages noted were spare buoys; none of the depots we visited had the number of spare buoys required by Coast Guard regulations.

For example, the buoy depot at Curtis Bay, Maryland, had only 23 percent of its required standard buoy spares on hand and was using less desirable buoys as replacements. In another situation, we noted that approximately 100 buoys were missing from the navigational aids system on the Ohio River in July 1978. No buoys were available at the depots for replacement.

Many factors contribute to the inventory shortages which need to be addressed by Coast Guard management. First, in

those districts encompassing the northern coastal areas, ice is the most common natural hazard and causes many buoy losses. (Fig. 2 shows a buoy heavily damaged by ice.) To minimize these losses, the Coast Guard attempts to replace lighted buoys with a specially designed ice buoy which is resistent to ice and very effective. (See p. 46.) However, because very few ice buoys were available, the Coast Guard was substituting a smaller, unlighted buoy which was less effective. In addition, we found no evidence that the Coast Guard was planning to acquire additional ice buoys.

On the inland waterways, seasonal changes in water levels are the most common causes of buoy losses. The Coast Guard requires that some of the navigational aids be removed (thinned) before predicted high water to minimize losses. However, this is often not done, which has contributed significantly to the 50-percent buoy loss rate in the inland waters. We discussed this with district Coast Guard officials, but they had no explanation for not thinning the buoys as required in the district's operations manual.



SOURCE: U.S. COAST GUARD

FIGURE 2

In commenting on this report, the Department acknowledged that a shortage of spare buoys did exist during the period of our review and attributed it to the extremely severe winter of 1976-77 and the less extreme but still unusually cold winter which followed. Buoy depo were short of spares because some buoys had been lost, some being repaired as a result of ice damage, and others were being used as temporary replacements for those which had been destroyed by ice. The Department stated that the Coast Guard had almost recovered from shortages and backup spares would be purchased in fiscal years 1979 and 1980. The Department also stated that the Coast Guard has enough ice buoys for the present and will acquire more when necessary.

Although the Coast Guard states that it has enough ice buoys for the present, we found that shortages existed at the third and fifth districts in September 1978, and the Coast Guard was neither purchasing nor manufacturing ice buoys at that time. Therefore, we do not know how it had sufficient ice buoys for the winter of 1978-79.

In our opinion, the Coast Guard could have minimized its buoy losses if it had managed its buoy inventory more effectively to compensate for seasonal hazards. This could be done by insuring that district and headquarters operating procedures are followed--thinning buoys during periods of high water and replacing standard buoys with ice resistent buoys.

SUNKEN VESSELS NEED TO BE MARKED ADEQUATELY

Sunken vessels are a serious problem in inland waterways and, to a lesser extent, in coastal areas. Anytime a vessel sinks where it can pose a hazard to navigation, the wreck is to be marked. The primary responsibility for marking the wreck lies with the owner. However, if the owner cannot or will not mark the wreck, the Coast Guard is authorized to step in and mark it with a lighted buoy.

Many mariners and Coast Guard officials have stated that sunken vessels are not being marked as they should be and as a result are creating serious navigational hazards. In inland waterways the Coast Guard has identified over 600 sunken vessels, but only 15 percent are marked. Not all of these are in the river channels, but they could pose a hazard during high-water periods when vessels are not restricted to the channels. In addition, those wrecks marked by the Coast Guard are generally not marked with lighted buoys.

In commenting on our draft report, the Department said that, depending on the circumstances, removing sunken vessels is the duty of the owner or the Corps of Engineers. Marking sunken vessels, however, is the owner's responsibility. The Coast Guard has discretionary--not mandatory--authority to mark or not mark the vessels. While we recognize the limits of the Coast Guard's legal responsibility, as a matter of policy we believe the Coast Guard should exercise its discretionary authority to mark sunken vessels in such a fashion as to ensure marine traffic safety to the greatest extent practical.

CHANGES TO THE SYSTEM NEED TO BE MADE MORE EFFECTIVELY

The maritime industry--which includes vessels, their cargoes, and even ports--is constantly changing. These changes often require the design of new aid systems or modification of existing systems to ensure safe and efficient movement of waterborne commerce. Our review showed that requested changes are not always made in a timely manner because no formal system of communicating with mariners exists.

Need for formal system to communicate with mariners

Aids to navigation systems exist as a service to mariners, and their opinions should be solicited since they are the ultimate users and are probably the most knowledgeable persons in their local aids area. The Ports and Waterways Safety Act, as amended (92 Stat. 1479, Public Law 95-474), requires the Secretary of Transportation to establish procedures for consulting with and receiving and considering the views of all interested parties, such as representatives of the maritime community, regarding vessel traffic management. We believe that such consultation and consideration would be beneficial for all Coast Guard aids programs. However, the Coast Guard does not have a formal system for obtaining input from local mariners about the effectiveness of or need for aids systems in their areas.

The Coast Guard communicates navigational system changes or hazards in the systems through broadcasts and issuance of a weekly "Local Notice to Mariners." It also discusses mariner complaints when presented with them. However, the Coast Guard does not regularly or formally solicit mariner opinions on system operations.

Following are examples we noted where communication between local mariners and the Coast Guard could have resulted in more effective aids and a savings to the Government.

--Pilot associations which represent many mariners believe that the Baltimore, Maryland, harbor; Chesapeake Bay ship channels; and Norfolk, Virginia, harbor (which are major marine waterways) are overbuoyed. Coast Guard officials agreed the areas may be overbuoyed, but they have not tried to meet with mariners to discuss which aids could be removed.

--The second Coast Guard district has about 4,000 shore aids on the inland river system--an important segment of the Nation's marine transportation system. Although mariners, who represent a significant amount of river traffic, and the Coast Guard believe many of these aids could be removed, no attempt has been made to determine which ones could be removed without affecting marine traffic. (Fig. 3 shows coastguardsmen repairing a lighted shore aid.)

In both examples, if a formal system of communication existed between local mariners and the Coast Guard, these issues would have been identified and could have freed needed aids for use elsewhere.

In another example, a licensed pilot told us that unlighted buoys in Mobile Bay, Alabama, needed to be replaced with lighted buoys, that the buoys needed to be numbered consecutively, and that range lights were needed in the lower end of the bay. The pilot was not aware that the Coast Guard was in the process of changing the unlighted buoys to lighted ones, had not numbered the buoys consecutively in order to allow for expansion, and had approved the range lights and would install them when funds were available. (App. II lists some characteristics of commonly used buoys.)

The Department said that the change from unlighted to lighted buoys and addition of range lights would be published in the "Local Notice to Mariners" which pilots are expected to read. Also, the reason for sequential numbering of buoys could have been obtained if the pilot requested such information. In our opinion, this exemplifies the lack of timely and effective communication between the Coast Guard and mariners. If the Coast Guard regularly discussed system operations with local mariners and obtained their views, such issues could be identified and possibly resolved.

FIGURE 3

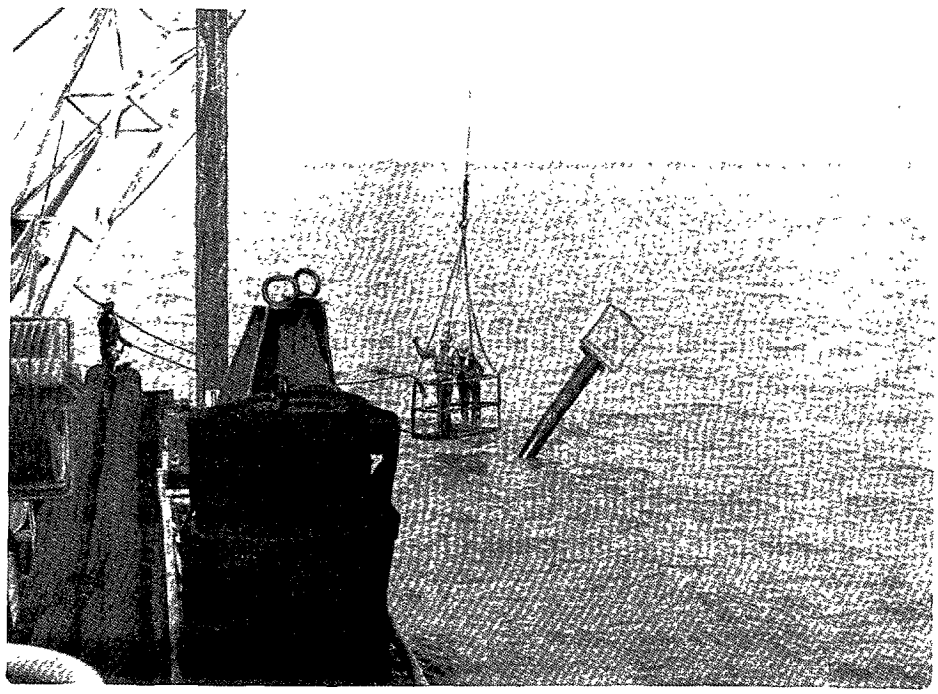
SOURCE (U.S. COAST GUARD)

In the following examples, operational changes were made without formal input from the local mariners or their associations. As a result, the system changes did not promote safe navigation, according to the mariners who use the revised systems.

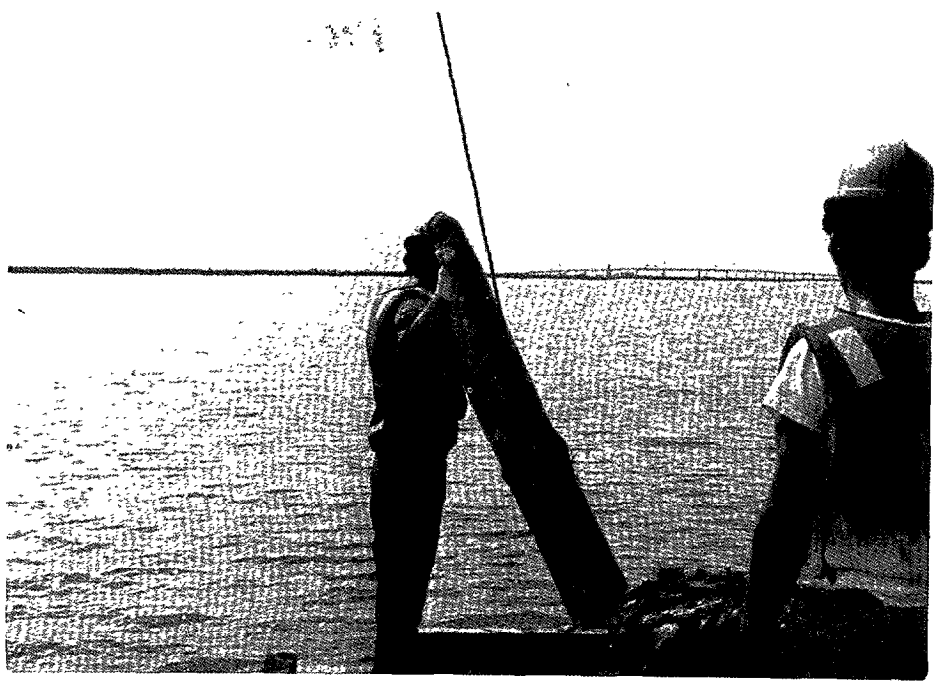
In the 1970 study (see p. 12), problems in the aids area were examined and possible solutions were recommended. One of the study's recommendations was to convert buoys to beacons as a cost-saving method. The Coast Guard implemented such a program, without obtaining mariner opinions, with little apparent consideration that in some areas, such as the Gulf Intercoastal Waterway, frequent problems resulted from vessels accidentally hitting the aids. In areas where towboats frequently operate, mariners (and local Coast Guard officials) said the fixed beacons did not work and resulted in hazards to navigation. They explained that because of the size and poor maneuverability of barges in tow, the probability is great that fixed aids will be hit occasionally. Sometimes, they noted, the fixed structures are broken off just below the waterline and, until corrected, pose hazards to mariners. Buoys, on the other hand, when struck by a tow submerge and generally reappear even though they may be destroyed or dragged offstation.

The mariners stated they had complained to the Coast Guard but nothing seemed to result from their complaints. Local Coast Guard officials said the program has added to their workload because of the difficulty in repairing the fixed aids. (Fig. 4 shows damaged day beacons in the Gulf Intercoastal Waterway.) Also, these officials said sometimes they had to place beacons so far outside the channel to keep them from being destroyed that they were useless to mariners. They said that despite their efforts to get the system changed, Coast Guard headquarters had not approved the conversion back to buoys.

According to the Department, the eighth district commander has decided to regulate the maximum size of tows and to change back from beacons to buoys in some areas where he considers such action desirable and justified. If the Coast Guard had requested mariners' opinions, these problems may have surfaced and resulted in modifications to the proposed system.



A DAMAGED DAY BEACON -- PROBABLY HIT BY A BARGE.



SOURCE: U.S. GENERAL ACCOUNTING OFFICE

REMOVAL OF A DAY BEACON PILING. THIS PILING WAS BROKEN OFF ABOUT 18 INCHES ABOVE THE WATER LINE.

FIGURE 4

In another case, the Coast Guard moved a set of range lights at Beaufort Inlet in Morehead City, North Carolina. The new range lights were put on battery power and placed in the water. The president of the local pilot association advised the Coast Guard that the lights were not bright enough, and with the slightest unfavorable weather condition they could not be detected in time to be of any use. We accompanied the local pilot association president and verified the allegation ourselves because the problem of ineffective range lights was mentioned many times by mariners throughout the country. Our observations, combined with statements by local Coast Guard officials, substantiated the president's claims. However, changing the range back to the way it was would require approval by Coast Guard headquarters. The local Coast Guard unit is not planning to make the request.

We believe many of the mariners' complaints could be resolved if the Coast Guard communicated with them more effectively. Regular, formal communication is needed between mariners and the Coast Guard to discuss (1) operations of the existing nagivational systems, (2) modifications to the system, (3) revisions to the existing systems, and (4) the effect of changes to the systems.

The Department stated that the Coast Guard uses many methods to solicit mariners views and to keep them informed. The Department agreed that, generally, communication with mariners is essential to evaluate the adequacy of aids to navigation and to plan, or to confirm and adjust tentative plans, for additions or changes. However, individual mariners' judgments often reflect neither a broad understanding of the needs of all mariners nor a completely objective balance in their consideration of risk, economic efficiency, and public interests. Members of a single group of mariners, operating similar craft in the same waterway, often do not agree in detail on their recommendations or wishes for aids to navigation.

We agree that mariners' complaints may be based on incomplete information. However, if the Coast Guard formally and regularly solicited local mariner views, many of their concerns would be reduced because they would have complete information. In addition, mariners' opinions may offer opportunities for improved aid systems. Therefore, the Coast Guard should solicit their views formally and regularly to improve communication with them and possibly improve the aids systems.

FUNDING DELAYS EXIST IN IMPLEMENTING AIDS SYSTEMS

The Coast Guard has experienced some funding delays in its aids to navigation projects. Although the majority of the aid changes are eventually funded, funding is often slow in coming. For example, an average of 69 percent of the projects approved by the third, fifth, and eighth Coast Guard district offices were ultimately funded, but in some cases they were not funded or completed until 15 months after approval. Some projects approved in 1975 still had not been funded at the time of our review--some 3 years later. The number and costs of projects approved versus those ultimately funded are shown below for fiscal years 1976, 1977, and 1978.

	Total approved projects		Funded projects		
District	Number	Cost	Number	Cost	Percent
3	30	$476,090	18	$228,790	60
5	57	387,152	38	180,373	67
8	76	959,496	57	669,097	75

New aids systems, or modifications to existing systems, are proposed to promote marine safety or to facilitate movement of marine traffic. Although Coast Guard officials generally blamed the delays in funding approved projects to budget limitations, they agreed the delay between proposal and funding was often much too long.

According to the Department, in coastal districts changes generally are approved by the district commander or the Commandant (or by officers acting under specific delegations of authority from them). The funding and implementation of proposals to add or improve aids to navigation are subject to the following procedures.

--The district commander has full authority to implement any change which he considers of immediate importance. Resources available to him are usually sufficient to provide, at least, adequate temporary measures. If they are not, he can request assistance from the Commandant. The district commander also has resources (and authority) to implement some relatively inexpensive changes which are of less immediate importance but justified by the expected benefits.

--Other approved projects are subject to review at headquarters to permit the allocation of available funding in accordance with overall national

priorities. Priority is given to prompt marking of new or improved waterways and to other projects that will provide significant improvements to safety or efficiency of navigation and commerce.

--Approved projects which are not or may not be funded promptly are generally those which (1) will provide future aids to navigation for new or improved waterways which are not yet ready for marking or use, (2) are judged to offer benefits sufficient to justify expenditure of Federal funds but cannot compete successfully with other Coast Guard requests for Federal funds, (3) will be required eventually to meet needs which are being met adequately now by temporary, more expedient measures.

The delay in implementing many nonurgent changes to short-range aids to navigation is attributable directly to the high priority given to other Coast Guard actions which are considered more important and immediately beneficial to maritime safety.

RECOMMENDATIONS

We recommend that the Secretary of Transportation require the Commandant of the Coast Guard to revise the criteria for responding to aid discrepancies, basing it on sound data which, if followed, would insure prompt response. We further recommend that the Secretary direct the Coast Guard to improve its aids maintenance program by

--reassessing workload distribution for buoy and construction tenders, giving consideration to transit times and age of tenders;

--establishing more aid to navigation teams, particularly for inland waterways;

--changing the Coast Guard's current policy of rotating personnel every 2 years in order to maintain a more experienced work force; and

--maintaining an adequate inventory of spare aids and parts by minimizing aid losses, using ice buoys in ice conditions, and thinning buoys during high-water conditions on inland waterways.

We recommend that the Secretary require the Commandant of the Coast Guard to (1) identify sunken vessels and mark

them properly when the owner does not take such action and (2) assure their removal, where necessary, by the owner or the Corps of Engineers.

Finally, we recommend that the Coast Guard establish procedures, similar to those required by the Ports and Waterways Safety Act, as amended, for consulting with and considering the views of local mariners.

AGENCY COMMENTS AND OUR EVALUATION

The Department agreed to (1) study future replacement of buoy tenders, (2) consider changes to personnel rotation policy, and (3) take prompt action to amend the guidance for responding to aid discrepancies. However, the Department rejected our other recommendations because it believes they are based on inaccurate statements of alleged fact, implications and impressions created by half-truths, statements taken out of context, and other manipulations of data and statements. We have carefully assessed the Department's comments and addressed the issues raised in appropriate sections of this chapter.

CHAPTER 3

VESSEL TRAFFIC MANAGEMENT SYSTEMS HAVE NOT BEEN PROPERLY PLANNED OR MANAGED

A vessel traffic management system includes anything that regulates vessel movement in an area, such as regulations, traffic separation schemes, vessel movement reporting systems, and electronic or visual surveillance. The objective of such a system is to prevent or lessen the risk of marine casualties and the potential loss of lives, destruction of property, and damage to the environment. The Coast Guard has not adequately considered less costly and equally efficient alternatives in planning and developing such systems.

The Coast Guard considers a vessel traffic service system, which is part of management, to be a vessel movement tracking system requiring mariners to report their positions to a Coast Guard-manned control center. Electronic surveillance of the VTS system area is generally accomplished by radar and/or closed-circuit television.

In a 1975 report 1/ we separated vessel traffic management into two categories--a basic system which includes regulations, traffic separation schemes, or communications network and a sophisticated system using some form of electronic surveillance (radar or television). Vessel movement reporting systems (VMRSs) can be classified as basic or sophisticated depending on their complexity. A VMRS which controls vessel movement in a specific area, generally where hazards exist, would be considered a basic system. A VMRS which tracks and controls vessels in a broader area, using computers or plotting boards, would be considered a sophisticated system.

In response to public concern over congested vessel traffic and hazardous cargo on U.S. waterways, the Congress enacted the Ports and Waterways Safety Act of 1972. The act authorized the Coast Guard to establish, operate, and maintain VTS systems to control traffic in ports, harbors, and other waters subject to congested vessel traffic. Methods used for identifying ports and waterways where these management

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1/"Vessel Traffic Systems--What Is Needed To Prevent And Reduce Vessel Accidents?" (RED-75-319, Jan. 21, 1975.)

systems are needed and their level of sophistication were also to be determined by the Coast Guard.

The Coast Guard identified 22 sites which appeared to have potential for a VTS system. We examined the data used by the Coast Guard in evaluating two of these sites--New York and New Orleans--and found that the number of estimated preventable accidents if a VTS system was operational was overstated. The same criteria was used at all sites; accordingly, the evaluations justifying implementation at the other 20 sites may contain similar errors.

We believe the Coast Guard's VTS systems are sometimes too sophisticated and create a burden for the mariner. The Coast Guard has not adequately considered less expensive alternatives to these systems which could be just as effective in preventing accidents. Its VTS implementation and coordination efforts have alienated mariners and reduced VTS effectiveness in some ports. Simpler management systems could be established through regulations, security broadcast systems, or traffic separation schemes.

In our 1975 report we identified problems in the Coast Guard's implementation of the Ports and Waterways Safety Act. As a result of these findings, we made recommendations to the Secretary of Transportation to:

--Defer the present plans for further electronic surveillance in Houston-Galveston, New Orleans, and the East River and Newark Bay in New York until simpler vessel traffic management systems had been developed and placed in operation in these ports and several other major U.S. ports.

--Adhere to an incremental approach by first operating and evaluating the effectiveness of basic systems, such as regulations, traffic separation schemes, or communication networks, before adding more sophisticated elements.

These recommendations still apply. If the Coast Guard had implemented them, many of the current problems with its VTS system could have been prevented.

PROBABLE OVERSTATEMENT OF VTS IMPACT IN PREVENTING MARINE ACCIDENTS

Since the 1972 act was passed, the Coast Guard has established, or plans to establish, VTS systems in six ports. For now, VTS systems will be vessel movement reporting systems

and have or will have either radar or low-light level television (LLTV) and computerized consoles for tracking vessels. The following table shows these ports and the current status of the VTS systems.

Port	Equipment	Status
San Francisco	2 radars	Operational
Seattle/Puget Sound	a/4 radars	Operational
Houston/Galveston	Computerized VMRS 1 radar 4 LLTVs	Operational
New Orleans	Computerized VMRS	Operational
New York City Harbor	Computerized VMRS 2 radars 6 LLTVs	Operational 1/79
Valdez, Alaska	2 radars	Operational

a/Contracts have been given for 10 radars for this VTS.

The Coast Guard selected VTS sites on the basis of two studies it made in 1973-74. As a result of these studies, 22 U.S. ports and waterways were identified as potential VTS system sites, using as criteria the tonnage of cargo handled; the number of vessel transits; and the number of vessels involved in collisions, rammings, and groundings (casualties) during a 4-year period. The ports were then ranked according to need for a VTS.

The data used as part of this ranking process could not be retrieved from the Federal Records Center in time to be useful for our review; however, we did examine reports of vessel casualties in New York Harbor (the only area with available information) determined to be preventable by a VTS during calendar years 1973 and 1977. 1/ We found that accidents were often incorrectly categorized as preventable by overstating the actual capabilities of a VTS.

1/The data in the 1973 report was part of the information used by the Coast Guard to justify the New York VTS system. The 1977 data was not used to justify this system.

In 1973 the Coast Guard documented 98 vessel casualties in New York Harbor. Of these the Coast Guard determined that 31 could have been prevented by a VTS system. We believe 12 of the 31 (39 percent) would have occurred whether or not a VTS system existed. Of the 68 documented casualties in New York Harbor during 1977, the Coast Guard determined that a VTS system could have prevented 15. We believe the Coast Guard's determination was questionable for 10 of these casualties. Some examples where we disagreed include:

--Barge grounding, August 1973. The grounding occurred because of an offstation aid to navigation--in this case a buoy. The VTS does not have the capability to identify offstation aids.

--Barge sinking, November 1973. The cause of this casualty was a heavily loaded barge with deck cargo improperly secured. When the barge rolled from the wake of a passing vessel, the cargo shifted and the barge capsized. VTS would not have prevented this situation.

--Barge grounding, January 1977. The casualty was caused by a towboat operator's error in estimating the effect of wind, current, and ice conditions on his tow. VTS will not overcome human error.

--Vessel collision, June 1977. The actual cause of the casualty is unknown. The probable cause was that one vessel dragged anchor and collided with another anchored vessel when the tidal current changed. VTS would not have prevented this occurrence.

In commenting on our draft report, the Department stated that 11 of the 22 casualties we questioned would have been preventable if its criteria had been used. We disagree. Its criteria can be loosely interpreted to classify any accident as preventable regardless of how remote the impact of a VTS system might have been.

The Coast Guard's determinations of preventable casualties have also been questioned by other groups. A marine industry spokesman reviewed 19 casualties that occurred in the Pilottown, Louisiana, area of the Mississippi River which the Coast Guard had categorized as preventable. The Coast Guard's determinations were premised on the current VMRS in New Orleans and a proposed radar installation at Pilottown. The industry spokesman disagreed with the Coast Guard on 16 of the 19 casualties. Our review

of the casualties supported the industry spokesman, and although the casualties that we concluded were not preventable differed slightly, we also questioned 16 of the 19.

The Coast Guard has not explained how the New York and Pilottown casualties would have been prevented by the proposed VTS systems.

Coast Guard officials acknowledged that some inconsistencies probably exist in the 1973 studies of the 22 ports or waterways, because several different people were determining which casualties were preventable. However, they felt the casualties erroneously categorized as preventable were balanced by those erroneously categorized as not preventable. These statements reflect a less than scientific approach to the VTS system studies and, in our opinion, cast doubt on their validity.

IMPLEMENTATION OF SIMPLER, LESS BURDENSOME VTS ALTERNATIVES HAS BEEN LIMITED

Coast Guard officials agree that, considering the expense of establishing, operating, and maintaining a sophisticated VTS, less expensive alternatives to electronic surveillance should be considered before defining a port's vessel traffic management needs. These alternatives could be:

--Requiring vessels to report when they are transiting hazardous areas of a harbor or waterway.

--Having vessel traffic separation schemes (in effect, one-way traffic through certain areas).

--Requiring tugboats for large vessels operating in hazardous areas of a harbor or waterway.

--Regulating the size of large tows in hazardous areas.

--Upgrading the aids to navigation system and the response to aid discrepancies in heavily traveled harbors or waterways. 1/

The Coast Guard has done little to implement less expensive alternatives even though one now in use in New York Harbor is reportedly as effective as the planned VTS.

1/These management systems were identified as possible VTS alternatives by the Coast Guard.

Coast Guard officials agreed that limited efforts had been made to issue regulations, except those related to the operation of their VTS system. In New York Harbor, for example, the Coast Guard has approved a voluntary security broadcasting system as a safety measure. A vessel using this system and entering a designated hazardous area notifies other vessels of its intention on the bridge-to-bridge radio channel. The security broadcasting system was initiated in 1975. New York mariners allege that this system coupled with the vessel bridge-to-bridge requirement, mandated by the Vessel Bridge-to-Bridge Radiotelephone Act (85 Stat. 164, Public Law 92-63), provides them with information at least equal to that of the VTS planned for operation in January 1979.

The mariners' contention is supported by the fact that casualties decreased by 31 percent between 1973 and 1977. During the same period, the number of casualties that were preventable if a VTS system was operational decreased by 52 percent.

The Coast Guard, however, disagreed with the mariners. Rather than making the security broadcast system mandatory and evaluating its effect, the Coast Guard is setting up an electronic surveillance system. Ironically, in weather conditions where the planned VTS capabilities will be severely limited, the Coast Guard plans to reinstitute the security broadcast system to control traffic.

The Department stated that there is no effective way to enforce a mandatory security broadcasting system. However, any system whether mandatory or voluntary needs the support of the mariners to be effective. Because the existing system appears to be working on a voluntary basis, mandating and enforcing the system would probably increase its effectiveness.

EFFECTIVENESS OF VTS HAMPERED BY PHASED-PURCHASE APPROACH AND LACK OF MARINER COOPERATION

The Coast Guard has used a phased-purchase approach for implementing each VTS. In New Orleans, for example, based on a study (see p. 30) the Coast Guard has justified the need for a VTS employing radar and closed-circuit television to provide surveillance over the entire VTS area. Because of the expense of procuring radars and television, the Coast Guard has chosen to purchase the surveillance equipment on a phased basis. The first phase has a computerized vessel movement reporting system which relies on mariners for vessel movement information. Since the reliability of the system depends on the

mariners, who are resisting it by refusing to participate, VTS effectiveness is greatly reduced. Mariner resistance to the New Orleans VTS system has forced the Coast Guard to station "spotters" along the Mississippi River to increase the reliability of the vessel movement reporting system.

Mariners oppose the system primarily because (1) they were excluded from VTS planning and (2) the VTS will increase their communications burden. In the New Orleans VTS planning no mariner advisory group assisted the Coast Guard. Coast Guard officials said this was the result of their efforts to comply with an Executive order calling for the reduction of such committees. As for the communications problem, the officials acknowledge that it is an added burden on mariners, but a necessary one, because the radio frequency traffic in the New Orleans area is very heavy. The system in use in the New Orleans VTS area requires mariners to monitor at least three radio frequencies at the same time. Coast Guard officials admit this may detract from efforts to navigate certain vessels.

In contrast to the New Orleans VTS, the Houston/Galveston VTS system involved mariners from the very beginning and does not require them to monitor additional radio channels. As a result, the Coast Guard has had very little, if any, criticism from mariners of the Houston/Galveston VTS. Additionally, this VTS system was not phased in over a long period, and the radar, low-light level televisions, and computer tracking consoles are now in use. Mariners who use the port frequently did say, however, that the money expended on the VTS electronic systems could have been more effectively used for upgrading and improving the aids to navigation in the Houston ship channel.

New York and New Orleans mariners indicated they would support a VTS if it did not impose additional, unnecessary burdens on them. These mariners were not convinced, however, that other actions, such as upgrading the aids to navigation system or requiring security broadcasting systems, would not be just as effective.

The Department, in commenting on our draft report, said that in our 1975 report we recommended that the Coast Guard give national emphasis to implementing passive vessel traffic management measures but not with the intent of deferring the construction of VTS in those areas initially identified as having a need. Our earlier report did emphasize the need for passive systems--but we also recommended that the Coast Guard defer its plans for further electronic surveillance in Houston, New Orleans, and New York VTS areas until basic systems including regulations, traffic separation schemes,

or a communications network had been developed and placed in operation. In these three ports the Coast Guard has continued to emphasize electronic surveillance systems without considering less costly passive systems which we recommended. We recognize that sophisticated VTS systems may well be justified in some situations but only after other passive systems are fully considered and tested.

The Department also said that mariners have voluntarily participated in the VTSs at an overall 95-percent rate nationally and at a 60-percent rate in New Orleans where the system has been in operation for just over a year. In our discussions with mariners and pilot associations regarding the New Orleans and Houston/Galveston VTS systems, officials strongly opposed the former which was developed without their participation but approved the latter which had their involvement. For example, in New Orleans, had the Coast Guard obtained mariner participation in design of the VTS system the problem of having to use three radio channels might have been identified earlier and eliminated. We believe that mariner participation in any vessel traffic management system should be encouraged, as recognized in the recently enacted Ports and Waterways Safety Act.

CONCLUSIONS

Our previous report on vessel traffic management systems concluded that (1) marine casualties could be reduced through regulations, traffic separation schemes, or a communications network which would include vessel movement reporting and (2) these procedures should be put into effect before more complicated systems with electronic surveillance were considered.

Our current review supported these earlier conclusions. The Coast Guard has not, in our opinion, adequately considered the need for establishing the VTS systems in New York, New Orleans, or Houston/Galveston. It did not determine if marine casualties could be prevented or reduced by implementing alternative methods that would have been simpler, less costly, and less burdensome to the mariners who are the ultimate benefactors. In fact, the Coast Guard appears to have ignored evidence that less costly alternatives in many instances are as effective as an electronic surveillance VTS system.

RECOMMENDATIONS

The best vessel traffic management system for a port or waterway is one that reduces vessel casualties at the lowest cost and with the least burden on mariners and the Coast

Guard. Designing the optimum system requires an incremental approach with associated evaluation. Alternatives of lesser sophistication should be thoroughly evaluated for effectiveness before more costly programs are started.

We recommend that the Coast Guard:

--Evaluate the present system of navigational aids in areas where vessel traffic management systems are being considered and decide whether safety needs can be met by upgrading or modifying the existing system. Both mariner and Coast Guard ideas should be considered in deciding which course of action is appropriate.

--Identify particularly hazardous locations or conditions and, after consulting with mariners, determine what actions should be taken to reduce the hazards, such as use of security broadcasting systems, speed limits in certain areas, or vessel traffic separation schemes.

--Determine the best possible use of vessel management reporting systems with or without electronic surveillance and identify the locations where these systems would be most effective. These systems should then be installed as quickly as possible. A phased-purchase approach should be avoided, and mariners' opinions should be actively solicited.

AGENCY COMMENTS

The Department concurs with the draft report's recommendations concerning the VTS program area, to the extent that they do not imply deferring VTS construction once a need has been identified. The Coast Guard's practice has been to include an aids to navigation improvement project, when needed, in the initial stages of VTS implementation. It has determined first if passive vessel traffic management measures represent a feasible alternative to the operation of a VTS. The Coast Guard believes that its current policy is consistent with our recommendation.

We disagree with the Coast Guard's position that its current policy complies with our recommendation. The record shows that the Coast Guard has not, except to a limited extent in New York Harbor, implemented and tested less costly alternatives to a VTS system to determine whether a simpler and more cost-effective method of preventing or reducing marine casualties is available.

AIDS TO NAVIGATION SERVICING VESSELS

The Coast Guard has many different types of vessels used to service aids to navigation. They range from small outboard boats to 180-foot seagoing tenders. The aids vessels are classified in six categories.

--Buoy boats--17- to 65-foot boats used by aid to navigation teams.

--WLBs--seagoing tenders.

--WLMs--coastal tenders.

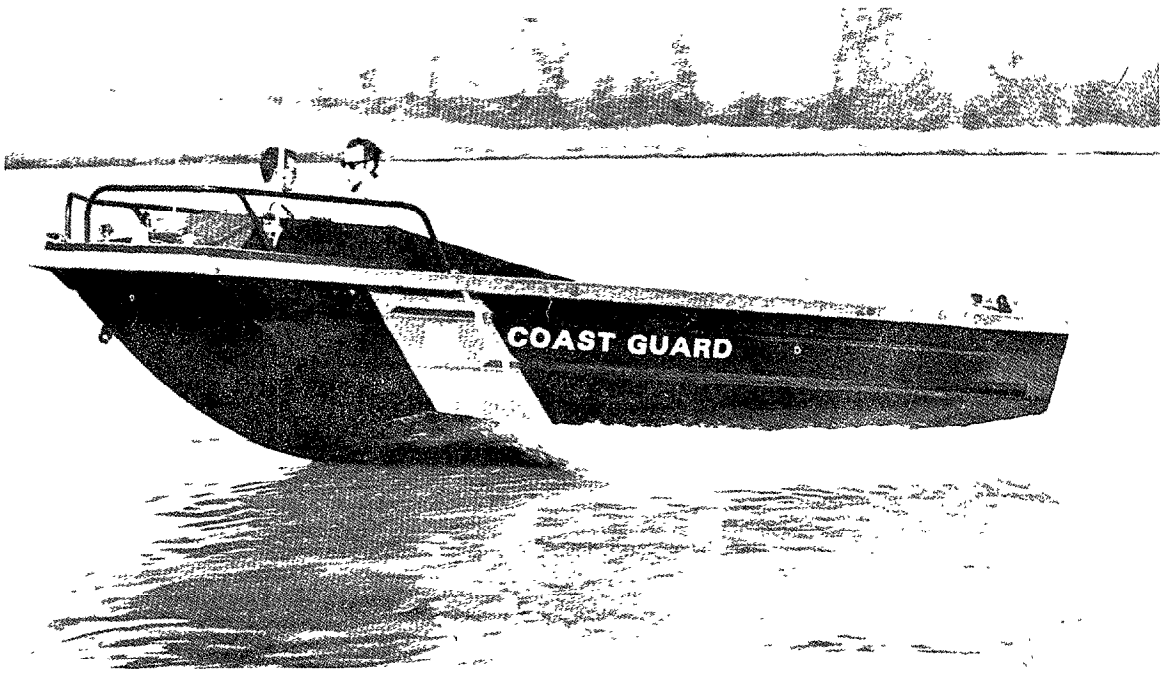
--WLIs--inland tenders

--WLICs--construction tenders.

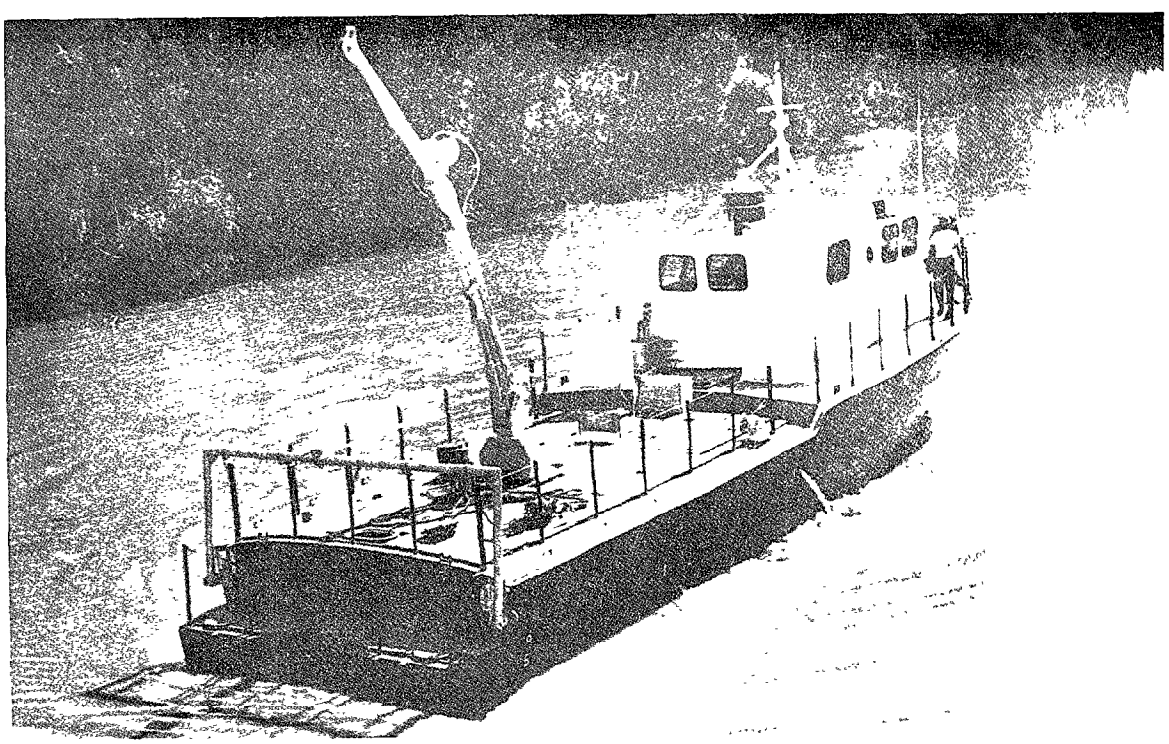
--WLRs--river tenders.

This appendix illustrates some of the tenders in each catetory.

APPENDIX I



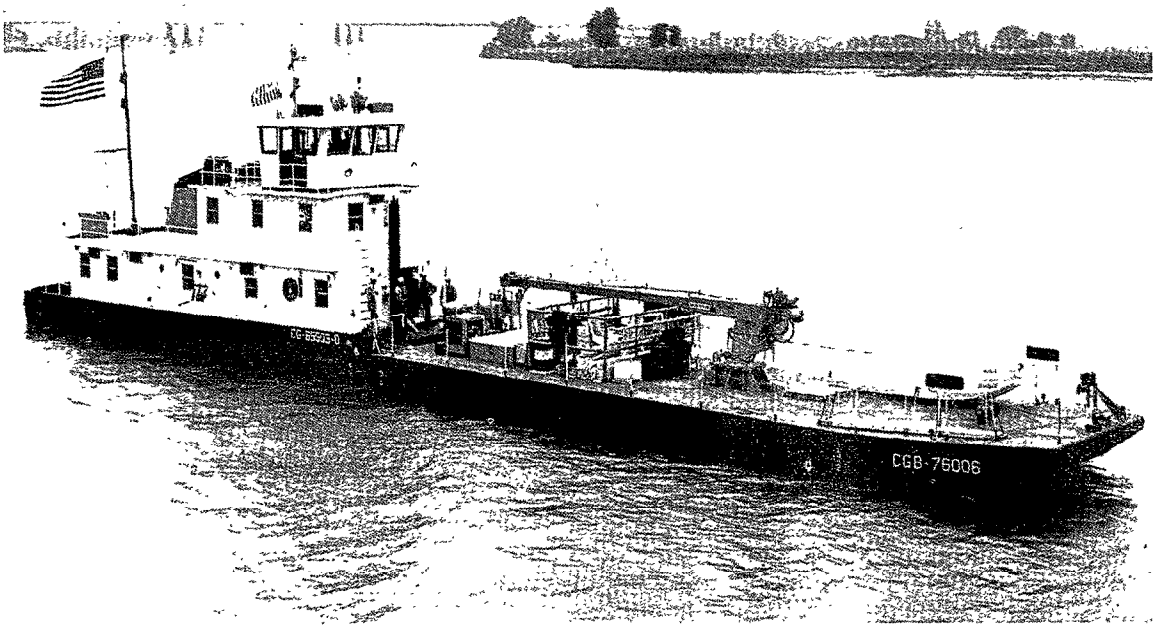
SOURCE: U.S. COAST GUARD



SOURCE: U.S. COAST GUARD

BUOY BOATS USED BY ANTs. THE BOAT IN THE UPPER PHOTOGRAPH IS A 21-FOOT TRAILERIZED BOAT WITH NO LIFTING CAPACITY. THE BOAT IN THE LOWER PHOTOGRAPH IS 55 FEET LONG AND HAS A LIFTING CAPACITY OF 1,000 POUNDS.

APPENDIX I



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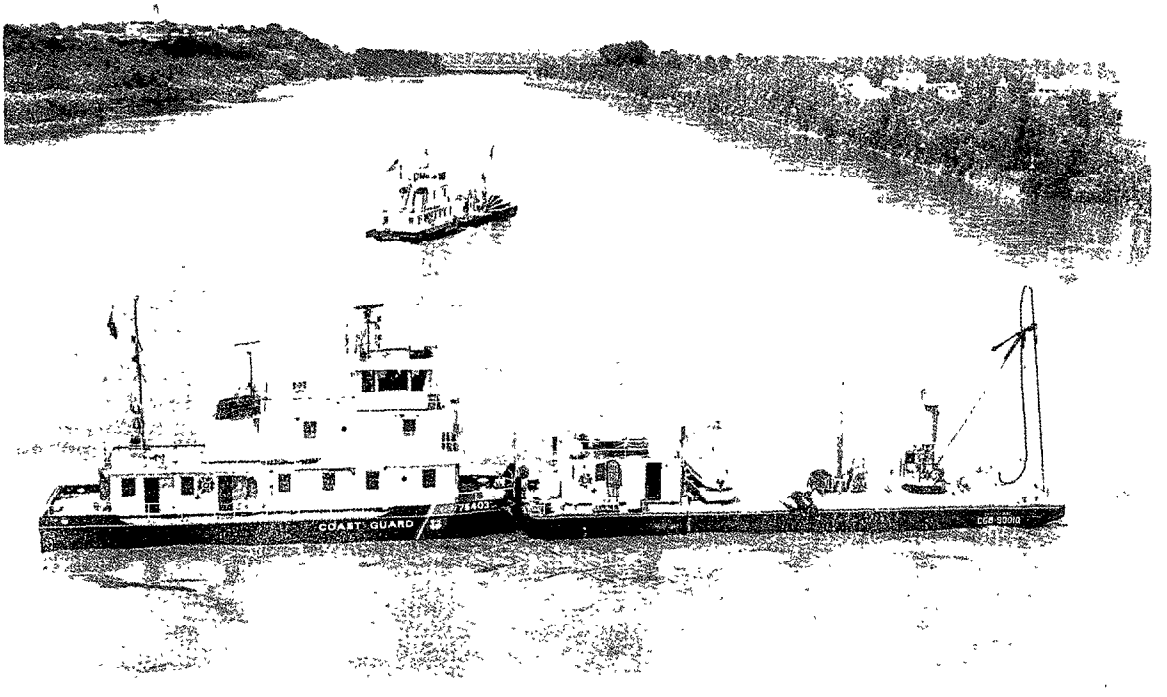
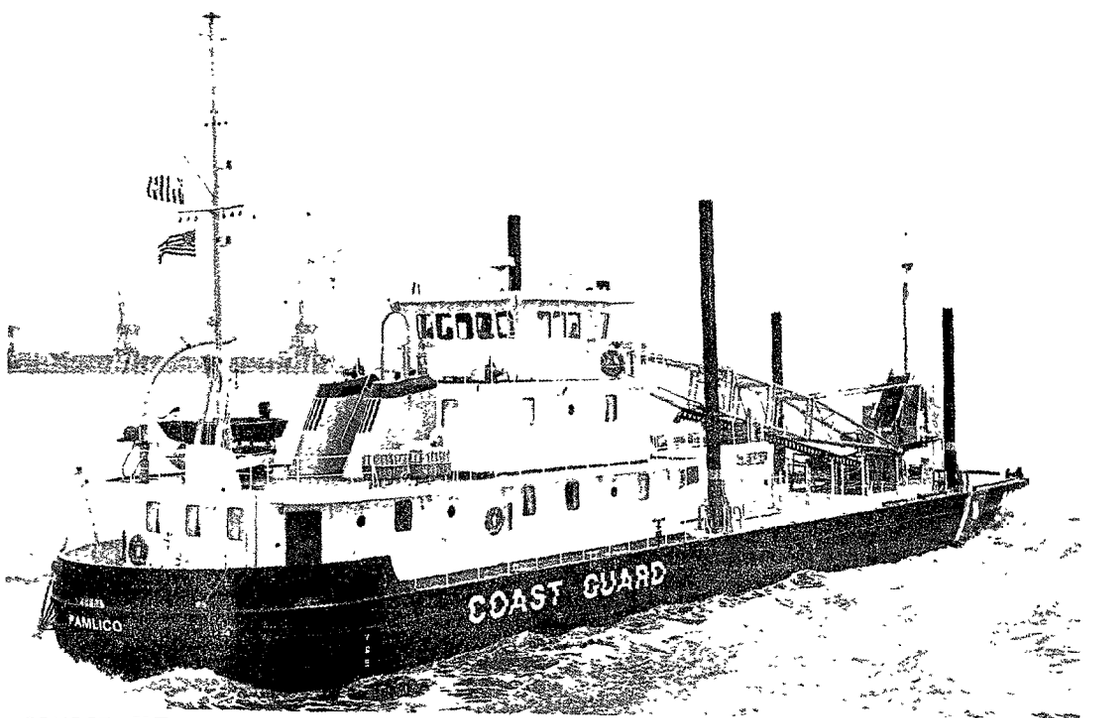


SOURCE: U. S. COAST GUARD

RIVER TENDERS (WLR s) WITH BARGES WORK IN WATERWAYS THAT CHANGE VERY QUICKLY AND FREQUENTLY.

APPENDIX I

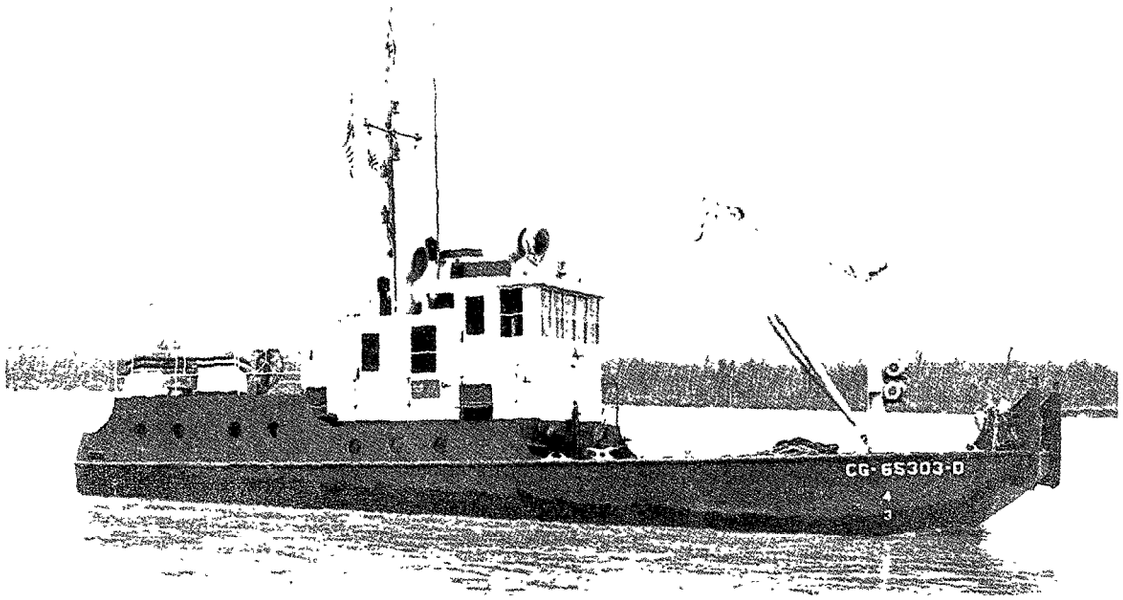
SOURCE: U.S. COAST GUARD



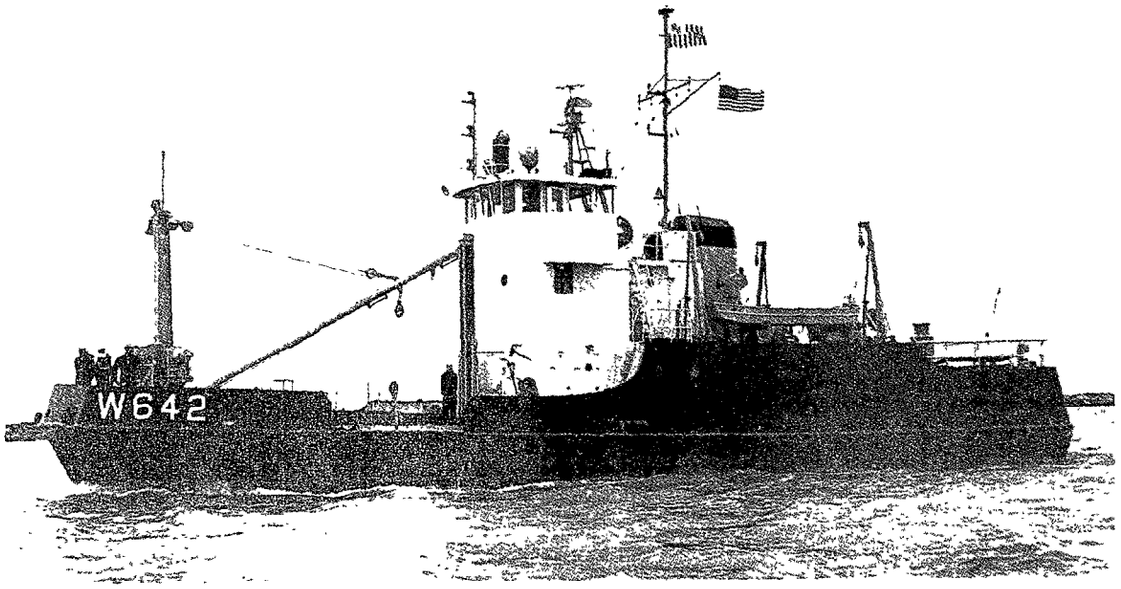
SOURCE: U.S. COAST GUARD

CONSTRUCTION TENDERS (WLIC s)-- RESPONSIBLE FOR BUILDING NEW STRUCTURES AND REPAIRING DAMAGED PILINGS-- ARE AN INTEGRAL PART OF THE AIDS TO NAVIGATION PROGRAM.

APPENDIX I



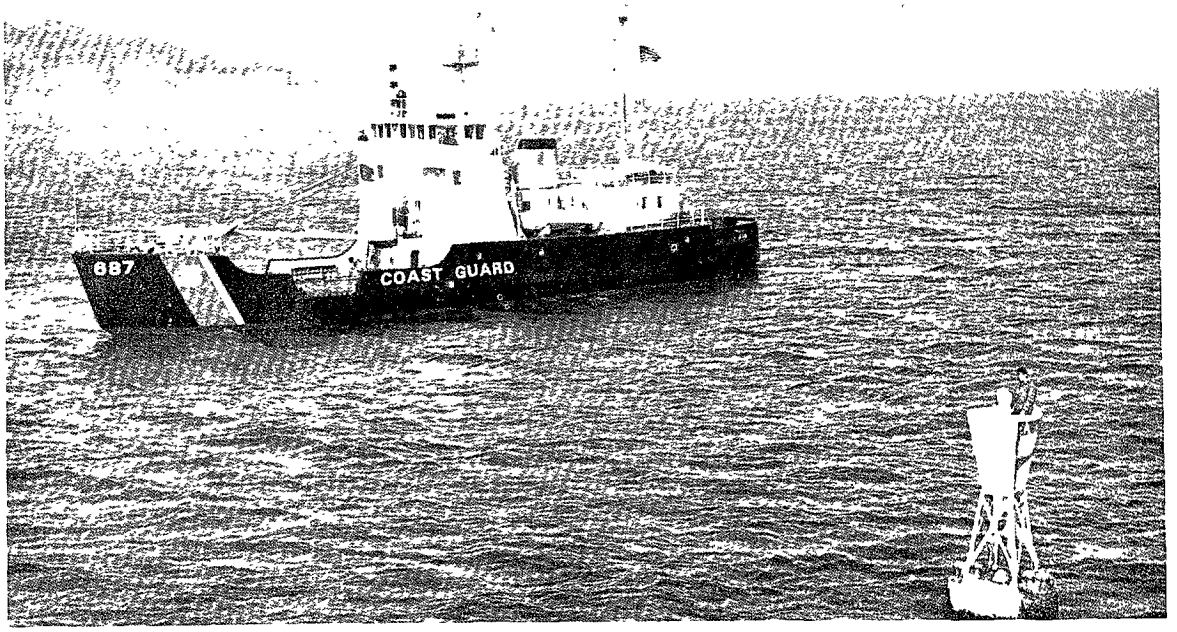
SOURCE: U.S. COAST GUARD



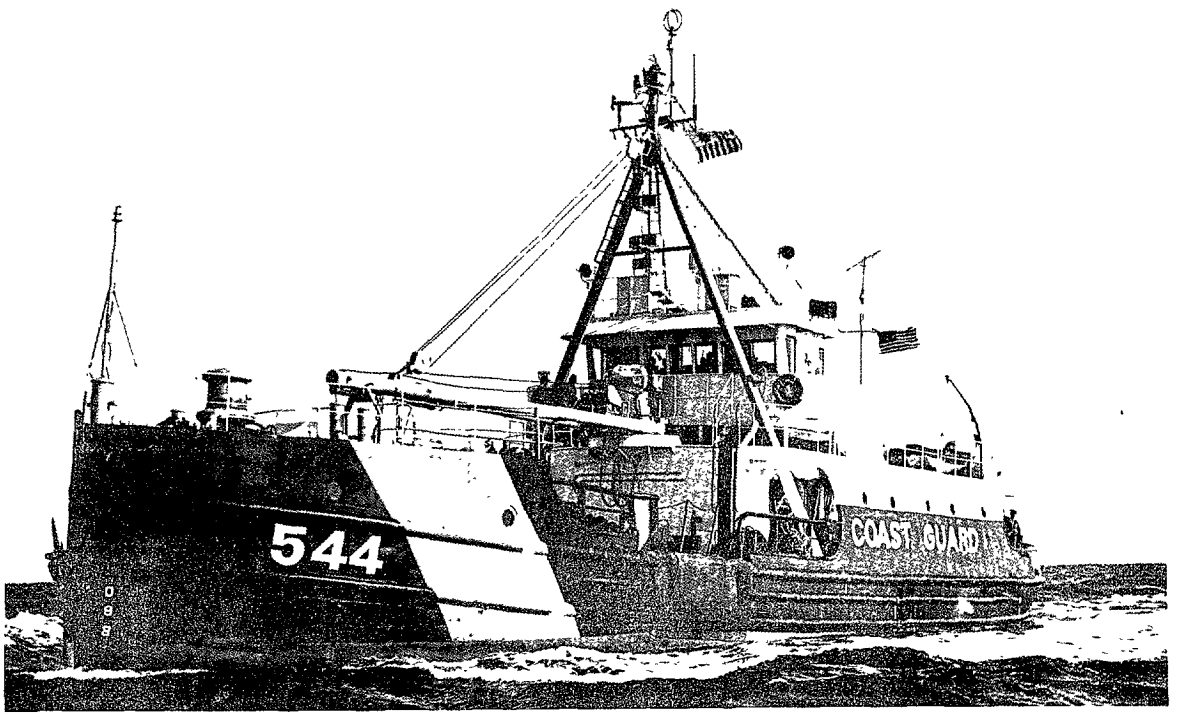
SOURCE: U.S. COAST GUARD

THE INLAND TENDERS (WLI s) WORK SMALL AIDS IN SHALLOW, RESTRICTED WATERS. THE TENDER IN THE UPPER PHOTOGRAPH CAN LIFT 2 TONS, AND THE TENDER IN THE LOWER CAN LIFT 5 TONS. BOTH VESSELS HAVE A 4-FT DRAFT.

APPENDIX I



SOURCE: U.S. COAST GUARD



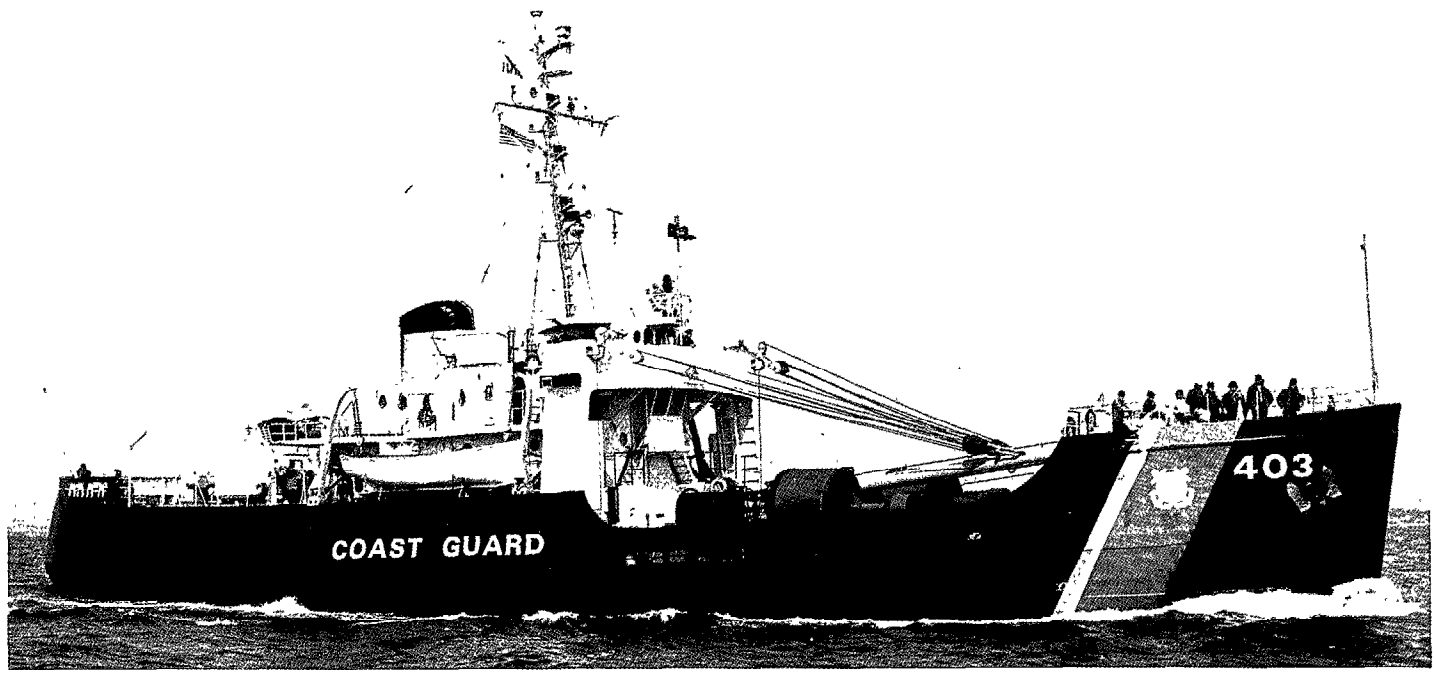
SOURCE: U.S. COAST GUARD

THESE COASTAL TENDERS (WML s) ARE CAPABLE OF SERVICING THE LARGEST BUOYS AND ARE DESIGNED TO SERVICE AIDS IN SHALLOW WATERS.

THE SEAGOING TENDER (WLB) IS THE LARGEST BUOY TENDER IN THE COAST GUARD FLEET. WHILE ITS PRIMARY MISSION IS AIDS TO NAVIGATION, IT CAN RESPOND TO SEARCH AND RESCUE CALLS OR ASSIST IN AN ICE-BREAKING MISSION.

SOURCE: U.S. COAST GUARD

180' WLB Class Buoy Tender
37' Beam
13' Draft
1000 Shaft Horsepower
20 Ton Cargo Boom
1025 Gross Ton
69' Mast abv WL



APPENDIX I

APPENDIX II

BUOY CHARACTERISTICS

No single type of buoy can satisfy all requirements of the various locations where floating aids are needed. For this reason, there are several types of buoys each with characteristics designed for a particular location. This appendix describes some of the more common buoys and moorings used by the Coast Guard in the aids to navigation system.

Source: U.S. Coast Guard.

APPENDIX II

8X26 LBR

1962 TYPE
STANDARD

Function. The 8X26 LBR buoy is designed and constructed for exposed or semiexposed locations. This buoy configuration is used with a 225-lb bell, wave-actuated sound signal. The basic buoy is the same as the 8X26 LR.

Physical Characteristics

Buoy weight	11,917 lb
Buoy draft (no mooring)	10 ft-3 in.
Focal height of light (no mooring)	15 ft-8 in.
Freeboard (no mooring)	3 ft-1 in.
Minimum freeboard	1 ft-3 in.
Pounds per inch of immersion	270

Related Equipment

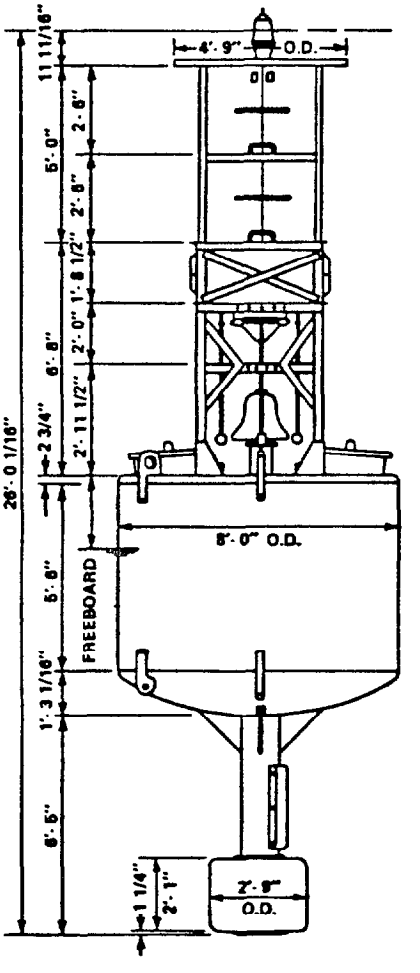
Power units (maximum number and size)	2-B30
Sound equipment	225-lb bell
Bridle size (chain diameter and length)	1⅛ in.X15 ft
Mooring chain size	1⅛ in.
Sinker size	8,500 lb

Operational Characteristics

Nominal visual range of daymark	3.2 nmi
Radar range	3.7 nmi

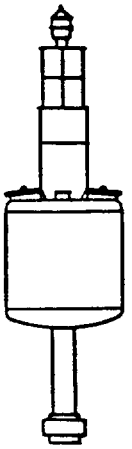
Operational Characteristics (cont'd)

Maximum current	4 kn
Visual range of light	(see Chapter 6)
Minimum mooring depth	25 ft
Maximum mooring depth (B10)	220 ft
(B30)	190 ft



APPENDIX II

6X20 LR



1962-TYPE
STANDARD

Function. The 6X20 LR buoy is designed and constructed for semiexposed or protected locations. This buoy configuration is used when a sound signal is not required.

Physical Characteristics

Buoy weight	6,023 lb
Buoy draft (no mooring)	8 ft-8 in.
Focal height of light (no mooring)	10 ft-10 in.
Freeboard (no mooring)	2 ft-5 in.
Minimum freeboard	12 in.
Pounds per inch of immersion	150

Related Equipment

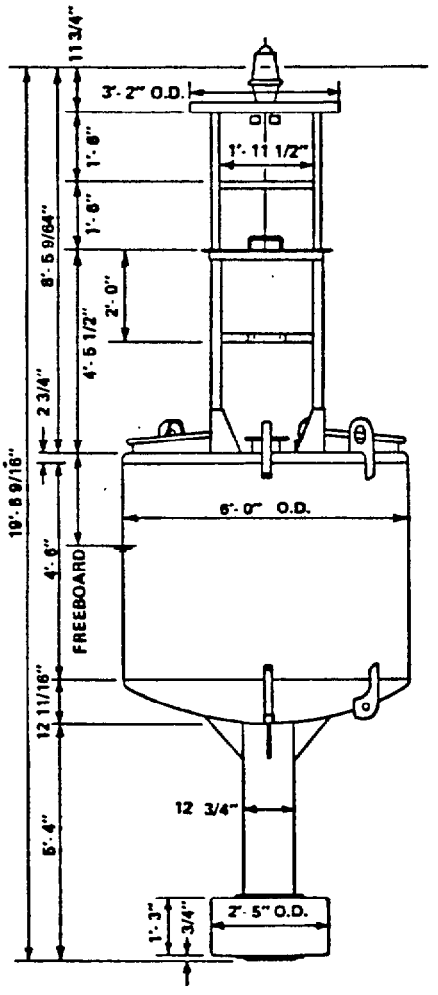
Power units (maximum number and size)	2-B30
Bridle size (chain diameter and length)	1 in.X12 ft
Mooring chain size	1 1/8 in.
Sinker size	5,000 lb

Operational Characteristics

Nominal visual range of daymark	2.1 nmi
Radar range	2.4 nmi
Maximum current	4 kn

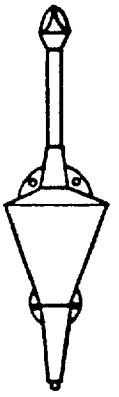
Operational Characteristics (cont'd)

Minimum mooring depth		20 ft
Maximum mooring depth	(B10)	185 ft
	(B30)	145 ft



APPENDIX II

5X18 LI



1970 TYPE
STANDARD

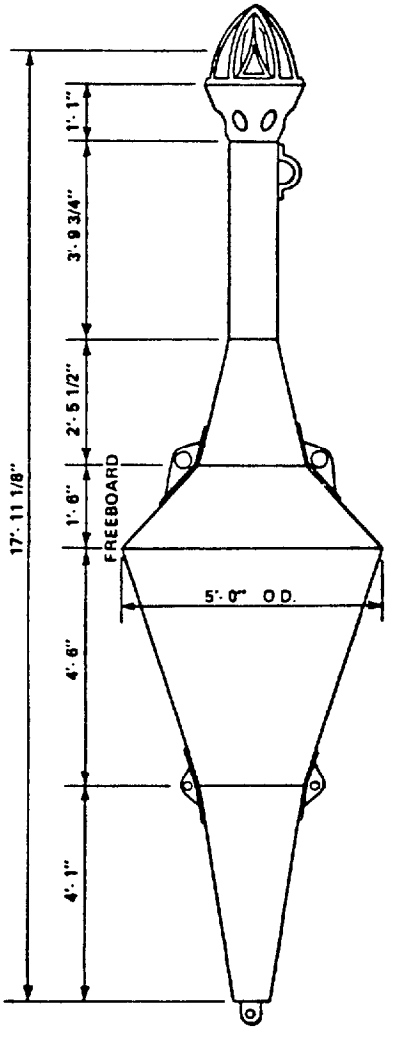
Function. The 5X18 LI buoy is designed and constructed for use as a seasonal aid on stations subjected to ice conditions.

Physical Characteristics

Buoy weight	2,770 lb
Buoy draft (no mooring)	8 ft-1 in.
Focal height of light (no mooring)	9 ft-10 1/8 in.
Freeboard (no mooring)	2 ft-0 in.
Minimum freeboard	1 ft-9 in.
Pounds per inch of immersion	105

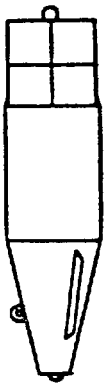
Related Equipment

Power unit	ice buoy pack
Mooring chain size	retain mooring on aid being replaced, but use 3/4 in. riser chain
Sinker size	



APPENDIX II

1 CR



1952 TYPE
STANDARD

Function. The 1 CR buoy is designed and constructed for the most exposed locations, where an unlighted CAN buoy is required.

Physical Characteristics

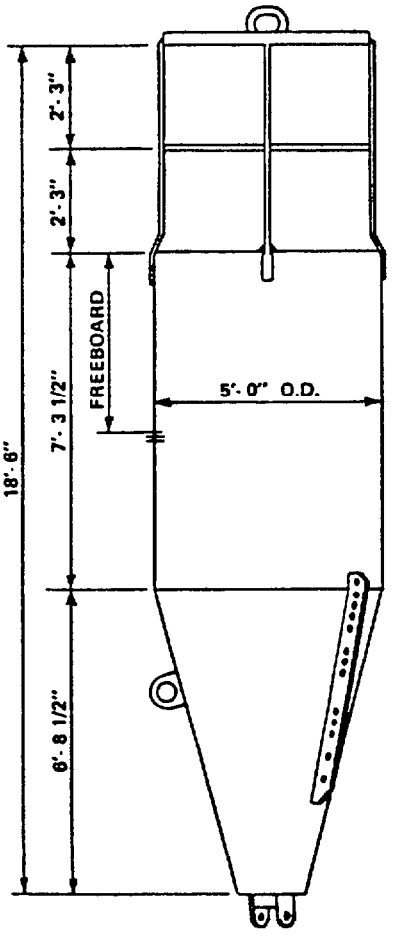
Buoy weight	5,600 lb
Buoy draft (no mooring)	8 ft-0 in.
Freeboard (no mooring)	6 ft-0 in.
Minimum freeboard	2 ft-5 in.
Pounds per inch of immersion	105

Related Equipment

Mooring chain size	1 1/8 in.
Sinker size	5,000 lb

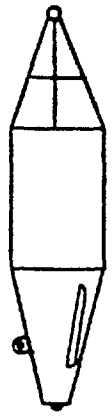
Operational Characteristics

Nominal visual range of daymark	3.8 nmi
Radar range	3.5 nmi
Maximum current	6 kn
Minimum mooring depth	15 ft
Maximum mooring depth	236 ft



APPENDIX II

1 NR



1952 TYPE STANDARD

Function. The 1 NR buoy is designed and constructed for the most exposed locations, where an unlighted NUN buoy is required.

Physical Characteristics

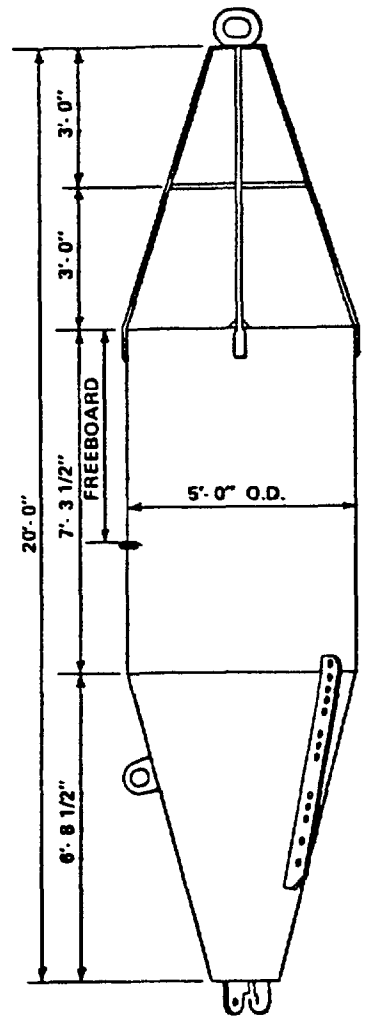
Buoy weight	5,400 lb
Buoy draft (no mooring)	7 ft-11 in.
Freeboard (no mooring)	6 ft-1 in.
Minimum freeboard	2 ft-5 in.
Pounds per inch of immersion	105

Related Equipment

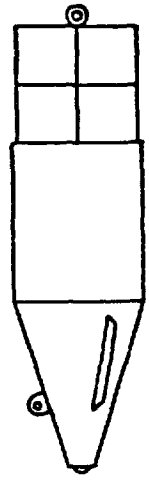
Mooring chain size	1 1/8 in.
Sinker size	5,000 lb

Operational Characteristics

Nominal visual range of daymark	3.5 nmi
Radar range	3.5 nmi
Maximum current	6 kn
Minimum mooring depth	15 ft
Maximum mooring depth	241 ft



APPENDIX II



1952 TYPE
STANDARD

2 CR

Function. The 2 CR buoy is designed and constructed for exposed or semiexposed locations, where an unlighted CAN buoy is required.

Physical Characteristics

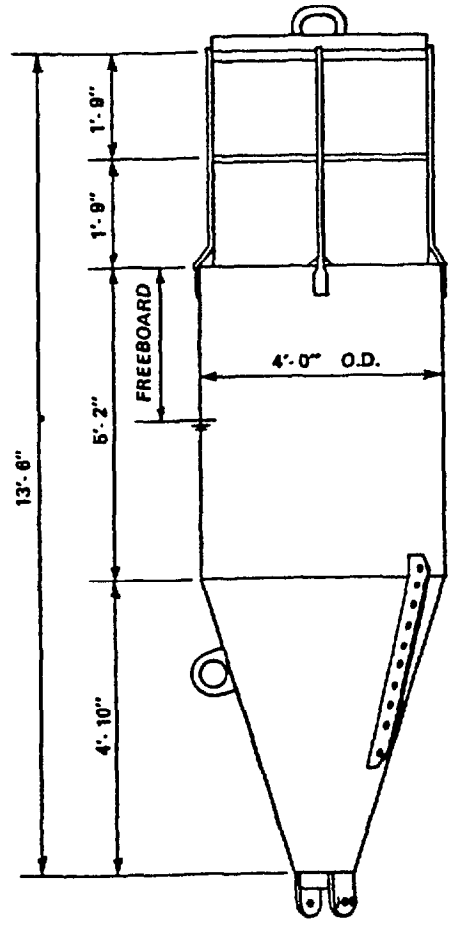
Buoy weight	2,700 lb
Buoy draft (no mooring)	6 ft-1 in.
Freeboard (no mooring)	3 ft-11 in.
Minimum freeboard	1 ft-0 in.
Pounds per inch of immersion	67

Related Equipment

Mooring chain size	7/8 in.
Sinker size	4,000 lb

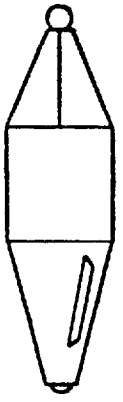
Operational Characteristics

Nominal visual range of daymark	2.8 nmi
Radar range	2.5 nmi
Maximum current	6 kn
Minimum mooring depth	15 ft
Maximum mooring depth	200 ft



APPENDIX II

3 NR



1952 TYPE STANDARD

Function. The 3 NR buoy is designed and constructed for semiexposed or protected locations, where an unlighted NUN buoy is required.

Physical Characteristics

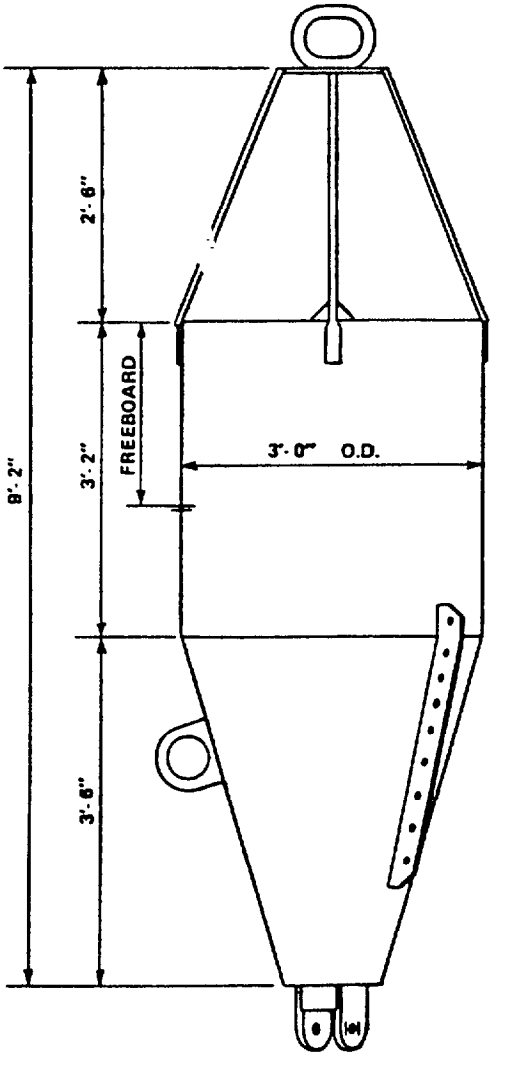
Buoy weight	935 lb
Buoy draft (no mooring)	3 ft-11 in.
Freeboard (no mooring)	2 ft-9 in.
Minimum freeboard	9 in.
Pounds per inch of immersion	38

Related Equipment

Mooring chain size	3/4 in.
Sinker size	3,000 lb

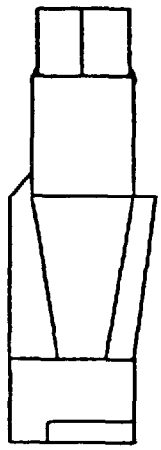
Operational Characteristics

Nominal visual range of daymark	1.4 nmi
Radar range	1.75 nmi
Maximum current	5 kn
Minimum mooring depth	10 ft
Maximum mooring depth	107 ft



APPENDIX II

4 CR



1952 TYPE
STANDARD

Function. The 4 CR buoy is designed and constructed for river environments and protected locations, where an unlighted CAN buoy is required. This buoy is foam filled.

Physical Characteristics

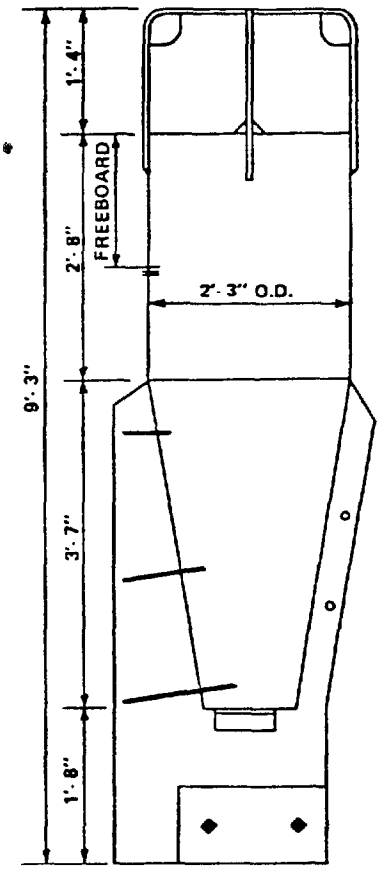
Buoy weight	465 lb
Buoy draft (no mooring)	5 ft-0 in.
Freeboard (no mooring)	2 ft-11 in.
Minimum freeboard	1 ft-0 in.
Pounds per inch of immersion	21

Related Equipment

Mooring chain size	7/16 or ½ in.
Mooring wire rope size	½ in.
Sinker size	2,000 lb

Operational Characteristics

Nominal visual range of daymark	1.4 nmi
Radar range	1.5 nmi
Maximum current	5 kn
Minimum mooring depth	10 ft
Maximum mooring depth	132 ft



APPENDIX II

6 NR

1952 TYPE
STANDARD

Function. The 6 NR buoy is designed and constructed for river environments and protected locations, where an unlighted NUN buoy is required. This buoy is foam filled.

Physical Characteristics

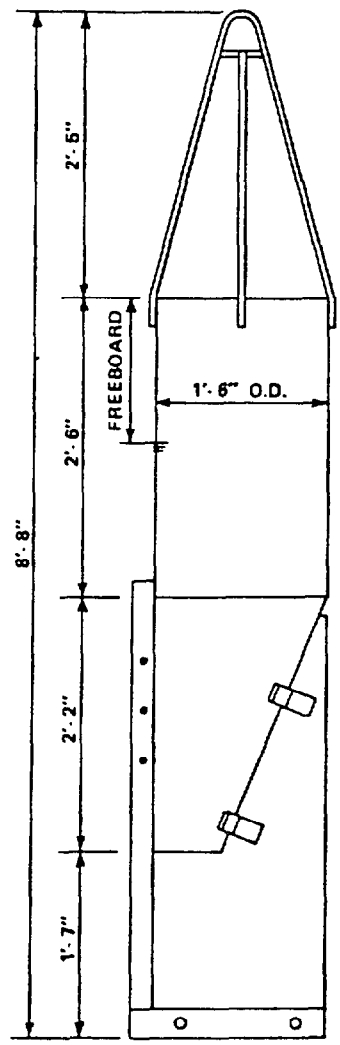
Buoy weight	165 lb
Buoy draft (no mooring)	4 ft-0 in.
Freeboard (no mooring)	2 ft-8 in.
Minimum freeboard	6 in.
Pounds per inch of immersion	9

Related Equipment

Mooring chain size	7/16 or ½ in.
Mooring wire rope size	3/8 in.
Sinker size	500 lb

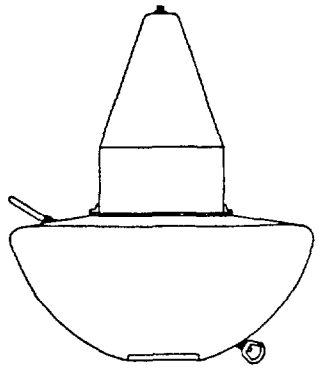
Operational Characteristics

Nominal visual range of daymark	1 nmi
Radar range	1 nmi
Maximum current	2.5 kn
Minimum mooring depth	6 ft
Maximum mooring depth	64 ft



APPENDIX II

FNPR



Function. The FNPR buoy is designed and constructed for fast water locations where an unlighted NUN buoy is required. The hull portion of the buoy is foam filled.

Physical Characteristics

Buoy weight	161 lb
Buoy draft (no mooring)	3 in.
Freeboard (no mooring)	21 in.
Minimum freeboard	1 in.
Pounds per inch of immersion	29

Related Equipment

Mooring chain size	½ in.
Wire rope size	½ in.
Sinker size	500 lb or larger (depending on current)

Operational Characteristics

Nominal visual range of daymark	1 nmi
Radar range	.75 nmi
Maximum current	7 kn
Minimum mooring depth	3 ft
Maximum mooring depth	100 ft

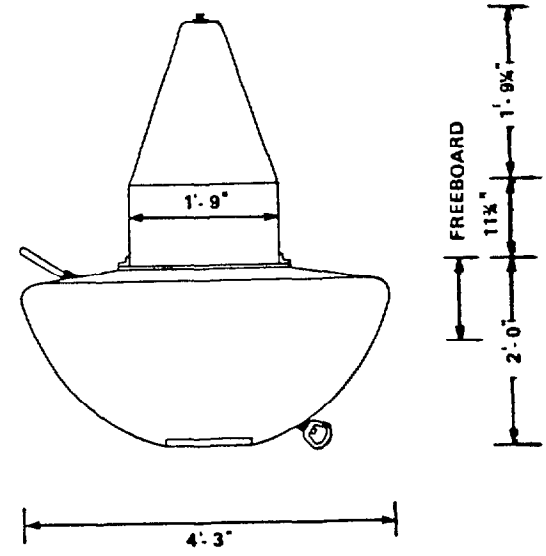


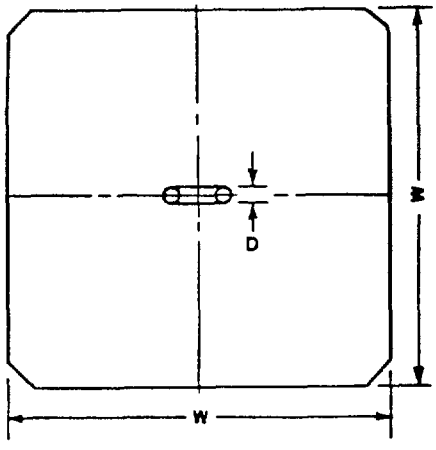
Figure 2-73. Dimensions of the FNPR.

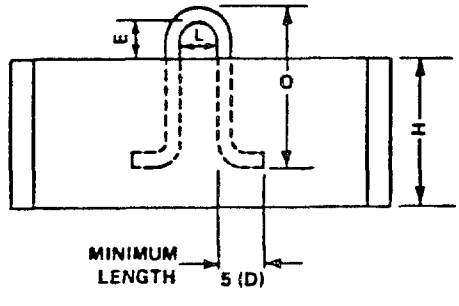
Additional Data. Two sizes of fast water buoys were bought in quantity for evaluation. These buoys were called FNR3 and FNR4. The FNR3 buoy is the same size as the FNPR buoy except that the daymark is slightly shorter. The FNR4 buoy has a hull that is 5 ft in diameter and a daymark that is somewhat larger than the FNR3 daymark.

APPENDIX II

SINKERS

Function. Concrete sinkers are used to hold the buoy in position.





CONCRETE BUOY SINKER DIMENSIONS (IN.)						
W	L	H	E	D	O	WEIGHT (LB)
60	5 1/4	42	5 1/2	2	22 1/2	12,750
60	5 1/4	28	5 1/2	2	22 1/2	8,500
58	5 1/4	23	5 1/2	2	22 1/2	6,500
54	5 1/4	21	5 1/2	2	22 1/2	5,000
50	5 1/4	19	5 1/2	2	22 1/2	4,000
45	5 1/4	18	5 1/2	2	22 1/2	3,000
40	5 1/4	15	5 1/2	1 1/2	19	2,000
32	5 1/4	12	5 1/2	1 1/2	16	1,000
24	5 1/4	10	5 1/2	1 1/2	14	500
20	5 1/4	8	5 1/2	1 1/2	12	250

OFFICE OF THE SECRETARY OF TRANSPORTATION

WASHINGTON, D.C. 20590

ASSISTANT SECRETARY
FOR ADMINISTRATION

February 5, 1979

Mr. Henry Eschwege
Director, Community and Economic
Development Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Eschwege:

We have enclosed two copies of the Department of Transportation reply to the General Accounting Office (GAO) draft report, "Improvements Needed In the Coast Guard's Short-Range Marine Aids To Navigation."

We have found it necessary to take an unusually strong stand in support of complete rejection of this report. Accusations and implications directed at the Coast Guard are serious in nature, gravely damaging in potential, and unfounded in fact. Critical allegations are supported almost entirely by inaccurate statements of alleged fact, implications and impressions created by half-truths, statements taken out of context and other manipulations of data and statements.

[See GAO note 1.]

Sincerely,

Edward W. Scott, Jr.

Enclosure

APPENDIX III

DEPARTMENT OF TRANSPORTATION REPLY

TO

GAO DRAFT REPORT TO THE CONGRESS

ON

IMPROVEMENTS NEEDED IN THE COAST GUARD'S

SHORT-RANGE MARINE AIDS TO NAVIGATION

SUMMARY OF GAO FINDINGS AND RECOMMENDATIONS

GAO observes that short-range aids to navigation, including vessel traffic services (VTS), exist to provide safe transport and effective movement of vessels through a waterway. GAO finds in general that the Coast Guard's inadequate management has resulted in a system of aids to navigation that many times serves neither purpose, and may have been a factor in many vessel accidents. Management deficiencies have resulted in inadequate utilization and waste of resources, impediments to commerce, the alienation of mariners, the creation of hazards in the waterways, and in some cases, lawsuits against the Government.

In its review of aids to navigation other than vessel traffic services, GAO finds that aids to navigation systems are not being designed and modified in a timely manner to meet mariner needs, because the Coast Guard's process for implementing changes is excruciatingly slow and inflexible, and often results in changes that are unnecessary or ineffective. The Coast Guard has caused problems to mariners, and has been sued many times, often successfully, because of an inadequate program for maintaining aids to navigation and a general inability to meet its own criteria for correcting discrepancies. Opportunities exist for improving the response to discrepancies in aids to navigation by better management of servicing units, personnel, and spare parts. The Coast Guard has not effectively insured that sunken vessels are properly marked, thus creating a hazard to mariners in the inland waterways.

In its review of vessel traffic systems (VTS), GAO finds that the Coast Guard has not justified the establishment of VTS New York, VTS New Orleans and VTS Houston-Galveston. The Coast Guard should have, in their stead, implemented a series of alternative passive vessel traffic management measures -- such as traffic separation schemes, improved aids to navigation, regulations governing the operation of vessels and requiring vessels to make security broadcasts -- and evaluated the effectiveness of these measures before proceeding with the acquisition and operation of vessel traffic services. The Coast Guard has used a phased approach in

acquiring needed surveillance systems in each vessel traffic service, which has impaired effectiveness. These three conclusions are the same as those made by the GAO in its 1975 report.

GAO concludes also that, in pursuing its objectives of furthering safe navigation, the Coast Guard has failed to temper its actions by considerations of costs and the efficient movement of waterborne commerce, consequently "proceeding along a steady course of poor management".

With respect to aids to navigation other than vessel traffic services, GAO recommends that the Secretary of Transportation (1) require that Coast Guard procedures for establishing and modifying aids to navigation systems be revised; (2) direct the Coast Guard to improve the maintenance of aids to navigation by performing studies of buoy tender use and requirements for their replacement, establishing more Aids to Navigation Teams, considering changes to personnel rotation policy, and assuring the availability of adequate supplies; and (3) insure that the Coast Guard has adequate procedures for identifying sunken vessels, marking them properly, and removing them where necessary.

With respect to vessel traffic services, GAO recommends that the Coast Guard, in consultation with the marine industry, (1) evaluate aids to navigation in areas identified as having a need for a vessel traffic service, and if necessary, upgrade or modify the aids as a first effort; (2) determine what passive vessel traffic management measures may be taken in an area in lieu of implementing a vessel traffic service; and, (3) where a vessel traffic service can be justified, avoid phasing in surveillance systems and other needed components.

SUMMARY OF DEPARTMENT OF TRANSPORTATION POSITION

The inclusion of vessel traffic services (VTS) within the definition of short-range aids to navigation is incorrect, and is rejected. The individual functions of aids to navigation and VTS are distinctly different. Short range aids to navigation comprise a system of passive marks which a mariner, acting on his own, uses in determining his position and a safe course for his vessel. VTS, in contrast, is a dynamic, interactive system of traffic management on a much broader scale. It provides the mariner with information, critical to the safe navigation of his vessel, that he normally would not be able to obtain on his own.

With respect to aids to navigation, the conclusions presented in the report are rejected. In the allocation of Coast Guard resources, relatively low priority is given sometimes to non-urgent, incremental improvements to aids to navigation, resulting in delay in the funding of some projects. This delay is the result of deliberate management decisions, and is not attributable to inefficient administrative procedures. It is illogical to infer that delay causes a hazard or impediment to commerce simply because the improvements are intended to promote the safety or facilitation of

APPENDIX III

marine commerce. The finding of inflexibility is documented by inaccurate representations of two instances of disagreement between the Coast Guard and mariners. One represents an honest difference of opinion on a complex issue which is being resolved, and the other arose from the Coast Guard's refusal to accede to the wishes of a querulous individual. The finding of unnecessary or ineffective changes to aids to navigation is documented by the alleged opinions of two groups of mariners who represented a statistically insignificant sample of the population of mariners, and whose alleged opinions proved upon investigation to be unrepresentative of those of many of their fellow mariners.

The Coast Guard's alleged inability to meet its own criteria for correcting discrepancies, and inadequacy in the maintenance of aids to navigation, appear to derive primarily from a perception of the Coast Guard's failure to correct discrepancies within self-imposed time limits. Documentation in support of this conclusion reveals reinforcement by the compounding effects of a series of misconceptions. These include an exaggerated view of the frequency with which this failure occurs, a lack of general understanding of Coast Guard response policy and the actions that may constitute an acceptable response, the factors which affect the urgency with which a discrepancy must be corrected or compensated for, and the considerations pertinent to the management of servicing facilities, personnel, and spare equipment. The Department can not accept a conclusion of inadequacy that is founded upon misunderstanding, and on the failure to meet, sometimes, standards of performance which were established administratively, on the basis of intuitive judgement, with the well-intentioned purposes of providing guidance in decision-making and promoting uniformity of practice. The Department concedes, however, that the Coast Guard has committed an administrative oversight in its failure to modify its policy when experience has shown that the response to discrepancies requires consideration of too many factors to permit the expression of realistic guidance in the form of specific time limits. The Department rejects the implication inherent in the DIGEST's reference to these time limits as "generally accepted criteria".

The Department rejects the unsubstantiated allegation that the Coast Guard often has been sued successfully over discrepancies in aids to navigation. The Department regrets the inaccurate representation by GAO of data supplied in writing by the Coast Guard. The attempt to relate a 15-year history of the adjudication or resolution of claims and litigation, pertaining to off-station buoys, to current effectiveness in the general maintenance of aids to navigation, is an inaccurate representation. The settlement of cases, without a judgement, is neither an admission of negligence nor evidence of negligence on the part of the Government. To imply otherwise is contrary to public policy and reflects a misunderstanding of the Federal Rules of Evidence.

The conclusion concerning the Coast Guard's ineffectiveness in assuring the marking of sunken vessels, and its creation of a hazard in the inland

waterways, represents an apparent lack of understanding of the law.

[See GAO note 1.]

The conclusions of the report, with respect to the Vessel Traffic Service program area, are rejected also. To hold in 1979 the position that the United States should not be engaged in active vessel traffic management is to ignore the whole body of domestic and international testimony and experience to the contrary. By any measure, New York Harbor, the Lower Mississippi River and the Houston Ship Channel are the most hazardous waterways in the Nation. To date, the Administration and the Congress have been in complete agreement concerning the efficacy of establishing vessel traffic services in these areas. The legislative history of the Ports and Waterways Safety Act of 1972 clearly establishes the Congressional intent for the Coast Guard to undertake the construction and manning of vessel traffic service.

In 1975 the General Accounting Office, in its report, Vessel Traffic Systems -- What is Needed to Prevent and Reduce Vessel Casualties?, found that vessel traffic services were needed in New York, New Orleans and Houston-Galveston. Moreover, this report criticized the Coast Guard for limiting its VTS plans to six ports, and recommended that VTS be constructed in several other ports and waterways instead of adding surveillance equipment in New York, New Orleans and Houston-Galveston in the initial phase. The GAO in its 1975 report did recommend that the Coast Guard give national emphasis to implementing passive vessel traffic management measures, but not with the intent of deferring the construction of vessel traffic services in those areas initially identified as having a need. The Department concurred with the GAO. To categorize the Coast Guard's actions over the past four years as "proceeding along a steady course of poor management" is incorrect, unfair and prejudicial to the Department's position during Congressional budget oversight proceedings. The draft report is clearly inconsistent with the 1975 report in its findings and conclusions and should be either withdrawn or substantially restated.

With respect to aids to navigation, the Department does not concur in the recommendations. Actions recommended concerning Coast Guard procedures for establishing and modifying aids to navigation, and the improvement of the maintenance of aids to navigation are viewed as unnecessary. The perception of the needs for the action recommended is considered erroneous. The Department does recognize within the scope of these recommendations, two specific actions by the Coast Guard which are appropriate. These are the study related to the future replacement of buoy tenders, and the consider-

APPENDIX III

ation of changes to personnel rotation policy. Both these actions have been initiated by the Coast Guard, and no Secretarial action is needed. The Department offers assurances also of prompt Coast Guard action to amend its guidance for responding to discrepancies.

The recommendation concerning sunken vessels is inappropriate. The discretionary authority of the Secretary with respect to marking is clear in 14 U.S.C. 86. Removal is a duty of the owner, or may come under the authority of the Corps of Engineers, depending on the factual circumstances.

The Department concurs with the draft report's recommendations concerning the Vessel Traffic Service program area, to the extent that they do not imply the deferral of vessel traffic service construction once a need has been identified. The Coast Guard's practice has been to include an aids to navigation improvement project, when needed, in the initial stages of VTS implementation. The Coast Guard's practice has been to determine first if passive vessel traffic managment measures represent a feasible alternative to the operation of a VTS. Finally, the Coast Guard, in rejecting the GAO's 1975 recommendation to "adhere to a strict phased approach" in acquiring needed surveillance systems and other VTS components, established a policy which is consistent with the draft report's last recommendation.

With respect to aids to navigation, the Department is disappointed in the report. The scope of application of the Coast Guard's short-range aids to navigation, and the necessity to adapt them to the needs and environments of local areas, requires rather broad decentralization of authority for decision-making. The Department had anticipated the receipt of a useful, independent review of this program. The Department finds in the draft report, however, evidence of neither factual information nor understanding of the subject, sufficient to provide a basis for the formulation of useful conclusions or recommendations. The Department recommends that the portion of the report pertaining to short-range aids to navigation be withdrawn.

With respect to vessel traffic services, the Department believes that an update of the GAO's 1975 report would be useful, but finds that substantial correction and restatement would be needed to make the draft report acceptable. The Department recommends that the portion of the report pertaining to VTS be withdrawn, or that the review be reopened for the purpose of an objective examination and correction of the misconceptions reflected in the draft report, and the eventual issuance of a new report which addresses vessel traffic services as a subject separate from aids to navigation.

GAO notes: [See GAO note 2.]

1. Material no longer related to the report has been deleted.

2. Detailed comments have been deleted due to their length. However, detailed comments were considered in the final report where appropriate.

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