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The Federal Role in Merchant Marine Officer Education.
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Report to Rep. John M. Murphy, Chairman, House Committee on Merchant Marine and Fisheries; Sen. Warren G. Magnuson, Chairman, Senate Committee on Commerce, Science, and Transportation; by Elmer B. Staats, Comptroller General.

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Authority: Merchant Marine Act of 1936 (46 U.S.C. 224; 46 U.S.C. 1101). Maritime Academy Act of 1958.

To determine whether the expenditure of additional Federal funds for the education of deck and engineering officers was justified, a review was made of the employment placement records of Federal and various State maritime academies. Findings/Conclusions: In fiscal year 1976, \$8.7 million was spent by the Government to operate the Merchant Marine Academy at Kings Point, N.Y., and about \$4.7 went to support six State academies. Federal involvement in merchant marine officer education is justified if graduates of the academies are needed and find employment as licensed officers in the merchant marine. Because of the Maritime Administration's (MARAD) broad definition of "merchant marine" and in the absence of placement goals for graduates in each segment of the merchant marine, the extent that job placement in the merchant marine justified Federal support of the academies could not be determined. Naval science training is supposed to yield merchant marine officers capable of operating with the Navy if necessary. Thus, there does not appear to be a need for commissioning academies' graduates to the Reserve since service in the Navy is not the primary intent. Also, Reserve criteria restrict the number of these officers who can be trained. There is a need for an alternate program for naval science training for merchant marine officers. Recommendations: MARAD should establish employment placement goals for the academies, and establish the minimum number of years that graduates should serve as ships' officers. Departments of Commerce and Defense should jointly begin a

program to provide the minimum naval science training required by all merchant marine officers, and see that all officers receive such training. (Author/DJM)

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REPORT OF THE COMPTROLLER GENERAL OF THE UNITED STATES

The Federal Role In Merchant Marine Officer Education

**Departments of Commerce,
Defense, and Transportation**

Graduates of the Federal and State maritime academies should serve as licensed officers in the merchant marine to justify Federal involvement in merchant marine officer education.

The Maritime Administration needs to establish goals for placement of graduates in the various sectors of the merchant marine to measure the degree that Federal involvement is justified.

GAO recommends that the Departments of Commerce and Defense

- develop a joint program to provide the minimum naval science training required by all merchant marine officers and
- see that all officers receive such training.



COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-159219

The Honorable Warren G. Magnuson, Chairman
Senate Committee on Commerce,
Science and Transportation
The Honorable John M. Murphy, Chairman
House Committee on Merchant
Marine and Fisheries

This report, prepared in response to March 9 and 11, 1976, committee requests, discusses (1) employment opportunities for graduates of Federal and State maritime academies as licensed deck and engineering officers in the U.S. merchant marine, (2) administration of the academies' programs by the Maritime Administration, and (3) administration of the merchant marine officers' Navy Reserve program by the Department of the Navy.

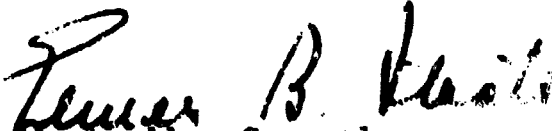
We recommend that (1) the Maritime Administration establish employment placement goals for the academies, (2) the Departments of Commerce and Defense jointly develop and implement a program to provide the minimum naval science training required by all merchant marine officers, and (3) the Departments see that all officers receive such training.

The report includes information on the Calhoun Marine Engineer's Beneficial Association Engineering School and discusses union employment rules.

This report contains recommendations to the Secretary of Commerce on pages 12 and 17 and to the Secretary of Defense on page 17. As you know, section 236 of the Legislative Reorganization Act of 1970 requires the head of a Federal agency to submit a written statement on actions taken on our recommendations to the House Committee on Government Operations and the Senate Committee on Governmental Affairs not later than 60 days after the date of the report and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report. We will be in touch with your office in the near future to arrange for release of the report so that the requirements of section 236 can be set in motion.

B-159219

We have discussed this report with Maritime Administration, Navy, and Coast Guard officials and have incorporated their comments where appropriate. We also briefed Marine Engineer's Beneficial Association officials on pertinent parts of the report and have incorporated their comments where appropriate.


Comptroller General
of the United States

REPORT OF THE
COMPTROLLER GENERAL
OF THE UNITED STATES

THE FEDERAL ROLE IN
MERCHANT MARINE
OFFICER EDUCATION
Departments of Commerce, Defense,
and Transportation

D I G E S T

GAO has reviewed the Federal program for training deck and engineering officers for the U.S. merchant marine, in response to congressional requests. (See p. 1.) Specifically, GAO reviewed the employment placement records of Federal and various State maritime academies and gathered available information to determine whether expenditure of additional Federal funds for the education of deck and engineering officers is justified. (See p. 6.)

Each year new merchant marine officers are available from four sources.

- The U.S. Merchant Marine Academy.
- The six State maritime academies.
- The Calhoun Marine Engineers Beneficial Association Engineering School.
- Seamen who work their way up through the ranks through self-study and on-the-job training. (See p. 3.)

In fiscal year 1976 the Government spent \$8.7 million to operate the U.S. Merchant Marine Academy at Kings Point, New York, and about \$4.7 million to support State academies in Maine, Massachusetts, Michigan, Texas, California, and New York. There was no Federal funding appropriated for the two other sources of new officers. (See pp. 3 and 4.)

The merchant marine consists of merchant vessels which operate on inland waters, the Great Lakes, and the high seas and the crews which operate them. The ships include freighters, tankers, tugs, dredges, research vessels, and mining vessels. Deck officers navigate and control the ships,

and engineering officers operate the engine rooms and keep the ships' mechanical and electrical systems working. (See pp. 1 and 2.)

Federal involvement in merchant marine officer education is justified if graduates of the academies are needed and find employment as licensed officers in the merchant marine. (See p. 6.)

The Maritime Administration has not established goals for the academies in terms of (1) the percentage of each academies' graduates which should find employment in each sector of the merchant marine and (2) how long the graduates should sail. (See p. 10.)

Further, the Maritime Administration has not performed any extensive, formal evaluation of merchant marine officer education including the extent that the Federal role is justified or if there are any alternatives. (See pp. 10 and 11.)

Analysis of the academies' 1975 graduating classes showed that about 39 percent found employment as licensed merchant marine officers on seagoing vessels and 19 percent on vessels operating in other segments of the merchant marine, while 8 percent went into uniformed Government services. In the absence of goals, GAO could not determine the extent that Federal funding of the academies was justified that year. (See pp. 7 and 10.)

The Navy provides training in Navy procedures and tactics to students at the Merchant Marine Academy and five of the six State academies. Merchant Marine officers need to know how to coordinate with the Navy and the full range of naval science training to qualify for Navy commissions. The Navy's goal is to have a merchant marine officer work force composed of as many Naval Reservists as possible. (See pp. 5 and 13.)

Officers from the Calhoun School and self-trained seamen do not receive such naval science training although they represent about 80 percent of the active deep sea

merchant marine officer work force. Presently, there is no naval science training for them. They should have this training because they will be operating the merchant ships and working with the Navy in times of peace, national emergency, or war. (See p. 13.)

The Secretary of Commerce should direct the Maritime Administration to establish formal employment placement goals for each of the academies and for each segment of the merchant marine. The goals should be in the form of percentages of the graduating class which should find employment in each segment of the merchant marine. (See p. 12.)

The Secretaries of Commerce and Defense should direct the Navy and the Maritime Administration to (1) jointly develop a program for providing the minimum naval science training required by all merchant marine officers and (2) see that all officers receive such training. (See p. 17.)

Maritime Administration officials did not comment on GAO's recommendation on employment goals. Maritime Administration and Navy officials agreed with GAO's recommendation that active merchant marine officers who do not qualify for the Reserve program should receive naval science training through other means. (See pp. 12 and 17.)

Problems the maritime academies' graduates are encountering in obtaining employment on ships under contract with the Marine Engineers Beneficial Association are discussed in chapter 4. Arguments for and against charging tuition at the Merchant Marine Academy are contained in chapter 5. Chapter 6 discusses problems in comparing costs to train officers at each of the maritime academies and the California School.

Employment statistics for the maritime academies, merchant marine officer licensing examination and renewal data, and profiles of the various schools appear in appendixes III through X. (See pp. 28 to 45.)

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ABBREVIATIONS

DOD	Department of Defense
GAO	General Accounting Office
MARAD	Maritime Administration
MEBA	Marine Engineers Beneficial Association

CHAPTER 1

INTRODUCTION

We reviewed the Federal program for training merchant marine deck and engineering officers, in response to a March 9, 1976, request from the Chairman, 1/ House Merchant Marine and Fisheries Committee and a March 11, 1976, request from the Chairman of the former Senate Commerce Committee. We were asked to review employment records of graduates of the Federal and various State maritime academies and gather all necessary information to determine whether the expenditure of additional Federal funds on these individuals' education was justified.

Subsequently, we received requests from other Members of Congress asking us to look into claims that the Marine Engineers Beneficial Association (MEBA) union discriminates against graduates of the academies and to include the Calhoun MEBA 2/ Engineering School, Baltimore, Maryland, in our review.

The Merchant Marine Act of 1936, as amended, and the Maritime Academy Act of 1950 define Federal involvement in maritime education in its present form. Under these acts, the Department of Commerce's Maritime Administration (MARAD) operates the U.S. Merchant Marine Academy and administers support to six State maritime academies.

THE MERCHANT MARINE

The merchant marine essentially comprises all of the Nation's commercial vessels and the crews which operate them. The national policy statement on the need for a merchant marine (Merchant Marine Act of 1936, U.S.C. title 46, sec. 1101) may be broadly interpreted to include employment positions ashore as well as afloat. The act states:

"It is necessary for the national defense and development of its foreign and domestic commerce that the United States shall have a merchant marine (a) sufficient to carry its domestic water-borne commerce and a substantial portion of the water-borne export

1/The Chairman who made the request retired in 1976.

2/MEBA, as used in the report, refers to District No. 1 Pacific Coast District.

and import foreign commerce of the United States and to provide shipping service essential for maintaining the flow of such domestic and foreign water-borne commerce at all times."

After a legal search, we determined that there was no precise definition of "merchant marine." Since primary responsibility for administering the Merchant Marine Act rests with MARAD and the Coast Guard, they have the responsibility for interpreting and applying these laws.

MARAD administers the training of merchant marine personnel; therefore its definition of merchant marine would be used for merchant marine officer training purposes. In a policy statement provided to us, MARAD interpreted the Merchant Marine Act of 1936 broadly to include all merchant vessels operating in the deep sea, the Great Lakes fleet, ocean and coastal towing, offshore mineral and oil exploration, harbors, and inland waterways.

The merchant marine fleet includes (1) various types of privately owned seagoing U.S. freighters and tankers, 1/ (2) Government-owned tankers, cargo ships, dredges, research ships, and tugs, (3) tugs, towboats, freighters, tankers, and other vessels operating in the harbors, inland waters, coastal waters, and Great Lakes, and (4) offshore mining and exploration vessels.

MERCHANT MARINE OFFICER LICENSING

The Merchant Marine Act of 1936 states that U.S. merchant ships shall be operated by trained and efficient persons. The maritime law (U.S.C. title 46, sec. 224) authorizes the Coast Guard to regulate and administer the licensing of merchant marine deck and engineering officers. The deck officers navigate and control the ship and the engineering officers operate the engine room and keep the ship's mechanical and electrical systems working.

To qualify for a deck or engineering officer's license, a person must be a U.S. citizen; meet the Coast Guard's age, physical, and sea experience standards; and pass a comprehensive written examination. The original licenses are third-mate and third-assistant engineer, and the top licenses are

1/Includes oceangoing ships of 1,000 gross tons or over, called deep sea, as well as other oceangoing and coastal vessels which require licensed merchant marine officers.

master and chief engineer. The Coast Guard has established standards and requires written examinations for each licensing grade. Licenses must be renewed every 5 years and may be restricted according to degree of experience or specialization. The Coast Guard does not require any formal education as a prerequisite to licensing.

SOURCES OF MERCHANT MARINE OFFICERS

There presently are four sources of new merchant marine officers--the U.S. Merchant Marine Academy, the six State maritime academies, the Calhoun School, and the hawsepipe. ^{1/} The following table shows the enrollment and appropriated Federal funds for each of these sources, except for the hawsepipe which has no Federal funding.

<u>Source of merchant marine officers</u>	<u>Fiscal year 1976</u>	
	<u>Average</u>	<u>Federal</u>
	<u>enrollment</u>	<u>funds</u>
		(millions)
U.S. Merchant Marine Academy	1,052	a/\$12.7
Maine Maritime Academy	513	1.1
Massachusetts Maritime Academy	768	1.2
Great Lakes Maritime Academy	81	.1
Texas Maritime Academy	93	.4
California Maritime Academy	331	.7
State University of New York Maritime College	832	1.2
Calhoun MEBA Engineering School	<u>300</u>	<u>b/0</u>
Total	<u>3,970</u>	<u>17.4</u>

a/The \$12.7 consists of \$8.7 million for normal operating costs and about \$4 million for the modernization program.

b/Federal funds flow indirectly to the school through contributions made to the MEBA training fund by federally subsidized shipping companies, which is discussed on page 41.

^{1/}Hawsepipe is a nautical term used by the maritime industry to refer to unlicensed seamen who, through self-study and on-the-job training, work their way up through the ranks, meet the Coast Guard's licensing criteria, and receive their original deck or engineering officer's license.

The U.S. Merchant Marine Academy at Kings Point, New York, is operated by MARAD and provides free education, room and board, medical care, uniform and textbook allowance, and some travel expenses. The academy was established in 1938 under authority granted by the Merchant Marine Act of 1936, as amended.

The Maritime Academy Act of 1958, as amended, authorizes MARAD to provide cooperation and assistance to State maritime academies which train merchant marine officers. Except for the Great Lakes Maritime Academy, each academy has a federally owned schoolship for the purpose of providing necessary sea training for its cadets. MARAD pays for the maintenance and repair of these ships. ^{1/} Each academy receives an annual operating grant of \$75,000, and selected students receive a \$600 annual stipend. In 1971 and 1972 MARAD established a ceiling ^{2/} of 673 new stipends annually for the academies' freshman classes. Costs for these academies are largely borne by the States and the students. In fiscal year 1976 the Government spent \$4.7 million for support of these State maritime academies.

The Calhoun School is sponsored jointly by MEBA and the contracted steamship companies and receives no direct funds from the Government. The school provides (1) training courses to prepare individuals for their original engineering license and (2) engineering officer licensing upgrading and continuing education courses for MEBA members. Expenses incurred by the schools and its students are paid for from the MEBA training fund. The training fund is replenished through shipping company contributions determined through collective bargaining.

General background information including the history, funding, curriculums, and accreditation of the Merchant Marine Academy, the State maritime academies, and the Calhoun School appear in appendixes V, VI, and VII respectively.

The hawsepipe, another source of merchant marine officers, involves seamen preparing for licensing on their own and therefore paying for any instruction they may receive. A MARAD official said that there are several schools around the country offering correspondence courses, training, and

^{1/}The training ships range in age from 25 to 37 years. Cost and other data on them appears in app. VI.

^{2/}A discussion on the rationale for establishing this ceiling appears in app. VI.

cram course instructions to unlicensed seamen who are preparing themselves for the Coast Guard's written examination.

NAVY RESERVE PROGRAM

The Navy provides training in naval science at the U.S. Merchant Marine Academy and the State maritime academies located in Maine, Massachusetts, New York, California, and Texas. The purpose is to provide the students with the necessary training to become officers in the U.S. Navy Reserve and the background required for merchant marine officers. MARAD requires subsidized students at the schools to apply for Navy Reserve Commissions at graduation and accept it if offered. The Navy also operates Navy Reserve Officer Training Corps units at the Maine and State University of New York maritime academies.

SCOPE OF REVIEW

We examined policies, procedures, and practices followed by MARAD to administer the programs for graduates of the Merchant Marine Academy and State maritime academies; we also examined the Navy's administering of Navy Reserve programs for graduates of the Merchant Marine Academy and five State maritime academies. We inspected the physical facilities of the Merchant Marine Academy, the six State maritime academies, and the Calhoun School and obtained information on cost, curriculums, enrollment, and history of each school.

We talked with responsible officials of MARAD, the Coast Guard, Federal and State maritime academies, the Calhoun School, the Department of the Navy, and MEBA.

CHAPTER 2

NEED FOR EMPLOYMENT PLACEMENT GOALS FOR MARITIME ACADEMIES' GRADUATING CLASSES

The Merchant Marine Act of 1936 and Maritime Academy Act of 1958 provide that the Government operate the U.S. Merchant Marine Academy and support State maritime academies for training merchant marine officers. Therefore, Federal support to the academies is justified to the extent that the academies' graduates are needed and find employment as deck or engineering officers in the merchant marine. MARAD also regards employment in the maritime industry ashore and in uniformed Government service as a valuable contribution justifying Federal support. However, MARAD has not established criteria for indicating what percentage of the maritime academies' graduates should sail on their license and for how long to justify Federal support of the academies.

JOB PLACEMENT 1/

We analyzed Coast Guard sailing records for the 616 graduates of the maritime academies' 1975 class and found that 39 percent, or 238, had sailed as licensed merchant marine officers in seagoing positions in the year after their graduation. Job placement statistics provided by the academies indicated that another 19 percent, or 120, had found employment on vessels in other segments of the merchant marine. In all, about 58 percent were employed on some type of merchant vessel.

1/Job placement statistics provided by the Merchant Marine Academy and the six State maritime academies for the 1973 through 1976 graduating classes appear in app. IV.

Percentage of the 1975 Graduating Class
Sailing as Merchant Marine Officers

<u>Maritime academy</u>	<u>Seagoing merchant marine (note a)</u>	<u>Other shipping (note b)</u>	<u>Total officers</u>
Texas	83	-	83
California	29	53	82
Maine	61	6	67
Massachusetts	55	18	73
Great Lakes (note c)	53	7	60
New York	34	25	59
Merchant Marine	31	23	54
Average	39	19	58

a/Includes oceangoing ships of 1,000 gross tons or over (deep sea) and other oceangoing and coastal vessels requiring licensed merchant marine officers.

b/Includes vessels operating on inland waters and the Great Lakes and offshore drilling and mining vessels.

c/Graduates of the Great Lakes Academy which sailed on the Great Lakes.

Of the remaining 42 percent of the graduates, 13 were employed in maritime industry ashore, 8 were in nonmaritime industry, 8 served in uniformed service, and 13 were unaccounted for or going to graduate school.

This represents employment for the year after graduation and not an employment history. To determine the extent that graduates remain in seagoing jobs as officers 2 years after graduating, we analyzed Coast Guard sailing records for the deck and engineering graduates of the 1973 class. 1/ The analysis covered a 1-year period beginning July 1, 1975.

1/The Coast Guard requires sailing records for both seagoing and Great Lakes shipping. Therefore, we were able to include the Great Lakes Maritime Academy in our analysis of 1975 and 1973 graduating classes.

Percentage of the 1973 Graduating Class Sailing
as Merchant Marine Officers (note a)

<u>Maritime academy (note b)</u>	<u>Seagoing merchant marine</u>
Texas	74
Great Lakes (note c)	67
Massachusetts (note d)	45
Maine	61
California	40
Merchant Marine	29
New York	25

a/We did not include the other shipping category in this analysis because the Coast Guard maintains sailing records only on the seagoing segment of the merchant marine. Also, the academies' placement statistics do not represent employment in 1976 which we are measuring here for the 1973 class.

b/Our analysis of seagoing employment (app. III) includes the Calhoun School.

c/Graduates of the Great Lakes Academy which sailed on the Great Lakes.

d/Because Massachusetts did not have a graduating class in 1973, we analyzed sailing records for the class of 1974.

COMPOSITION OF MERCHANT MARINE
OFFICER WORK FORCE

In response to a November 1974 request from the Chairman, House Committee on Merchant Marine and Fisheries, the Coast Guard surveyed 200 ships to determine the training of the officer crews. The sample survey covered 2,096 of the estimated 13,000 merchant marine officers who sailed in 1974, and the results follow.

<u>Source</u>	<u>Number</u>	<u>Percent</u>
Hawsepipeline	1,611	76.9
Merchant Marine Academy	100	4.8
Maine Maritime Academy	87	4.2
State University of New York Maritime College	72	3.4
California Maritime Academy	49	2.3
Calhoon School	44	2.1
Massachusetts Maritime Academy	37	1.8
Texas Maritime Academy	7	.3
Great Lakes Maritime Academy	3	.1
Other (note a)	59	2.8
No record	27	1.3
Total	<u>2,096</u>	<u>100.0</u>

a/Includes graduates of various other schools.

The results of this survey are important because they show that almost 80 percent of the active deck and engineering officers were not trained by the academies. Merchant Marine Academy officials told us that this is because academy graduates leave their initial ship employment for career progression in the maritime industry or other positions ashore. MARAD officials pointed out that the Coast Guard survey was restricted to the deep sea segment of the merchant marine and did not include those academy graduates who found employment as licensed officers in other segments of the merchant marine.

Coast Guard officials told us the deep sea merchant marine officer work force consists of a large number of individuals who became merchant marine officers during the World War II buildup. They believe these officers will be retiring in the next 10 to 15 years, and that the merchant marine officer work force will consist of a growing percentage of maritime academies' graduates. A 1976 MARAD study shows that the median age for deep sea deck and engineering officers is now 50 years; whereas, in 1967 it was 45 and 47 years respectively.

SUPPLY AND DEMAND

In 1970, 1974, and 1976, MARAD prepared supply and demand studies for the merchant marine officer work force. The 1970 and 1974 studies show the demand only for the deep sea segment of the merchant marine. The 1976 study provides potential demand estimates of licensed academy

graduates for the Great Lakes fleet, uniformed Government service, ocean and coastal towing, offshore mineral and oil exploration, inland waterway vessels, and the deep sea segment.

The 1976 study includes low, high, and best estimates for the forecast of the deep sea fleet segment. The projections for the high and low fleet estimates vary at most by 10 percent from the best estimate forecast. The study's best estimate for the deep sea merchant marine projects a shortage of only 15 deck officers in 1980--the first year a shortage occurs--with the maximum shortage of 354 deck and engineering officers occurring in 1982; the shortage decreases after 1982. The 1976 study, a 10-year projection, is based on numerous assumptions concerning the size and composition of the deep sea fleet and output of the various sources of merchant marine officers. Age and attrition of the active merchant marine officers is considered.

In its studies, MARAD did not attempt to present diverse economic assumptions and conditions which might exist over the next 10 years nor consider extremes in shipping which could be caused by a war or a depression. The demand estimates for the deep sea segment are based on statistics compiled by MARAD on deep sea U.S. flag ships. Demand estimates for all other segments were based on estimates obtained through industry questionnaires. MARAD officials said that the studies were prepared primarily for internal planning purposes.

MARAD'S GOALS

MARAD has not established program goals to justify Federal involvement in merchant marine officer training. There are no set minimal percentages of how many graduates should sail on their licenses, how long they should sail, or on what types of ships. Because there are no goals, we cannot determine the degree to which employment of the academies' graduates in the merchant marine justifies Federal support.

PERIODIC EVALUATION

MARAD has not performed any extensive, formal evaluation 1/ of merchant marine officer education including the

1/MARAD officials pointed out that the House Ad Hoc Committee on Maritime Education and Training performed a review of merchant marine officer education from 1973 through 1975.

extent the Federal role is justified and alternative sources of merchant marine officers.

The annual budgetary process does not include any such evaluation by MARAD. A MARAD official said that the Merchant Marine Academy prepares the annual budget request and that MARAD reviews and approves it. He said that MARAD does not perform any extensive evaluation because (1) enrollment levels and facility improvement programs were established years ago and (2) incremental increases are minimal and due to inflation. The budget MARAD prepares for Federal support of State maritime academies is also generally based on the previous year's budget plus incremental changes needed for rising costs of maintaining and repairing the training ships.

CONCLUSIONS

Because of MARAD's broad definition of "merchant marine" and in absence of goals for placing academies' graduates in each segment of the merchant marine, we could not determine the extent that job placement in the merchant marine justified Federal support of the academies. We believe that MARAD should (1) establish job placement goals for each academy and for each segment of the merchant marine and (2) establish the minimum number of years that graduates should serve as ship's officers.

Although the merchant marine acts state only that the purpose of supporting the academies is to train merchant marine officers, MARAD regards employment in the maritime industry ashore and in uniformed Government service as valuable contributions justifying Federal support. If it is MARAD's intent to also train academies' graduates for maritime industry ashore and uniformed Government service positions, we believe that goals should also be established for those positions. However, if MARAD regards these positions only as suitable alternatives when shipboard employment is unavailable, employment in the maritime industry ashore and uniformed Government service should not be used to justify Federal support.

We believe employment placement goals for graduating classes of each maritime academy are necessary to evaluate each academies' performance. Such goals will be a necessary prerequisite for zero-based budgeting reviews which may be required by the new Administration. In zero-based budgeting reviews, formal, realistic statements of policies

and goals are needed to determine whether program performance justifies cost. In such an evaluation of merchant marine officer education, the goals would measure the performance of each academy in terms of the percentage of its graduates finding employment as licensed merchant marine officers in the deep sea, coastal waters, Great Lakes, inland waters, and other segments of the merchant marine, as well as ashore in the maritime industry if MARAD determines that it is one of the program's goals.

RECOMMENDATIONS

We recommend that the Secretary of Commerce direct MARAD to establish formal job placement goals for the graduating classes of each academy and each segment of the merchant marine. The goals should be in the form of percentages of the graduating class which should be placed in each segment of the merchant marine and the percentage which should go into maritime industry ashore if that is one of MARAD's goals. We believe the goals will be useful to the Congress for evaluating the academies' performance.

AGENCY COMMENTS

MARAD officials had no comments on our conclusions and recommendation. Their comments on the text of this chapter were incorporated where appropriate.

CHAPTER 3
NEED FOR IMPROVEMENTS IN
PROVIDING NAVAL SCIENCE TRAINING
TO MERCHANT MARINE OFFICERS

The Merchant Marine Act of 1936 provides that the United States shall have a merchant marine capable of serving as a naval and military auxiliary in time of war or national emergency. The deep sea segment of the merchant marine is an essential and critical component of national defense because it provides the basic sealift support to meet overseas military commitments. According to MARAD and Navy officials, merchant marine officers need to know Navy procedures and tactics to coordinate with the Navy in times of peace, war, or national emergency. For this reason the Navy provides naval science training at all but the Great Lakes Maritime Academy. However, officers coming from the hawsepipe and the Calhoun School do not receive this training, although they represent about 80 percent of the deep sea merchant marine.

MOST MERCHANT MARINE OFFICERS HAVE NOT
BEEN TRAINED IN NAVY OPERATING PROCEDURES

Navy contingency plans provide for the use of the seagoing merchant fleet in time of national emergency. The President has authority to order all U.S. flag merchant ships to operate with the Navy in wartime. The Navy's Sealift Readiness Program commits by contract U.S. carriers participating in the peacetime movement of military cargo to provide 50 percent of their flag fleet for military contingency purposes. These merchant ships' deck officers would be required to cooperate with officers aboard Navy vessels, especially in convoy maneuvers. Thus, there is a need for merchant marine deck officers to have some training in Navy convoy tactics, communications, and procedures. A Navy official told us that merchant marine officers should also be knowledgeable in damage control; casualty control; firefighting; and nuclear, biological, and chemical warfare protection measures. Also, they should be familiar with the uniform code of military justice and have security clearance.

The deep sea merchant marine officer work force consists largely of nonacademy, nonreserve officers. A

Coast Guard survey in 1974 indicated that about 80 percent of the active merchant marine officers did not receive their training at the Merchant Marine Academy or any of the six State maritime academies and thus have no training for operating with the Navy in wartime.

The Navy recognized this problem and in 1973 established the Merchant Marine Reservist Program for nonacademy merchant marine officers. Unlike the commissioning program for maritime academies' graduates, applicants did not need college degrees to qualify for commissioning, and the new program included communications officers as well as deck and engineering officers. Since 1973, only 46 of approximately 12,000 ^{1/} seagoing merchant marine officers have received commissions in this program. The Navy temporarily suspended further commissioning under the program in May 1976 because of eligibility criteria problems.

Navy officials said that the program is being reviewed, and that commissions under this program will probably be reinstated when the problems are resolved. However, the officials pointed out that the majority of the active merchant marine deck and engineering officers would not be eligible for commissions under this program because of age and other factors. Thus, they would receive no naval science training.

GRADUATES OF THE ACADEMIES

The Navy provides a staff at each academy, except at the Great Lakes Maritime Academy, to teach the naval science courses it requires for entrance into the Naval Reserve. MARAD requires all the midshipmen at the Merchant Marine Academy and all subsidized students at the State maritime academies to agree in writing to apply, at an appropriate time before graduation, for a commission as ensign in the U.S. Naval Reserve (inactive) and to accept such commission if offered. MARAD exempted the Great Lakes Maritime Academy from this obligation.

Commissioned maritime academy graduates are either active-duty Navy officers or inactive-duty ready reservists until they have completed their 6-year obligation. After

^{1/}This figure, the size of the work force in 1976, includes the maritime academies' graduates, most of whom are commissioned in the Naval Reserve.

completing the 6-year obligation, the maritime academy graduates are generally in the standby reserves. As of July 1976 approximately 500 maritime academy graduates were active-duty Navy officers, 1,000 were inactive-duty ready reservists, and 1,200 were standby reservists. The maritime academies' graduate reservists constituted about 1 percent of all Reserve officers as of May 31, 1976.

The number of graduates commissioned by the Navy during 1975 follows.

<u>Academy</u>	<u>Number of graduates</u>	
	<u>Subsidized</u>	<u>Commissioned</u>
Merchant Marine	201	191
Maine	77	40
Massachusetts	60	58
Texas	18	7
California	57	38
New York	<u>118</u>	<u>81</u>
Total	<u>531</u>	<u>415</u>

Generally, there are a number of officers who drop out of the program before completing their obligation. These are identified in a yearly screening-out process which the Navy performs. Reserve officials told us that all merchant marine officers who are inactive-duty ready reservists are contacted to determine their status, and their files are reviewed for compliance. If they do not comply, they are referred to the Naval Reserve Officer Mobilization Disposition Board for case review and action. In most cases the Board recommends an honorable discharge.

The number of discharges resulting from the Board's recommendations increased from 15 in 1972 to 284 in 1973. The number decreased to 211 in 1974. ^{1/} Navy officials believe that the reason for the increased number of discharges after 1972 is the end of the military draft. Without the threat of being drafted and faced only with getting honorably discharged, commissioned maritime school

^{1/}A Navy official told us that because of funding limitations, the Navy did not screen the merchant marine officer reservists in 1975 and 1976. However, screening is underway and should be completed by the end of June 1977.

graduates may have little incentive for fulfilling the reserve commitment. The Navy officials stated that before the draft's end, the number of discharges was very small. After the ending of the draft, maritime academies' reservists were less likely to answer correspondence and fulfill their obligation. MARAD and Navy officials believe that individuals may be dropping out of the Reserve because they lose interest if they cannot find employment as merchant marine officers.

NAVY ACQUISITION OF ACADEMY GRADUATES FOR ACTIVE DUTY

MARAD contends that midshipmen at the Merchant Marine Academy and subsidized cadets at the State maritime academies receive Federal support for being merchant marine officers and for being employed in the maritime industry. MARAD further recognizes that service in the Navy is a legitimate alternative but not the primary intent of Federal support. By formal agreement between the Departments of Commerce and Defense, the Navy is subject to a recruitment ceiling of 12.5 percent from among the graduating classes at the academies. The number of graduates entering the Navy has been substantially less.

Navy officials support this view. Graduates receiving Naval Reserve commissions and employed in seagoing jobs are not assigned mobilization billets ^{1/} because their occupation as licensed merchant marine officers at sea fulfills the Navy's objective for their naval science training. If they are not in at-sea jobs, they are available for assignment upon mobilization and are assigned billets in the same manner as other inactive reservists. The type of billet to which they are assigned would depend on the Navy's needs at that time.

Naval officials told us that their primary concern is that the academies' midshipmen and cadets receive adequate training in naval science to operate as merchant marine officers. However, the graduates are commissioned at little extra expense to the Navy, and as reservists they represent a pool of potential naval officers.

1/Mobilization billets are positions in the reserve.

CONCLUSIONS

The objective of providing naval science training is to have merchant marine officers capable of operating with the Navy in times of peace, war, and emergency. Thus, there does not appear to be a need for commissioning academies' graduates to the Reserve since service in the Navy is not the primary intent. Also, Reserve eligibility criteria restrict the number of active merchant marine officers who can receive naval science training under the active merchant marine reserve program. There is a need for an alternative program for providing naval science training to all members of the merchant marine, which could include correspondence courses or training at one of MARAD's training centers or at the maritime unions' schools. The Coast Guard's licensing examinations could include questions relating to such training to insure that all merchant marine officers have the necessary training. The alternative program could include provisions requiring that all licensed merchant marine officers be periodically tested and evaluated in naval science skills to continue serving as licensed merchant marine officers.

RECOMMENDATION

We recommend that the Secretaries of Commerce and Defense direct the Navy and MARAD to jointly develop and implement a program providing the minimum naval science training required by all licensed merchant marine officers and to see that all officers receive such training.

AGENCY COMMENTS

Navy officials said that the commissioning of graduates was necessary because it provided a source of well-trained inactive-duty officers with seagoing experience, and the source was available at little extra expense to the Navy. MARAD officials supported this. MARAD and Navy officials agreed that there was a need for naval science training programs for active merchant marine officers who do not qualify for the Reserve program.

CHAPTER 4

MERCHANT MARINE OFFICER

EMPLOYMENT CONTROLLED BY MEBA

The Merchant Marine Academy and State maritime academies' officials said that since 1970 their graduates have not been finding employment on merchant vessels under union contract to MEBA. Further, since 1973 over 90 percent of the graduates of the Calhoon School upon graduation obtain employment as third assistant engineers through the MEBA union. Therefore, the academies' officials believe that their graduates cannot compete equally with the Calhoon School graduates for engineering officer positions on ships under contract to the MEBA union.

BACKGROUND

MEBA is the union representing the marine engineers on over 90 percent of American vessels and other unions represent the remaining seagoing deck and engineering officers. There are various other unions representing unlicensed seamen and deck and engineering officers in other segments of the merchant marine.

The number of engineering officers on a MEBA-contracted ship is determined by collective bargaining between MEBA and the shipping companies. The Coast Guard establishes, by licensing level, the minimum number of licensed officers required for each type of ship to assure safe operation of the ships. The union-contracted number of officers exceeds the Coast Guard minimum.

It is standard maritime practice to assemble crews for a ship in union hiring halls. The crews are assembled by seniority from those union members present in the union hall at the time the ship crew is being assembled.

OBTAINING EMPLOYMENT ON MEBA-CONTRACTED SHIPS

MEBA union officials told us that permanent membership in the MEBA union is not and has not been closed. MEBA-union membership is divided into three groups. Entry into group I requires 200 days of covered 1/ employment in MEBA-contracted

1/Covered employment is positions covered under the collective bargaining contract.

positions each year for 3 successive years; group I includes the senior, permanent members. According to the MEBA shipping rules, group II consists of MEBA union members who have obtained 200 days of covered employment under MEBA-union contracts but have not met the criteria for group I membership. Group III consists of the licensed engineering officers who who are paying their service fees and working toward covered employment requirements for advancement into group II.

MEBA's president told us that although the shipping rules require 200 days of covered employment for entry into group II, the MEBA union permits applicants from Federal and State maritime academies to enter group II status if they have 365 days at sea. Further, the sea time the cadet earns on commercial and training ships while at the academies is acceptable as part of the 365 days. Thus, academy graduates are placed in group III until they accumulate the 365 days. MEBA's president said that Calhoon School graduates qualify for group II status because the Coast Guard requires they have 365 days at sea before they are permitted to take their licensing examination. He said that the academies' graduates do not have enough sea time to qualify for group II status because, to sit for the licensing examinations, the Coast Guard requires 6 months of sea time for State maritime academy graduates and 10 months of commercial ship sea time for Merchant Marine Academy graduates.

The Calhoon School can place its students in union-covered third assistant engineering officer positions where they can participate as well as observe. These officer positions are required in union contracts but not by the Coast Guard. A ship could sail with only the Coast Guard required crew if the union permitted the shipping company to do so, or if the union cannot fill the position which is not required by the Coast Guard. Thus, if there are openings for third assistant engineers--above the numbers required by the Coast Guard--during assembling of crews at union halls, and group I, II, or III union members do not fill them, then Calhoon School students can fill them. Officials at the Calhoon School told us that through their union contacts, they keep track of the ship sailing schedules and union members available at the union halls, and they arrange to have students at the halls when there are openings for third assistant engineers.

Upon graduation, Calhoon School students have enough seniority to put them in the union's group II category. Graduates of the academies have to pay their service fees for group III and sit around the hiring halls waiting for leftover positions after those from groups I and II fill ship openings.

CHAPTER 5

PROPOSED TUITION FOR MERCHANT MARINE

ACADEMY STUDENTS

The U.S. Merchant Marine Academy's graduates are not required to serve as merchant marine officers in return for their fully paid education. 1/ However, they do have a moral obligation to serve as officers in the merchant marine. Many 2/ Academy graduates do not fulfill this moral obligation. One corrective proposal is to have Academy students pay their own way through school.

NO OBLIGATION TO SERVE IN MERCHANT MARINE

Members of Congress in past hearings have expressed concern over the lack of any obligation to serve in the merchant marine on the part of Merchant Marine Academy graduates in exchange for their free education. The issue was discussed in recent years, when bills providing for an increase in stipends to the State maritime academies were being considered. MARAD argued that a legal obligation to serve in a seagoing capacity in exchange for a free education or student stipends would require the guarantee of a seagoing position; they said that this is impossible in view of the fluctuations in merchant marine officer employment caused by economic and technological changes, national emergencies, and wars. MARAD and Academy officials pointed out that even during wartime the merchant marine is a private industry, and that it may not be legal to compel a private citizen to work on a private ship if he did not want to.

PAYBACK PROPOSAL

In 1969 a payback-requirement bill was introduced and considered by the House of Representatives. If enacted into law, the bill would have required that graduates of the Academy and State maritime academies reimburse the Government for the funds expended on them if they did not work as a seagoing licensed officer for a specified number of years. MARAD, who opposed the bill, said the bill would be unfair to graduates seeking shipboard jobs when jobs were unavailable. The bill was not passed.

1/Entrance requirements for the Academy appear in app. V.

2/Job placement statistics in app. IV show the number and percentage of the Academy graduates which find employment in the maritime industry ashore or in other pursuits.

STUDENTS' SUPPORT CAUSES CONTROVERSIES

MEBA officials told us that they believe a large number of students go to the Merchant Marine Academy to get a free education rather than a seagoing career. Further, they pointed out that many Academy graduates go on to graduate school. State maritime academies' officials generally would not comment on this, but officials of one State maritime academy agreed that many students do attend the Academy only to get a free education.

State maritime academy officials said that it was unfair that students in the Merchant Marine Academy received a completely free education while students receiving the same type of training at the State maritime academies got only about one-fifth, if any at all, of their education paid for by the Government. They also believed it was unfair that students at the Calhoun School got a free education which they believe is also at the taxpayers' expense.

It is interesting that in a previous review ^{1/} of student attrition at the five Federal service academies, we sent a questionnaire to students attending the Academy in 1974. One of the questions was, "How important was tuition-free education in your decision to enter the Academy?" Out of 1,042 responses, 594, or 57 percent, said very important, 322, or 31 percent, said somewhat important, and 126, or 12 percent, said it was not important or did not respond.

PROPOSED TUITION AT THE ACADEMY

According to a MARAD official, the previous Administration's fiscal year 1978 budget submission proposed that tuition fees be charged to each Academy student beginning with the 1978 freshman class; however, no legislative proposal was submitted to the Congress on the matter.

MARAD is opposed to any student tuition charges at the Academy because it believes:

--Attracting students would be a difficult problem with a tuition.

^{1/}"Student Attrition at the Five Federal Service Academies," (FPCD-76-12) Mar. 5, 1976.

- Scholastic standards might have to be lowered to attract enough students.
- Recruitment of minority students would be seriously impaired, if not negated.
- There would be problems recruiting students from all States and segments of society, and the status of the Academy would change from a national to a regional school.
- Congressional appointment privileges would be rendered meaningless.
- It would set an undesirable precedent for other Federal academies.
- Payment of stipends to State maritime academies' students might be questioned and possibly ended.

CHAPTER 6

PROBLEMS COMPARING COSTS OF TRAINING

MERCHANT MARINE OFFICERS AT THE VARIOUS

MARITIME ACADEMIES AND THE CALHOON SCHOOL

There are two ways to look at cost analysis and comparison: (1) How much it costs the Government to train a merchant marine officer from each of the various sources and (2) how much it costs to train a merchant marine officer at each academy regardless of where the funds come from.

COST TO THE GOVERNMENT

To determine the cost to the Government, one takes the total amount of Federal expenditures going to each academy and the number of students enrolled and computes the Federal cost on an individual basis at each academy. This will always show that the Merchant Marine Academy ^{1/} costs the most because the Government pays 100 percent of the cost. The cost to the Government on an individual basis at State academies will always be much cheaper than at the Academy because the States and students pay the majority of the costs. The cost to the Government on an individual basis at the State academies will differ because (1) the fixed annual grant will be applied to academies ranging from 81 to 832 students and (2) the costs of training ships differ with each academy. The hawsepipe would be the cheapest source of merchant marine officers because there are no Federal expenditures going to this source.

COST TO TRAIN A MERCHANT MARINE OFFICER AT EACH MARITIME ACADEMY AND THE CALHOON SCHOOL

We gathered cost data at each of the eight maritime schools which train merchant marine engineering and deck officers, and we discussed costs with the school officials. We did not perform any cost analysis because of a number of complicated factors.

It would be difficult to identify and compare costs because

^{1/}Our previous report, "Financial Operations of the Five Service Academies," (FPCD-77-117), Feb. 6, 1975, contains cost data on the Merchant Marine Academy.

- one academy and the Calhoon School are 3-year vocational schools, whereas the other academies have 4-year curriculums;
- two academies, Texas and Great Lakes, are physically integrated with major colleges;
- the academies' budgeting and accounting systems differ;
- the New York Maritime College is part of the New York university system which performs accounting and budgeting services for the academy;
- cadet sea training methods differ greatly among the Federal and State maritime academies and the Calhoon School;
- the size and age of the facilities differ; and
- job placement services differ in size and emphasis among the academies.

There are also other considerations which would be difficult to address in any cost comparison of the schools. For example, the training ships operated by the New York, Massachusetts, and Maine maritime academies are the only ready troop-carrying ships available to the Navy. A problem would be determining what part, if any, of the operating costs of those ships should be factored out for standby national reserve purposes.

Replacement costs of State maritime academies' training ships would also be difficult to address in any cost comparisons of the maritime academies. These ships now range in age from 25 to 37 years and they have to be replaced in about 10 years. A MARAD official said MARAD is studying the feasibility of constructing two new training ships to replace the five training ships now in operation. He estimated that the cost to build the two new ships might be about \$100 million. State maritime academies' officials believe these ships are necessary for the schools' survival, and that MARAD would also have to furnish crews for the ships and pay all operating costs.

We believe that to be fair and meaningful the schools would have to be compared only on those elements common to each school, and the analysis would have to be geared exclusively to training for a licensed officer position. The fact that schools have varying educational objectives

and programs makes it difficult to compare them, as do the varying degrees of affiliation and integration the schools have with other organizations. Thus, we believe that it would be very difficult to make a fair and accurate cost comparison of the eight schools. We believe any attempt to make such a comparison would be (1) very time-consuming, (2) involve numerous questionable assumptions, adjustments, estimates, and projections, and (3) probably serve no useful purpose. Therefore, we did not perform any cost analysis and comparison.

APPENDIX I

APPENDIX I

NINETY-FOURTH CONGRESS

LEONOR K. (MRS. JOHN B.) SULLIVAN, MO., CHAIRMAN
 THOMAS L. ASHLEY, OHIO
 JOHN D. DINWELLY, MICH.
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 PAUL G. ROBERTS, FLA.
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 WALTER B. JONES, N.C.
 ROBERT L. LIGGETT, CALIF.
 MARIO BRADY, N.Y.
 GLENN M. ANDERSON, CALIF.
 E (KIKI) DE LA SARTZA, TEX.
 RALPH H. METCALF, ILL.
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 FRED B. ROBERTS, PA.
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 DON YOUNG, ALASKA
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 NORMAN F. LENT, N.Y.
 MATTHEW J. RONALDO, N.J.
 DAVID W. EMERY, MARI.

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U.S. House of Representatives Committee on Merchant Marine and Fisheries Room 1334, Longworth House Office Building Washington, D.C. 20515

March 9, 1976

CHIEF COUNSEL
 ERNEST J. CORRADO
 CHIEF CLERK
 FRANCES STILL
 MINORITY COUNSEL
 RICHARD H. SHARROD

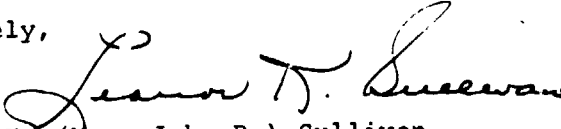
Mr. Elmer B. Staats
 Comptroller General of the
 United States
 General Accounting Office
 441 G Street, N.W.
 Washington, D. C. 20548

Dear Mr. Staats:

For some time there has been considerable controversy surrounding the employment records of the graduates of the Federal and various State Maritime Academies and, more particularly, the numbers of graduates produced by these schools in relation to the number of available officer billets or seagoing positions.

Therefore, it is requested that the General Accounting Office investigate this matter and gather all necessary information to determine whether the expenditure of federal funds on the education of these individuals is justified.

Sincerely,


 Leonor K. (Mrs. John B.) Sullivan
 Chairman

APPENDIX II

APPENDIX II

WARREN G. MAGNUSON, WASH., CHAIRMAN
 JOHN G. PATTON, R.I.
 VANCE MARTY, IND.
 PHILIP A. HART, MICH.
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 COLLEEN M. S. STERNETT, MINORITY COUNSEL

United States Senate

COMMITTEE ON COMMERCE
 WASHINGTON, D.C. 20510

March 11, 1976

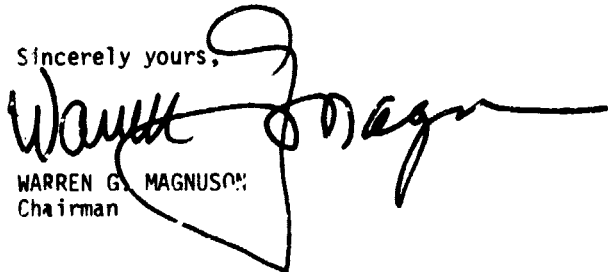
Mr. Elmer B. Staats
 Comptroller General of
 United States
 General Accounting Office
 441 G Street, N.W.
 Washington, D.C. 20548

Dear Mr. Staats:

It is my understanding that Chairman Leonor K. Sullivan has asked that you investigate the controversy surrounding the employment records of the graduates of the Federal and various State Maritime Academies and, more particularly, the numbers of graduates produced by these schools in relation to the number of available officer billets or seagoing positions.

The claims and counter-claims concerning this controversy need some sorting out. Therefore, I would like to join with Chairman Sullivan in supporting a request for an investigation to determine whether the expenditure of additional federal funds on the education of these individuals is justified.

Sincerely yours,


 WARREN G. MAGNUSON
 Chairman

PERCENTAGE OF GRADUATING CLASSES EMPLOYEDAS MERCHANT MARINE OFFICERS ON SEAGOING VESSELS (note a)

<u>Maritime academy</u>	<u>1973 seagoing officers</u>			<u>1975 seagoing officers</u>		
	<u>Engineer</u>	<u>Deck</u>	<u>Total</u>	<u>Engineer</u>	<u>Deck</u>	<u>Total</u>
Maine	53.0	76.2	60.9	59.2	64.0	60.8
Massachusetts (note b)	-	-	-	55.6	55.2	55.4
New York	14.9	36.5	25.2	29.0	37.0	33.9
Texas	90.0	71.4	73.7	100.0	75.0	83.3
California	39.3	40.6	40.0	20.8	35.3	29.3
Merchant Marine	21.0	31.0	29.0	22.0	35.0	31.0
Calhoon School (note c)	84.6	-	84.6	91.0	-	91.0

a/GAO analyzed Coast Guard sailing records for the 1973 and 1975 graduating classes of the seven schools. The Great Lakes Maritime Academy was not included because its graduates do not sail in the seagoing merchant marine. The analysis covered a 1-year period beginning 2 years after graduation for the 1973 class and a 1-year period following graduation for the 1975 class. The percentages here represent actual sailing according to Coast Guard records and the figures and percentages in appendix IV represent job placements recorded by the academies; thus, the percentages for individual schools in this table do not coincide with those of the same graduating class in appendix IV. For example a graduate may be on record at the academy as being employed in a seagoing position, yet the graduate may not have sailed subsequent to graduation or may have sailed in a position where Coast Guard sailing records were not required.

b/Massachusetts did not have a graduating class in 1973.

c/The Calhoon School does not train deck officers.

EMPLOYMENT STATISTICS FOR
1973 GRADUATES OF MARITIME ACADEMIES (note a)

<u>Maritime academy</u>	<u>Seagoing</u>	<u>Great Lakes inland waters</u>	<u>Other shipping</u>	<u>Uniformed Government service</u>	<u>Maritime ashore</u>	<u>Other</u>	<u>Total graduating class</u>
Maine							
Number	38	34	8	2	14	14	110
Percent	34.5	30.9	7.3	1.8	12.7	12.7	100
New York							
Number	48	-	-	15	45	16	124
Percent	38.7	-	-	12.1	36.3	12.9	100
Texas							
Number	11	-	1	-	1	1	14
Percent	78.6	-	7.1	-	7.1	7.1	100
California							
Number	41	9	-	8	2	1	61
Percent	67.2	14.7	-	13.1	3.3	1.7	100
Great Lakes							
Number	-	9	-	-	-	-	9
Percent	-	100.0	-	-	-	-	100
Merchant Marine							
Number	60	13	5	16	57	45	196
Percent	30.6	6.6	2.6	8.2	29.0	22.9	100

a/Massachusetts' maritime school is not included because it did not have a 1973 graduating class.

EMPLOYMENT STATISTICS FOR
1974 GRADUATES OF MARITIME ACADEMIES

<u>Maritime academy</u>	<u>Seagoing</u>	<u>Great Lakes inland waters</u>	<u>Other shipping</u>	<u>Uniformed Government service</u>	<u>Maritime ashore</u>	<u>Other</u>	<u>Total graduating class</u>
Maine							
Number	51	12	-	6	29	15	113
Percent	45.1	10.6	-	5.3	25.7	13.3	100
Massachusetts							
Number	43	1	10	-	2	13	69
Percent	62.3	1.4	14.5	-	2.9	18.8	100
New York							
Number	47	7	-	5	31	41	131
Percent	35.9	5.3	-	3.9	23.7	31.3	100
Texas							
Number	5	-	2	-	5	-	12
Percent	41.7	-	16.7	-	41.7	-	100
California							
Number	43	2	-	2	2	5	54
Percent	79.7	3.7	-	3.7	3.7	9.2	100
Great Lakes							
Number	-	12	-	-	-	1	13
Percent	-	92.3	-	-	-	7.7	100
Merchant Marine							
Number	74	19	13	8	29	39	182
Percent	40.7	10.4	7.2	4.4	15.9	21.4	100

EMPLOYMENT STATISTICS FOR
1975 GRADUATES OF MARITIME ACADEMIES

<u>Maritime academy</u>	<u>Seagoing</u>	<u>Great Lakes inland waters</u>	<u>Other shipping</u>	<u>Uniformed Government service</u>	<u>Maritime ashore</u>	<u>Other</u>	<u>Total graduating class</u>
Maine							
Number	14	42	-	4	10	2	72
Percent	19.4	58.3	-	5.6	13.9	2.8	100
Massachusetts							
Number	49	11	28	1	5	10	104
Percent	47.1	10.6	26.9	1.0	4.8	9.6	100
New York							
Number	47	13	-	23	53	25	161
Percent	29.2	8.1	-	14.3	32.9	15.6	100
Texas							
Number	11	-	7	-	4	-	22
Percent	50.0	-	31.8	-	18.2	-	100
California							
Number	28	18	-	6	4	-	56
Percent	50.0	32.1	-	10.7	7.1	-	100
Great Lakes							
Number	-	10	-	-	-	5	15
Percent	-	66.7	-	-	-	33.3	100
Merchant Marine							
Number	51	27	27	13	40	45	203
Percent	25.1	13.3	13.3	6.4	19.7	22.1	100

EMPLOYMENT STATISTICS FOR
1976 GRADUATES OF MARITIME ACADEMIES

<u>Maritime academy</u>	<u>Seagoing</u>	<u>Great Lakes inland waters</u>	<u>Other shipping</u>	<u>Uniformed Government service</u>	<u>Maritime ashore</u>	<u>Other</u>	<u>Total graduating class</u>
Maine							
Number	34	16	14	3	9	12	88
Percent	38.7	18.2	15.9	3.4	10.2	13.6	100
Massachusetts							
Number	61	12	18	1	15	12	119
Percent	51.3	10.1	15.1	.8	12.7	10.1	100
New York							
Number	33	3	3	18	30	13	100
Percent	33.0	3.0	3.0	18.0	30.0	13.0	100
Texas							
Number	11	-	2	-	2	1	16
Percent	68.7	-	12.5	-	12.5	6.2	100
California							
Number	80	10	1	3	4	-	98
Percent	81.6	10.2	1.0	3.0	4.1	-	100
Great Lakes							
Number	-	21	-	-	-	5	26
Percent	-	80.8	-	-	-	19.2	100
Merchant Marine							
Number	92	8	25	9	57	22	213
Percent	43.2	3.7	11.7	4.2	26.8	10.3	100

U. S. MERCHANT MARINE ACADEMYHISTORY AND GENERAL INFORMATION

The U.S. Merchant Marine Academy is located on a 68-acre campus at Kings Point, New York, on the north shore of the Long Island Sound. The campus and facilities are designed to accommodate an average enrollment of 1,000 midshipmen; however, it has the capacity to accommodate about 2,400 if necessary. The Academy shares the campus with the National Maritime Research Center.

The Merchant Marine Act of 1936, as amended in 1938, established the U.S. Merchant Marine Cadet Corps for the training of merchant marine officers. Training was first given on merchant ships and later at temporary shore establishments. The present site, in Kings Point, Long Island, New York, was acquired in 1942, and the Academy was officially dedicated on September 30, 1943. The Maine, Massachusetts, New York, Pennsylvania, ^{1/} and California maritime academies existed at the time. Direct Federal involvement in merchant marine officer education was undertaken to help build up the merchant marine for World War II and to upgrade the quality of officer training.

In 1945 the Academy changed from a 2- to a 4-year program. In August 1949 the Merchant Marine Act was amended to authorize the granting of bachelor of science degrees at the Academy. The Academy was accredited by the Middle States Association of Colleges and Secondary Schools in 194^o and was made a permanent institution by the Permacny Act of 1956.

The primary purpose of the Academy is to prepare young persons to become licensed deck and engineering officers in the merchant marine. Academy officials told us that their curriculums were designed to provide graduates with the necessary education for careers in technical and management positions in the maritime industry ashore as well as for shipboard careers as officers. The Academy offers a 4-year undergraduate program leading to bachelor of science degrees in nautical science for deck officers or marine engineering for engineering officers; it also offers a dual-license curriculum for both. Each midshipman may minor or take courses in such specialized fields as oceanography, nuclear engineering, management science, computer science, mathematics, chemistry, and naval architecture. During the 4 years at the Academy, each midshipman must obtain about 10

^{1/}The Pennsylvania Maritime Academy closed in 1947.

months of practical experience aboard seagoing commercial ships, along with the naval science training necessary to become a Navy officer.

To enter the academy applicants must show evidence of high scholastic standing at an accredited high school, qualify on college entrance examination board tests, meet Navy Reserve physical requirements, and be appointed by a Senator or a representative of the applicant's home State. The enrollee must sign a moral obligation to seek employment as a merchant marine officer upon graduation.

STATE MARITIME ACADEMIES'HISTORY AND GENERAL INFORMATION

The Government has had a long tradition of supporting State maritime academies. An 1874 act provided for establishing State nautical schools for training merchant marine officers, and the Navy was responsible for implementing the act. A 1911 act authorized the Navy to transfer Navy vessels to the schools for training purposes. Responsibility for State maritime academy support was transferred from the Navy to the Maritime Commission in 1941 and to MARAD in 1950.

In 1958 the Government reassessed its role concerning the State maritime academies and passed the Maritime Academy Act of 1958, which defines the present Federal role. The 1958 act provides for (1) payment of a \$75,000 maximum annual grant to each State maritime academy or a \$25,000 maximum annual grant if stipulated requirements for out-of-State students are not met, (2) payment of an annual stipend for each student not to exceed \$600 a year, and (3) loan and maintenance of a training ship.

In 1971 MARAD placed a limit on the number of students receiving stipends to control the budget and to discourage further expansion of the State maritime academies. The ceiling was based on 1964 enrollments at the Maine, Massachusetts, New York, California, and Texas academies. The Great Lakes Academy, which was not founded until 1969, was allotted 50 new stipends a year. The number of new stipends allocated to each academy for its freshman students follows.

<u>Maritime academy</u>	<u>Stipend ceiling for freshman class</u>
Maine	150
Massachusetts	77
New York	251
Texas	35
California	110
Great Lakes	<u>50</u>
Total	<u>673</u>

Selection of students to receive stipends is at the discretion of academy officials, and the selection criteria vary among academies. The student selected for the stipend

will receive it each year until graduation. Once awarded during the freshman year, the stipend is not transferable. Thus, if a student receiving a stipend leaves school, MARAD stops paying that stipend and does not allow another student who is not receiving a stipend to take the dropout's place. Because of the ceiling, there are many students eligible for a stipend but not receiving one.

<u>Maritime academy</u>	<u>Students eligible but not receiving stipends in the 1976 freshman class (note a)</u>	
	<u>Number</u>	<u>Percent</u>
Maine	42	21.9
Massachusetts	173	69.2
New York	0	0
Texas	36	50.7
California	70	38.8
Great Lakes	0	0
Total	<u>321</u>	Average 32.4

a/Opening day freshman class enrollment.

Some of the students who do not receive stipends get aid from other Federal, State, or private sources. The above table does not include foreign students.

MARAD requires that cadets at the Maine, Massachusetts, New York, Texas, and California academies receive at least 6 months of training aboard a schoolship in cruise status. The ships on loan to these schools follow.

<u>Maritime academy</u>	<u>Training ship</u>	<u>Date constructed</u>	<u>Age as of 1977</u>
Maine	State of Maine	1952	25
Massachusetts	Bay State	1943	34
New York	Empire State	1952	25
Texas	Texas Clipper	1944	33
California	Golden Bear	1940	37

The cost to operate the State academies follows.

<u>Maritime academy</u>	<u>Funding</u>	
	<u>1976</u>	<u>1977</u>
	(millions)	
Maine	\$ 3.9	\$ 4.0
Massachusetts	4.4	3.9
New York	3.9	4.6
Texas	1.9	1.9
California	3.0	3.6
Great Lakes	<u>.4</u>	<u>.4</u>
Total	<u>\$17.5</u>	<u>\$18.4</u>

State University of New York
Maritime College

The Maritime College, founded in 1874 as the New York Nautical School, became the New York Merchant Marine Academy in 1929 and the State University of New York Maritime College in 1948. The college, one of 72 campuses in the State system, has a 56-acre campus at Fort Schuyler on the Throgs Neck peninsula of Bronx, New York.

The college prepares young men and women for licensing as officers in the merchant marine and for professional positions in the maritime services and related industries ashore. The college offers (1) bachelor of engineering degrees in electrical engineering, marine engineering, and naval architecture, (2) bachelor of science degrees in marine transportation management, meteorology, oceanography, nuclear science, and computer science/mathematics, and (3) graduate programs leading to master of science degrees in transportation management. The college is fully accredited by the Middle States Association of Colleges and Secondary Schools. Marine engineering is accredited by the Engineers Council for Professional Development.

Massachusetts Maritime Academy

The Massachusetts Maritime Academy, founded in 1891 as a nautical school, is one of 11 colleges comprising the Commonwealth of Massachusetts' State college system. The academy is on a 55-acre campus overlooking the Cape Cod Canal at Buzzards Bay, Massachusetts. The academy moved to Buzzards Bay in 1948.

The academy prepares individuals to be licensed merchant marine deck and engineering officers. The academy, which offers programs leading to bachelor of science degrees in marine transportation and marine engineering, is accredited with the New England Association of Schools and Colleges.

California Maritime Academy

The California Maritime Academy, founded in 1929 as a nautical school, is an independent institution of higher learning within the California State system of universities and colleges. The academy, located at Vallejo, California, occupies a 67-acre campus adjacent to the Carquinez Straits in the San Francisco Bay area.

The academy's programs, which lead to a bachelor of science degree in nautical industrial technology or marine engineering technology, prepare students to be licensed merchant marine deck and engineering officers. In 1974 the academy switched from a 3- to a 4-year curriculum and was accredited in 1977 by the Western Association of Schools and Colleges.

Maine Maritime Academy

The Maine Maritime Academy, founded in 1941, is located at Castine, Maine, on the shores of Penobscot Bay. The academy trains individuals to be licensed merchant marine officers as well as prepares them to be leaders in the maritime industry both at sea and ashore. The academy, which offers 4-year programs leading to bachelor of science degrees in marine engineering or nautical science, was accredited in 1971 by the New England Association of Schools and Colleges.

Texas Maritime Academy

The Texas Maritime Academy, located in Galveston, Texas, and founded in 1962, is a division of Moody College of Marine Sciences and Maritime Resources. The college is part of the Texas A&M University system and is located on Pelican Island in Galveston Bay.

The academy offers 4-year bachelor of science degree programs in marine engineering and marine transportation, preparing individuals for licensing as merchant marine engineering and deck officers. The Moody College is accredited by the Southern Association of Colleges and Schools.

Great Lakes Maritime Academy

The Great Lakes Maritime Academy, founded in 1969, is a part of Northwestern Michigan College, located at Traverse City, Michigan. The city is on Grand Traverse Bay, which opens into Lake Michigan.

The academy's 3-year associate of science degrees in marine transportation or engineering prepare students for pilot and engineering positions on ships sailing the Great Lakes.

APPENDIX VI

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STATE MARITIME ACADEMIES'
MARITIME ADMINISTRATION FUNDS

<u>Maritime academy</u>	<u>Student subsidies</u>	<u>Annual grant</u>	<u>Ship repair and maintenance</u>	<u>Other (note a)</u>	<u>Total cost a year</u>
California					
Maritime Academy:					
1974-1975	\$141,000	\$75,000	\$ 229,000	\$ -	\$ 445,000
1975-1976	176,000	75,000	400,000	100,000	751,000
1976-1977	174,000	75,000	372,000	-	621,000
Great Lakes					
Maritime Academy:					
1974-1975	55,000	75,000	90,000	-	220,000
1975-1976	53,000	75,000	14,000	-	142,000
1976-1977	57,000	75,000	20,000	-	152,000
Maine Maritime Academy:					
1974-1975	222,000	75,000	551,000	-	848,000
1975-1976	252,000	75,000	337,000	400,000	1,064,000
1976-1977	294,000	75,000	502,000	-	871,000
Massachusetts					
Maritime Academy:					
1974-1975	212,000	75,000	212,000	-	499,000
1975-1976	242,000	75,000	454,000	400,000	1,171,000
1976-1977	240,000	75,000	413,000	-	728,000
State University of New York					
Maritime Academy:					
1974-1975	297,000	75,000	253,000	-	625,000
1975-1976	321,000	75,000	424,000	400,000	1,220,000
1976-1977	375,000	75,000	412,000	-	862,000
Texas Maritime Academy:					
1974-1975	51,000	75,000	194,000	-	320,000
1975-1976	56,000	75,000	229,000	-	360,000
1976-1977	60,000	75,000	372,000	-	507,000

a/Cost to install pollution control systems aboard State academy training ships.

CALHOON SCHOOL'S HISTORY ANDGENERAL INFORMATION

The Calhoon School, founded in 1966, is located in a 14-story building in downtown Baltimore, Maryland. The building contains classrooms, laboratories, a cafeteria, a gymnasium, dormitories, administrative offices, and medical facilities. The school's purpose is training young persons to become licensed engineering officers in the seagoing merchant marine and providing advanced technical training to MEBA members. The school operates on a vocational school concept, offering 2 years of engineering and technical courses and 1 year of practical engine room experience on MEBA-contracted ships; the courses combine the practical and theoretical aspects of engineering.

School officials told us that students are trained exclusively for shipboard engineering careers. They believe a curriculum including broad liberal arts and managerial training, as is offered in the maritime academies, overeducate graduates for positions on ships and influences them to seek careers ashore. Unlike the maritime academies, the school does not impose military regimentation on its students; school officials explained that they were training workers for private industry and not sailors for the Navy. They believe that military discipline is not a part of civilian merchant marine shipboard life and therefore is unnecessary.

The school is geared to graduate about 90 engineers a year. School officials said the school's enrollment can be increased if necessary and would be if it was imperative.

The MEBA training fund, which pays for the school's operation, is maintained through shipping company contributions determined through collective bargaining agreements. The MEBA training fund was established in April 1967 under these same bargaining agreements. The fund was created to train persons for their original engineer's license and to upgrade the training of union members.

Each shipping company contributes \$1,000 a vessel a year to the fund plus an established hourly wage rate; the rates differ between types of ships. The companies are also required to pay into the training fund (1) the differential between cadet engineer and licensed third engineer wages and (2) fringe benefits for cadet engineers working in union-covered, licensed, third engineer's positions.

A number of shipping companies contributing to the training fund receives operational subsidies from the Government. The Maritime Administration estimates that about \$2.9 million flowed indirectly to the MEBA training fund in fiscal year 1975 through operational subsidies paid to MEBA-contracted shipping companies.

The public accounting firm which audits the MEBA training fund's financial statements estimated that it cost about \$1.9 million in 1975 to train cadets at the Calhoun School, and that the cost for each student was about \$5,800.

Before 1974 MARAD did not regard contributions to the MEBA training fund as a subsidized cost. A court ruling in the Farrell Lines versus the United States case requires MARAD to include training fund contributions as subsidized costs because it is a labor cost to the company; thus it falls within the meaning of the law which says that collective bargaining labor costs are covered by operational subsidy. MEBA officials said that (1) their agreement is with the shipping companies and not the Government, (2) the contributions come from the shipping companies and not the Government, and (3) MEBA would receive the contribution whether the companies received Government subsidies or not. Therefore, they concluded that MEBA does not receive Federal funding.

COAST GUARD LICENSING EXAMINATIONS

In 1973 the Coast Guard changed the format of its examinations for origin, third-mate and third-assistant engineer licenses. A Coast Guard official said the change from essay to multiple-choice questions was made to simplify administration of the tests and assure objectivity. When the new tests were first given in 1973, the percentage of State and Federal maritime academies' graduates who passed the test declined compared to previous years. A Coast Guard official attributed the decline to student's unfamiliarity with the examination format and how to prepare for it.

We reviewed Coast Guard examination results for applicants who took the third-assistant engineer and third-mate tests from January through June 1976 to ascertain if graduates of any particular schools performed considerably better than others. A Coast Guard official told us that the 1976 results were comparative to those before the testing format was changed. The results of our analysis follow.

RESULTS OF MERCHANT MARINE OFFICERLICENSING EXAMINATIONS (note a)

<u>Maritime Academy (note b)</u>	<u>Number of applicants</u>		<u>Percentage passing tests</u>
California	99		92
Massachusetts	111		91
Maine	87		99
New York	16		75
Great Lakes	5		80
Merchant Marine	<u>245</u>		96
Total	<u>563</u>	Average	94
Calhoon School	35		100

a/Results for January through June 1976 for deck and engineering officer licensing applicants.

b/Texas Maritime School is not included because there were no candidates during this period.

ENFORCEMENT OF LAW REQUIRING OFFICERS ON
SUBSIDIZED MERCHANT SHIPS TO BE
NAVAL RESERVISTS IF ELIGIBLE

Section 302(G) of the Merchant Marine Act of 1936 (title 46, U.S.C. 1132(G)) requires that deck and engine officers on vessels receiving an operating differential subsidy and on those operated by the Maritime Administration shall if eligible be members of the Naval Reserve. On June 30, 1975, 270 ships in the operating U.S. fleet were covered by operating differential subsidy contracts. In congressional testimony it was alleged that this law was not being enforced by the Coast Guard.

In the past this provision of the law has been enforced by Coast Guard shipping commissioners when officers signed on shipping articles to start their voyages. The key wording in the law is "if eligible." To work on the vessels, officers either presented evidence of a Navy Reserve commission or a letter of ineligibility from the Navy. A Navy official told us that most merchant marine officers receive a letter of ineligibility because they are either too old or do not meet the educational requirements.

Coast Guard officials indicated that shipping commissioners have not enforced this law since May 1976 because the Navy suspended the reservist program for nonacademy merchant marine officers, which had been initiated in 1973. Currently no program exists which would allow these officers to obtain a Reserve commission and be eligible to serve aboard vessels receiving operating differential subsidies.

Apparently the Coast Guard has been enforcing the law. The fact that few officers on subsidized ships are naval reservists is attributable to ineligibility rather than lack of enforcement.

COAST GUARD LICENSING RENEWAL AND UPGRADING

Under present Coast Guard regulations, an individual who becomes licensed as either a deck or engineering officer must renew his license every 5 years. At the end of 5 years, the license expires if it is not renewed, and the individual has an additional year of grace to renew the license. After a minimum of 1 year of shipboard experience, an officer is allowed to take the Coast Guard examination for the next highest licensing level.

We examined the Coast Guard licensing records for 1970 graduates of the maritime academies who were due to renew their licenses in 1975 to find out how the graduates compared in renewing their licenses. The following table shows the results of the analysis.

ANALYSIS OF COAST GUARD LICENSING RECORDS FOR
1970 MARITIME SCHOOL GRADUATES

<u>Maritime academy</u>	<u>Number of graduates issued original license</u>	<u>Percentage renewing</u>	<u>Percentage upgrading</u>	<u>Percentage allowing license to expire</u>
California	69	48	44	9
Maine	118	45	43	12
Massachusetts	45	38	40	22
State University of New York	149	44	22	33
Texas	27	26	59	15
U.S. Merchant Marine	176	36	31	30
Great Lakes	No graduates during this period			
Calhoon School	No comparable statistics (note a)			

a/The Calhoon School's graduates from January 1, 1970, to November 24, 1972, were all issued temporary third-assistant engineering licenses because at that time the school operated a 2-year training program. To make the temporary license permanent, the school graduates needed to sail at sea for a year and were permitted 5 years to obtain the sailing time, according to a Coast Guard official. Once they received a permanent license, they had 5 years to renew it. Thus, they did not have to renew it before 1976.

By analyzing Coast Guard licensing records, we found that 57 percent of the Calhoon School graduates licensed in 1970 converted their temporary license to a permanent license. Of those permanently licensed, 21 percent upgraded their license although they had to obtain another year of sea time in addition to the year required for converting their temporary licenses to permanent licenses.