



"Today, the men and women of the United States Merchant Marine and thousands of other workers in our Nation's maritime industry continue to make immeasurable contributions to our economic strength and our ongoing efforts to build a more peaceful world. We must ensure our maritime system can meet the challenges of the 21st century. As cargo volume is expected to double within the next 20 years, a viable maritime network will help our country compete in our global economy."

**President George Bush**  
May 21, 2002

"Protecting seaports and port facilities against the threat of terrorism is imperative. The terrorist attacks have resulted in a renewed focus on the security of our transportation systems and we at the Department of Transportation are aggressively meeting these challenges on several fronts."

**Norman Y. Mineta**  
Secretary of Transportation  
September 11, 2001

"This move reflects Maersk's commitment to the U.S. flag, and it's also a great credit to Capt. Bill Schubert for his and MARAD's efforts to promote and increase the U.S.-flag fleet and employment opportunities for U.S. mariners. It also augments the critical manpower pool of trained mariners who are so vital to U.S. sealift capability."

**Mike Sacco, President**  
Seafarers International Union  
August 2002  
*Commenting on the move of a Maersk tanker to the U.S.-flag.*

## MARAD Speeds Port Security Grant Program to Enhance National Security

On June 17<sup>th</sup>, when Secretary of Transportation Norman Mineta announced 77 port security grants totaling \$92.3 million, most of the attention went to the money and how it would be used.

But an important part of the story was how quickly, and how well, the grant application process was designed and executed. MARAD worked with the Transportation Security Administration and U.S. Coast Guard to design and develop the process and award the grants—all within six months.

Six months is warp speed for a grant application process. Grant applications must be fairly detailed, and they need to be examined carefully.

An application and evaluation process involving many U.S. ports would be a daunting task in the best of times, and the days after September 11<sup>th</sup> were not the best of times. The postal system was disrupted; processing hundreds of grant applications would have taken months or even years through the mail even if the system had been working normally.

It had to be done electronically. What made this grant program unique was the creation of a web-based system to execute it. MARAD managed the web site. Applications were submitted electronically; the entire evaluation process



Port security grants will fund enhanced facility and operational security measures to help safeguard U.S. assets against terrorist threats.

was conducted on the web. The evaluation process electronically linked all five MARAD region offices and 47 U.S. Coast Guard Captain-of-the-Port offices with MARAD, Coast Guard Headquarters, and TSA Headquarters staff. That linkage enabled all the entities to evaluate applications submitted for more than 850 projects, and to do it in a matter of weeks.

Even now that the grants have been awarded, the web-based system continues to play a key role. The system is designed to assist MARAD in monitoring the progress of each grant. A special module has been developed to track major milestones and receive progress reports and billing information. MARAD plans to use this unique system in other procurement actions.

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Message  
from the  
Administrator



Just over a year ago the United States was attacked by terrorists. The attack not only stunned our Nation, but brought the United States alongside other countries experiencing terrorism on their native soil.

Yet despite these cowardly acts, our Nation has stood as one and our maritime industry remains strong. We will not falter nor let the United States' most trusted asset -- the merchant marine -- fall by the wayside.

Our merchant marine must remain strong and resilient. In light of the band of terror organized against our country, we must have American ships with American crews standing the watch. We must have American ships serving under the U.S.-flag to meet our national security initiatives. And we must have personnel trained in shipboard security.

We must also safeguard our ports through new and creative security measures, with personnel trained in marine terminal and security procedures. And lastly, we must ensure cargo enroute to the United States is safe and secure before it reaches our ports.

We are working with new technological initiatives to keep our maritime personnel and assets safeguarded and secure. The Maritime Administration stands ready to ensure our maritime industry is prepared for this new environment.

Capt. William G. Schubert  
*Maritime Administrator*



As an agency of the [U.S. Department of Transportation](#), the [Maritime Administration](#) (MARAD) promotes the development and maintenance of an adequate, well-balanced United States merchant marine, sufficient to carry the Nation's domestic waterborne commerce and a substantial portion of its waterborne foreign commerce, and capable of serving as a naval and military auxiliary in time of war or national emergency.



"If you looked away from the event, and looked out into the harbor, all you could see was vessels streaming into the harbor, streaming into lower Manhattan."

*RADM Richard Bennis, USCG,  
Captain of the Port on  
September 11, 2001.*

## ***All Available Boats: Harbor Voices and Images 9.11.01***

With the roads and subways closed, there were two ways away from Lower Manhattan—on foot and by water. According to the Captain-of-the-Port, at least half a million people were evacuated by water on September 11<sup>th</sup>, without serious injury, and without panic. They were evacuated by ferryboats, tour boats, police boats, tugboats: a flotilla of all available boats. On the days following, most of the water used by firefighters was pumped by fireboats in the harbor, since the hydrant system broke down. Almost everything and everyone that got into Ground Zero that first week came in by water: rescue workers, construction workers, fuel for the fire trucks, food, beds, hospital facilities, and much more.

*All Available Boats: Harbor Voices and Images 9.11.01* features stunning photographs and first-person interviews on the response of the maritime community to the events of September 11<sup>th</sup>. It is on display in the South Street Seaport Museum at 209 Water Street in Manhattan, and will be up at least until the end of the year. Check out the museum's web site at [www.southstseaport.org](http://www.southstseaport.org).

The Maritime Administration also has available a VHS video on the response of merchant mariners and the rest of the maritime community. To request a copy, contact the Public Affairs Office at 202-366-5807, or [pao.marad@marad.dot.gov](mailto:pao.marad@marad.dot.gov).

## **MARAD & Port Security In Focus**

The Office of Ports and Domestic Shipping has long been involved in a variety of port security activities, both in the United States and abroad.

**In the U.S.** MARAD provides port security guidance to commercial ports, and coordinates the security government and commercial stakeholders. MARAD contributes to port security in a variety of other ways:

- Publishes regular Maritime Security Reports and "Port Security: A National Planning Guide."
- Sponsors the Marine Transportation System National Advisory Council, which provides advice to the Secretary of Transportation.
- Co-chairs the Presidential Commission on Crime and Security in U.S. Seaports; provides technical assistance to the Commission; drafts significant portions of its report and recommendations.

**Internationally** MARAD coordinates international work in a variety of ways:

- Continuously develops a multinational Inter-American Port Security Training Program, which has trained more than 300 port personnel in the Western Hemisphere.
- Chairs the Organization of American States Technical Advisory Group on Port Security.
- Works to advance the secretary's MTS initiative with Jamaica.

**Military** MARAD works to ensure the readiness of military ports with these activities:

- Chairs the National Port Readiness Network, playing a lead role with the military in assuring port security during mobilization.
- Issues Port Planning orders that provide the Department of Defense with assured access to specific port facilities during a national emergency or crisis.

## Web Update: *Latest News about the MARAD Internet Site*

### Customers Register On-line for the Short Sea Shipping Conference

MARAD announces on-line registration for the Marine Transportation System 2002 Short Sea Shipping Conference.

The U.S. Maritime Administration is offering on-line registration for its first annual Short Sea Shipping Conference, to be held in New York City, November 12-13, 2002.

The two-day conference is designed to explore the development of a robust domestic coastal shipping system that would seek to decrease freight congestion on our Nation's rail and highway system.

The Conference will investigate ways the underutilized capacity of our

Nation's coastal shipping system can be used to manage more effectively projected freight growth and provide a transportation alternative to already congested landside transportation systems.

Panelists and conferees will examine ways to encourage intermodal cargo to move by water. They will consider how barge and fast-vessel technology can bring new capacity to our intermodal transportation system and how these advances can mitigate air quality issues and spur economic growth.

Issues of public incentives, vessel construction and financing, and future customer requirements will also be explored. Key participation from operators of suc-



cessful shipping lines from both the United States and Europe is expected.

Registration for the conference will take place on-line through the Maritime Administration's web site: <http://www.marad.dot.gov/shortsea.html>.

### *MARAD Launches U.S.-Flag Service Web Site*

MARAD's Office of Cargo Preference has developed a web site that makes it easier for exporters and importers to locate U.S.-flag ships to carry cargo to designated points around the world.

Under the new system, the shipper simply selects from a drop-down menu the country of final destination of its cargo.

Once the country has been identified, a database appears of U.S.-flag carriers who serve that trade route, showing the carrier's name, frequency of calls and points of contact with web site information. Click on <http://www.marad.dot.gov/usflag/> to view which carrier is available to service your specific needs.

Using U.S.-flag vessels to ship cargo and goods not only strengthens America's economic security but also ensures availability of vessels and trained mariners for our defense security.

The Office of Cargo Preference is responsible for monitoring and ensuring adherence to the U.S. cargo preference laws and regulations. These laws are part of the overall statutory program to support the privately owned and operated U.S.-flag merchant marine.

In addition, the laws require that a certain percentage of Government-impelled cargo be carried on U.S.-flag vessels.

To learn more about the cargo preference laws, regulations, and programs, visit us on the web at <http://www.marad.dot.gov/offices/>



[cargo\\_pref.html](http://www.marad.dot.gov/cargo_pref.html); or via email at [cargo.marad@marad.dot.gov](mailto:cargo.marad@marad.dot.gov); or telephone us at (202) 366-4610 or 800-9US-FLAG.

## Keeping America Moving "Safe by Sea"

### *An Inside Look at MAR-800: The Office of Port, Intermodal, and Environmental Activities*

Organized in 1994 to promote innovative state-of-the-art port, intermodal and environmental planning and operations, MAR-800 focused on the task of bringing the maritime component of the nation's transportation system to the forefront of the Department's effort to establish a seamless, safe, environmentally sound, and reliable transportation system.

The maritime component of the Nation's vast infrastructure is broad-reaching, and faces complex challenges. In order to achieve parity and become fully integrated with the land-side system. The Marine Transportation System Initiative (MTS) is but one of the many elements of MAR-800's approach to addressing these challenges.

This year, MAR-800 was handed another challenge to support the Transportation Security Administration in the post 9/11 port security grants process. MAR-800 teamed with MAR-380 to successfully award \$92.3 million dollars to ports to assure the security and efficient movement of cargo through our seaports to thwart terrorist or other criminal activity.

There were two new breakthroughs in the environmental area this year as well. MAR-800 has successfully teamed with sister federal agencies to launch a ballast water technology demonstration program to move technology from the laboratory to the ship. The Maritime Energy and Emissions program, started last year, has gained further recognition among industry and government leaders. In addition, building on the success of MARAD's industry cooperatives — CHCP and SOCP — MAR-800 has launched an Inland Waterways Cooperative Program to focus efforts on improving our inland system.

**Office of Ports and Domestic Shipping Program.** The Office of Ports and Domestic Shipping conducts technical and program studies for the promotion, development and use of ports, port facilities, and domestic waterborne commerce. Among the key domestic shipping program areas are promotion of domestic shipping, ensuring Jones Act vessel participation and providing support for the MTS National Advisory Council. Related activities include port and cargo security, port readiness, conveying surplus federal property, conducting research and development efforts through the Center for the Commercial Deployment of Transportation Technologies (CCDoTT), and developing a port security grant program. In the International Arena, the Office provides assistance to foreign ports for improving harbor and terminal operations, port security, training and improving cargo security.

**Office of Intermodal Development Program.** The Office of Intermodal Development oversees several major programs. Commercial Cargo Handling and Management, Cooperative Programs for Cargo Handling and Inland Waterways, Commercial-Military Cooperation, Policy-Legislative-Regulatory Issues and Initiatives, Intermodal Planning and Infrastructure, Freight Mobility Infrastructure Requirements, Intermodal System Harmonization and Standards, International Assistance and Cooperation (Africa Initiative). Additionally, the Office works on Intermodal Transportation Analyses, Intermodal Transport Modeling and Analyses, Benefit-Cost Analyses, Major Corridor Transportation Systems (I-95 Corridor and I-5 Corridor Freight Systems), Marine-Rail Freight Port-Inland System Development and Freight Partnership Initiatives.

**Office of Environmental Activities Program.** In addition to its role in the MTS effort, the Office of Environmental Activities provides environmental support to the a number of MARAD programs, including Title XI, RRF, the NDRF and ship disposal. It also serves as liaison with the Department and other federal agencies on many national issues such as the National Environmental Policy Act (NEPA), Environmental Justice, Oceans Policy, Aquatic Nuisance Species, dredging, and global sustainable development and climate change. On the international front, the Office serves on the U.S. delegations to key marine environmental organizations, including the International Maritime Organization Marine Environment Protection Committee and the International Standards Organization, Marine Environmental Subcommittee.

## Update: Office of Port, Intermodal, and Environmental Activities

### Ferries and MARAD

MARAD is one of 18 federal agencies that are members of the federal Interagency Committee for the Marine Transportation System (ICMTS), which was established to coordinate the federal government's MTS activities. The ICMTS established a ferry subcommittee to address issues unique to the ferry industry. The ferry subcommittee is chaired by the Maritime Administration and draws its membership from several federal agencies, including the Coast Guard, Federal Highway Administration, U.S. Army Corps of Engineers, Bureau of Transportation Statistics, U.S. Customs, Federal Transit Administration.

The ferry subcommittee has successfully positioned itself as a central clearinghouse within the federal government for all U.S. ferry related issues. Under MARAD's leadership the ferry subcommittee hosted a national ferry conference in June 2000 in Seattle. The conference was attended by more than 200 industry and government stakeholders. As a result of that conference, MARAD has launched a web site, which provides the public with information on the many federal programs available to ferry operators. The web site address is [www.marad.dot.gov/ferry](http://www.marad.dot.gov/ferry). In addition, the subcommittee has begun fielding calls and requests from the public to assist in various ferry development projects.

### Short Sea Shipping

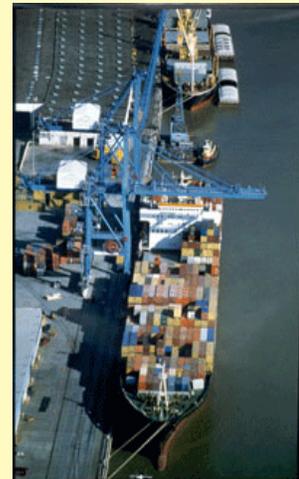
MARAD's Division of Domestic Shipping is working with various stakeholders, including an industry-based Coastwise Coalition, to develop a robust "Coastal Super Highway Shipping System". There is a need for an alternative to the present land-based transportation system, to relieve congestion and provide an environmentally friendly form of domestic transportation. The highways and rail lines along the U.S. east and west coasts have become congested to the point where shippers and travelers are actively seeking alternatives to I-95, I5 and the CSX and UP. MARAD is also working with the University of New Orleans' National Port and Waterways Institute, which is preparing a study on the feasibility of such a coastal shipping system, which could include a system of ships and service along the U.S. East, Gulf and West coasts. It is anticipated that the results from the research should be available in the Fall of 2002.

### Shipper Assistance

MARAD provides a direct shipper assistance program to the mutual benefit of the customers and carriers of the oceangoing coastwise trade. Specifically, MARAD maintains a listing of coastwise-qualified vessels, and provides advice to industry on how to best ship commodities in compliance with the Jones Act or coastal shipping laws. MARAD typically receives approximately 250 requests for assistance per year, resulting in millions of dollars of cargo for the U.S. fleet. For more information on how the shipping laws and coastal fleet benefit the U.S., please see our brochure at [http://www.marad.dot.gov/publications/PDF/domestic\\_shipping.htm](http://www.marad.dot.gov/publications/PDF/domestic_shipping.htm).

### Container-on-Barge Study

MARAD is working with industry stakeholders to promote greater use of our Nation's inland waterway system. To that end, MARAD is actively engaged in a research agreement with the Port of Pittsburgh, PA, for the promotion of inland trade.



Specifically, the purpose of the cooperative agreement is to explore the container-on-barge concept in order to promote waterway traffic between Pittsburgh, PA, and Monterrey, Mexico.

The basis for the concept is that barging alleviates congestion on our highways and railways and is an environmentally friendlier way to move containers. MARAD has provided \$50,000 in start-up funds towards the project.

## The Marine Transportation System

The Marine Transportation System (MTS) plays a major role in the movement of goods and people, domestically and internationally. It consists of waterways, ports, and intermodal landside connections, as well as vessels and vehicles for moving freight and people.

Ninety-five percent of our overseas trade moves in or out of the Nation on oceangoing vessels. A projected doubling of our domestic and international maritime trade by the year 2020 will require massive improvements in our MTS infrastructure, policies and practices. Increased highway and rail congestion will place additional stress on our marine system infrastructure.

Two groups have been formed, the MTS National Advisory Council (MTSNAC), a non-federal council created to advise the Secretary of Transportation and consisting of 30 providers, users and beneficiaries of the MTS; and one Federal committee, the Interagency Committee for the MTS (ICMTS), consisting of 18 federal agencies.

The Maritime Administration is the sponsor of the MTS



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National Advisory Council (MTSNAC). In December of 2000, the Council developed a "White Paper," entitled, *U.S. Economic Growth and the Marine Transportation System*, as an initial report to the Secretary of Transportation from the Council on the status of the MTS. The MTSNAC has met six times, most recently in Los Angeles/Long Beach. It is scheduled to meet in New York City in November 2002.

Secretary Mineta addressed the Council in Baltimore in October 2001, and challenged them to find water solutions to our national traffic congestion problems. He also discussed the idea of a SEA21 initiative,

which would do for water what TEA21 did for highways, and asked the Council to develop some guidelines on port and terminal security.

The Council devoted much of the agenda of the Baltimore, MD meeting to developing an outline for SEA21 and has forwarded a recently completed security report to the Secretary. It hopes to present its SEA21 recommendations to the Secretary in the first quarter of 2002.

# MARAD Begins Review of Critical Intermodal Access to US Ports

Over the last 10 years, the Nation's explosive economic growth has fueled a dramatic increase in demand for international freight transportation.

Today, two billion tons of international freight moves through our Nation's ports and waterways. This is made possible through efficient intermodal connections with surface and water transportation systems that have enabled the United States to be highly competitive in global trade.

As the volume of freight being transported over the Nation's transportation system has grown rapidly, at the same time, changes in the business sector have resulted in new demands for higher quality freight transportation service as a result of just-in-time manufacturing, e-commerce, and outsourcing.

Congestion and lack of capacity are constraining our intermodal freight system, leading to declining productivity of the Nation's transportation system.

This occurs at a time when global trade and competition are placing new demands on the system and the economy. MARAD is looking at the critical intermodal access to our international freight today,

and will be gauging its status annually.

Starting in 2001 MARAD initiated a strategy to examine the surface (highway and rail) access and water intermodal access to our Nation's global gateway ports. We surveyed, upon approval from the Office of Management and Budget, the corporate members of the American Association of Port Authorities, with a highly

**Congestion and lack of capacity are constraining our intermodal freight system, leading to declining productivity of the Nation's transportation system.**

successfully response rate of 70 percent.

Key focus of the analysis was on the percentage of ports responding that conditions regarding key attributes of the intermodal access system were currently below acceptable levels.

- Key system elements include roadways within the port, local roads, state and interstate

roads, rail line-haul moves, rail moves on rights-of-way shared with passenger operations, sufficient depth in federal channels, and sufficient depth in private channels and at berths

- Existing attributes include flow conditions, turning radii, turning lanes, drayage costs, height and weight characteristics, and channel depths.
- Emerging attributes focus primarily on electronic and service elements that are growing in importance. These include web-based information, radio transmission of local traffic conditions, "paperless" gates, the availability of "truck only" roadways and gate hours. *(continued next page)*

# Intermodal Access to US Ports

## Percentage of Ports Below Acceptable Flow Conditions

### Key System Elements

Roadways within the Port	7%
Local Roads	25%
State/Interstate Roads	20%
Rail Line-Haul Moves	20%
Rail Moves on Rights-Of-Way shared with Passenger Operations	23%
Sufficient depth in Federal channels	26%
Sufficient depth in Private channels and at Berths	22%

### Existing Key System Elements

Number of turning lanes on local roads	25%
Location of turning lanes on local roads	26%
Traffic flows at at-grade rail crossing within the port	28%
Traffic flows at at-grade rail crossing on local roads	37%
Turning on local roads	28%
Availability of near-dock rail terminals	22%
Cost/travel-time associated with draying cargo between port/rail heads	27%

### Emerging Key System Elements

Availability of truck-only routes within ports	36%
Availability of truck-only routes on local roads	72%
Availability of truck-only routes on local roads	52%
Radio transmission of conditions on roadways within the port	35%
Radio transmission of conditions on local roadways	34%
Availability of "paperless" Gates	48%

This table summarizes percentage of ports indicating below-acceptable flow conditions on key attributes on the intermodal transportation access system.

The results of the survey paint a picture of the current state of intermodal access at U.S. ports.

MARAD's analysis identified a significant number of ports with unacceptable conditions on key aspects of the intermodal access system.

These unacceptable conditions reflect local roads leading to the ports, at-grade crossings with railroads' tracks, general railroad access issues, lack of availability of truck-only routes, insufficient channel depth for container ports as well as growing importance of traffic information, and of web-based traffic information.

It is important to highlight that unacceptable conditions were more

often found at the larger ports and, in particular, at container ports.

These larger ports showed the greatest increase in cargo flows, and are generally located in key population centers in the United States where congestion on landside transportation systems is greater. Many of these ports anticipate even greater cargo flows in the future.

Containerized cargo tends to be higher value and more time sensitive, and the new generation of container vessels requires deeper channels.

Accordingly, there is more pressure on the intermodal access system at these ports. However, these are also the ports where the intermodal access system is of the greatest importance. These ports have the higher

volumes of cargo flows that require more efficient movement through the marine transportation system.

These results summarize the overall situation and pinpoint key areas where conditions warrant additional attention. MARAD's initiative with its 2001 findings provide a road map of potential action areas to improve the overall efficiency of cargo flows through U.S. ports and terminals.

MARAD's annual analysis, in subsequent years, will monitor the effectiveness of investments in terms of changes in intermodal access conditions.

# Cargo Handling Cooperative Program Addresses Container Security

In the United States intermodal container chassis are typically owned by one party (shipping company), managed by a second party (terminal operator) and utilized for cargo movement by a third party (dray operator).

This arrangement has created some confusion as to who is responsible for maintaining them and how to best utilize these intermodal assets.

The Cargo Handling Cooperative Program (CHCP), under the sponsorship of MARAD, has stepped in to rectify some of these issues.

The overall goals of the CHCP under this program are to make better use of existing assets, improve chassis safety, and ensure security by tracking the chassis and cargo throughout the transportation chain.

Based on these goals the program has been divided into several projects. The first project, Chassis Tag Location, was completed in November 2001.

Undertaken by a team that consisted of experts in maritime, electronics and radio frequency identification (RFID) fields the project reviewed existing RFID tag systems in use on intermodal chassis.

The project goal was to recommend a single location for tag placement. This effort was the first known scientific review of chassis RFID tags in a real time marine terminal environment.

After data gathering at a selected marine terminal, several tag locations were modeled based on data results. The model provided a chassis location that achieved maximum exposure to antenna signal. The project report provides a set of guidelines for use of tags in an intermodal terminal environment.

The second project during 2002, Chassis of the Future, will review existing sensors that can be used to alert chassis users of potential problems with brakes, lights and tire airing. The project will also recommend changes to chassis design that can accommodate sensor technology.

A demonstration of sensor technology applications will be key in determining which sensors will be used on future generations of chassis.

The third project, Global Location/Global Positioning, will review and recommend technologies that can be used to track and trace intermodal chassis and cargo anywhere in the U.S.

Today, there are a number of technologies that can be used to determine the location of a

chassis at particular points along the intermodal chain. But, no one technology is reliable 100 percent of the time.

The project will review and demonstrate a selected number of technologies that provide maximum coverage to locate a chassis anywhere. This effort will also provide a means to ensure a secure method of cargo transportation.

A fourth project, Smart Cards for Hazardous Materials Management, will be undertaken as funds and circumstances allow. This project seeks to integrate truck driver identification with hazardous materials manifest information.

During 2002, renewal of the CHCP agreement will be a key priority. Members will have an opportunity to review the current five-year agreement to determine any need to change its focus, membership categories or strategic plan.

This review will help establish CHCP program guidance for the next five-year cycle and carry the group to its 25<sup>th</sup> anniversary.

# Transportation Technology Center

## *Developing Solutions through Public-Private Partnerships*

The Center for the Commercial Deployment of Transportation Technologies (CCDoTT) is a chartered university center at California State University, Long Beach (CSULB), which functions as a partnership of academic institutions, government, and commercial entities.

The center was organized to pursue a broad range of defense and commercial technologies, to analyze transportation problems and environmental issues, and to develop technological, procedural, computer, or equipment solutions. CCDoTT's partners are well versed in transportation technologies, computer simulation and modeling, defense command and control, electronic commerce, economic and cost modeling, state-of-the-art training and educational solutions, and advanced manufacturing technologies.

The prime contractor is the CSULB Foundation. MARAD and USTRANSCOM have oversight responsibility for the CCDoTT program. MARAD serves as the contracting entity for the CCDoTT program and is responsible for authorizing project and financial activities.

Partners and subcontractors include August Design, Automated Terminal Systems with Purdue and Indiana University, Band Lavis and Associates Inc., The Boeing Corporation, Cargo Handling Cooperative Program, CSULB Center for International Trade and Transportation, Concurrent Technologies Corporation, Derecktor Shipyards, ITS America, John J. McMullen Associates, Inc., Kvaerner Masa Marine (US), Logistics Management Institute, Louisiana State University, Manalytics International Inc., Maritime Contract Services, Nigell Gee, Inc., Oak Ridge National Labs, Pacific Marine & Supply Co, Ltd., Science Applications International Corporation, Seaworthy Systems, Inc, Stanley Associates, University of Alabama, University of New Orleans, University of Southern California, and TranSystems Corporation.

CSULB is a large, urban comprehensive university that is extremely active in its industrial extension services and applied research. It operates ten research centers and institutes, and has 1,600 faculty members and professional staff, 4000 students in its seven departments of engineering, and extensive lab facilities.

### **CCDoTT Snapshot**

The program was implemented to enable the U.S. Department of Transportation through the Maritime Administration and the Department of Defense through the U.S. Transportation Command to:

- Leverage advanced technologies associated with emerging high-speed ship hull forms and ship systems, and their associated agile port and terminal technologies and systems in solving defense and commercial transportation infrastructure problems and increasing throughput;
- Conduct research and development for defense and commercial transportation infrastructure initiatives;
- Provide a technology transfer/dual use bridge between the DoD and commercial industry.

## MARAD Administrator Designates Two Schools National Maritime Enhancement Institutes

Maritime Administrator Capt. William G. Schubert designated two educational organizations as National Maritime Enhancement Institutes (NMEI) on Aug. 20. They are the Consortium for Navigation Support and Analysis (CNSA) at Marshall University in Huntington, WV, and the Global Maritime and Transportation School (GMATS) at the [United States Merchant Marine Academy](#) in Kings Point, NY.

The CNSA, under the direction of the Nick J. Rahall II, Appalachian Transportation Institute at Marshall University is composed of six academic, research and professional organizations. It addresses maritime policy and implementation issues critical to efficient functioning of the industry through workforce training programs tailored for inland navigation, navigation-related academic research, and programs focused on the needs of transportation executives. It specializes in cutting-edge analytical tools and has developed effective models for funded research and technology transfer projects.

The GMATS is a self-funded institution at the U.S. Merchant Marine Academy. The school's primary mission is to offer leading-edge maritime education and training programs that benefit professionals in government agencies, private-sector organizations and the military. Through education, training, and research activities, GMATS is dedicated to optimizing America's economic and strategic intermodal transportation system. The school seeks to encourage trade by providing mariners and international transportation and business professionals with the requisite skills needed to operate safe, efficient, and environmentally compliant intermodal transportation systems.

The NMEI program was created in 1990 to encourage non-profit institutions with focused research and education programs to contribute to advancement and innovation in the maritime industry. Designation of the new NMEI's marks a significant step in expanding the Maritime Administration's efforts to improve the maritime system for future generations through research and education.

"The expertise, capabilities, affiliations, and chosen areas of focus show accomplishment and most importantly, great potential to become truly outstanding assets to the maritime industry through future research and educational efforts," Schubert said of the CNSA and the GMATS.

Schubert challenged both designees to continue to expand their programs expertise in the pursuit of solutions to critical issues and advancements in technology and operational paradigms. "Our objective is to improve our maritime transportation system for tomorrow. Research and educational opportunities are particularly important to excite and inspire the youth of today to help advance marine transportation systems to achieve greater levels of efficiency, safety, security and environmental responsibility," he said.

## Service to the Community

Did you know that the Department of Transportation (DoT) has an official junior high school that they adopted during the 1980's to help tutor children?

MARAD's Richard Corley has been working with the director of the program for DOT, Jerome Davis, tutoring children every Thursday during the school year over the last five years in Algebra, Geometry, and American History at Hine JHS.

Hine JHS is located five blocks from the U.S. Capitol. Corley says that not only does his mentoring benefit the children, it also helps him to keep fresh with math and history. Corley quotes the old adage, "if you don't use it you will lose it."

Corley added that tutoring also helps him relate better with his 13 -year-old daughter and he recommends it to anyone who is looking to pitch in and help in a long time recognized DoT- sponsored program.

## Ready Reserve Force Focus: SS CORNHUSKER STATE

*"We want to go, too."*

*Chief Mate Debbie Hennen of MV CAPE WASHINGTON, on learning that the CORNHUSKER STATE had been activated.*

Last fall, the SS CORNHUSKER STATE loaded a full ship's worth of ammunition containers and other resupply equipment and sailed for the Indian Ocean. For the next six months, the civilian crew of the crane ship earned the Professional Ship Award, a special recognition for exceptional service in providing cargo operations and transportation of equipment from during Operation ENDURING FREEDOM. The award will be given in a ceremony scheduled for Norfolk in November.

The CORNHUSKER STATE is part of the Maritime Administration's Ready Reserve Force, a fleet of 76 militarily-useful ships maintained near potential load ports around the country. The ship was activated on October 31, 2001, transferred to the Military Sealift Command's operational control on November 5, and remained operational for a full six-month deployment, answering every requested mission. The union crew, comprised of members of the American Maritime Officers and the Seafarers International Union, stayed onboard without relief for the entire six-month period.

The Christmas holidays were spent in warmer waters off Kuwait discharging cargo before returning to the tropical waters of Diego Garcia for more New Year operations.

In early March 2002, CORNHUSKER STATE used her two twin-boom, pedestal-mounted, rotating hydraulic deck cranes to assist the MV MAERSK ALASKA, a non-self-sustaining containership to transfer 139 containers of ammunition from the MAERSK ALASKA to the CORNHUSKER STATE and then used her cranes to load 78 containers of retrograde ammunition from shore depots in Diego Garcia to MAERSK ALASKA. This transfer of containers fulfilled the mission of T-ACS ships, or auxiliary craneships, to offload military cargo offshore at underdeveloped or damaged ports.

SS CORNHUSKER STATE moved 595 20-foot container equivalents and 650 square feet of equipment during its 178 days in support of the war against terrorism. Upon departure from Diego Garcia, SS CORNHUSKER STATE sailed past two other Ready Reserve Force vessels, the SS CAPE JACOB, and the offshore petroleum discharge ship SS CHESAPEAKE, two more ships of the RRF that stand ready to serve around the world.

### History



CORNHUSKER STATE, T-ACS 6, was converted to an auxiliary craneship at Norfolk Shipbuilding and Drydock Co. and entered the RRF on April 12, 1988.

The T-ACS 4 class consists of GOPHER STATE (T-ACS 4), FLICKERTAIL STATE (T-ACS 5) and CORNHUSKER STATE (T-ACS 6).

Since its conversion, SS CORNHUSKER STATE has been extensively used by the military for training and deployments.

On August 20, 1990, CORNHUSKER STATE was activated for DESERT SHIELD/DESERT STORM. CORNHUSKER STATE supported the allied forces for 679 days.

Operating off Fort Eustis, Virginia, CORNHUSKER STATE supported the reserve cargo exercise RESOLUTE VENTURE for nine days demonstrating her capability to offload containers and other unit equipment to lighterage in-stream.

# MARAD Tackles Environmental Threats From Aquatic Invaders

A problem in the Nation's waters has been increasing in frequency and causing substantial damage to the Nation's environment and economy.

The problem is critters. Critters that don't belong in our waters but were brought here unintentionally in ships ballast water over the last century.

This unintentional introduction means that the plants, fish, crabs and other species that we have grown to love now have unwanted competition in the form of these new critters.

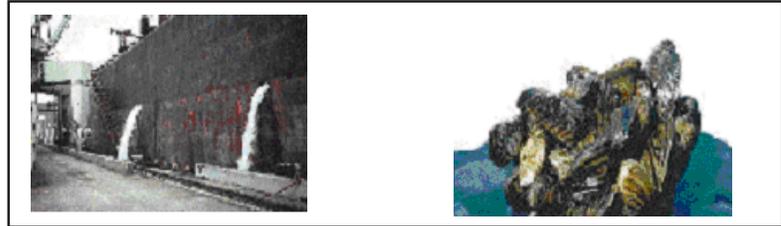
They are called non indigenous (non-native) species and although the most prominent of these introductions in the aquatic environment has been the zebra mussel, many other non-native species have been introduced and have truly become a nationwide problem that threatens many aquatic ecosystems.

MARAD is developing a Federal ballast water demonstration program that will advance the science and technology to treat ballast water and remove these threats to our environment.

The demonstration program is a multi-agency effort that began with a Request for Proposals (RFP) issued jointly by the [National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife Service](#) (Service) and MARAD on June 6, 2002.

The RFP is for demonstration projects to be funded under the NOAA Sea Grant Program and through the Fish and Wildlife Service, with MARAD Ready Reserve Fleet vessels available as a platform.

During the past two years,



Non-native species are often introduced through the discharge of ballast water into aquatic ecosystems threatening native U.S. plants and wildlife (left). The Zebra Mussel is one of these species that has become a nationwide problem (right).

there has been testing of new technology around the Nation such as the Great Lakes Demonstration Projects involving filtration and ultra violet technology and more recently, a project demonstrating the use of ultra violet light and hydrocyclonic separation was tested aboard the MARAD vessel CAPE MAY in Baltimore, MD.

While these projects are a good start, the possibility of there being a single solution that is acceptable for all modes of shipping and classes of vessels is un-

**MARAD is developing a Federal ballast water demonstration program that will advance the science and technology to treat ballast water and remove these threats to our environment.**

likely.

The demonstration program, due to congressional oversight is designed to primarily support ballast water projects that target ballast water management issues in the Chesapeake Bay and/or the Great Lakes.

However, technology investiga-

tors located outside those regions may participate if portions of the demonstrations are carried out in the targeted regions.

About \$2.1 million is available to support these activities in 2002. Another aspect of the program will support projects that address ballast water management issues anywhere in coastal waters of the United States. About \$300,000 is available to support these activities in 2002.

Program proposals are limited to one year of funding, but activities may extend for up to two years. The Federal funding requested for individual projects may include matching funds, but are not required. Proposals are limited to one year of funding, but activities may be extended for up to two years.

For more information look for on the Office of Environmental Activities (OEA) web site that will soon be updated and will include among other things a ballast water program section.

# MARAD Launches Maritime Energy and Air Emissions Program

MARAD's Maritime Energy and Air Emissions Program, which a year ago was in its infancy, saw significant advances this year.

The program, a cooperative effort between the Associate Administrator for Port, Intermodal, and Environmental Activities and the Associate Administrator for Shipbuilding, began in response to recent increased national and international attention to the contribution of marine sources to air pollution in major U.S. cities and regions.

Ports in California and Houston face significant challenges in addressing Clean Air Act non-attainment and regional air quality concerns. In Houston, the Port was facing the threat of restricted operating hours. In California, ships encounter restricted speed zones on approaches to the ports.

More recently, the Port of New York/New Jersey faces potential restrictions on dredging because of air emissions concerns. Vessels, ranging from ferries and tugs to oceangoing ships, are feeling the pressure. In some cases vessels are being rerouted, speed restrictions are being implemented, and cold ironing is being threatened.

The Environmental Protection Agency has issued rules that place new restrictions on many marine engines, including the large engines on oceangoing vessels. States are looking at all sources in order to achieve their Clean Air Act State Implementation Plans. As congestion and air quality problems to grow, so will the pressures on marine transportation.

Significant advances have been made in reducing air polluting emissions from automobiles, trucks, and stationary sources, but marine transportation lags far behind. Recognizing the need for rapid change and the opportunities for technology transfer, MARAD stepped in to assist the maritime industry in addressing the challenge.

The Program was jump-started in late FY 2001 through cooperative partnerships with our sister government agencies, private industry, and academia, and the funding of eight projects to demonstrate and deploy technologies and operating measures for marine power plants.

Looking toward next year, additional demonstration and research projects are planned to build upon this year's success. In addition, MARAD will be working with the American Association of Port Authorities (AAPA) to place additional emphasis on port land-side air emissions concerns.

## Projects:

**Comparative Testing of Natural Gas and Diesel Fueled Ferries** – Emission testing, performed by MARAD, with USCG support, was conducted on two sister ferries owned by the Hampton Roads Transit Authority in Norfolk, VA. One ferry was fitted with spark ignited natural gas engines and the other with two stroke cycle diesel engines. Emissions, including NO<sub>x</sub>, CO, CO<sub>2</sub>, HC, and particulate matter, were recorded over a series of operating conditions using a full suite of emissions testing equipment provided by West Virginia University with Department of Energy funding. For comparison purposes, the Environmental Protection Agency provided an independent portable monitoring system.

**Marine Fuel Cell Load Testing** – A significant challenge to the use of fuel cells for electrical and propulsive power on vessels is the design of the interface between the fuel cells and the rigorous load requirements of marine power plants. SurePower Corporation, of Danbury Connecticut, is working with MARAD to explore how a 400 kW fuel cell power plant can be designed to respond to simulated marine load conditions. The power plant is comprised of two 200 kW phosphoric acid fuel cells. Results will provide useful information for future fuel cell power plant integration on ships and barges.

## Marine Energy and Air Emissions Program

### *More Projects:*

**Storage and Distribution of Hydrogen on Vessels** – From an emissions standpoint, hydrogen is the cleanest known fuel. However, hydrogen storage and distribution present significant challenges. One solution may be sodium borohydride, a non-flammable, environmentally benign liquid that has the ability to carry hydrogen. The hydrogen is released when the liquid is passed over a catalyst at the point of consumption. MARAD is working with Seaworthy Systems and Millennium Cell through the Center for the Commercial Deployment of Transportation Technologies (CCDoTT) to examine the potential of this new fuel in the marine environment. The fuel will be evaluated for use in both fuel cells and in internal combustion engines. The first phase of the project was completed in the spring of 2002.

**Car, Bus, Ferry In Situ Emission Comparison Study** – Comparison of alternative modes of commuter transportation is a complex problem that is currently dependent on mathematical models of questionable accuracy when dealing with real world systems. The first phase of this study will be to develop a methodology for measuring car and bus emissions in actual transit conditions and for comparing these results with emissions measured on ferries. The second phase will entail obtaining real time measurements and comparing alternate commuter transit modes. MARAD is working through the CCDoTT program with Seaworthy Systems in San Francisco. The first phase was completed in the spring of 2002.

**Marine Energy and Air Emissions Workshop** — In January of this year, MARAD hosted its first Marine Energy and Air Emissions Workshop. The workshop, which was attended by over 120 participants, featured the new Maritime Administrator, Captain William Schubert, and the Secretary of the Department of Transportation, Norman Mineta. The first day of the workshop explored the issues driving the new focus on marine air pollution, potential approaches to addressing the challenges, and approaches being considered in the international arena. The second day highlighted potential technology applications and development efforts. Both days concluded with an open discussion among the participants on potential future directions for this cooperative government/industry effort.

### *The MARAD Update*

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