

JMS Relocates to State of the Art Facility

Letter from the President

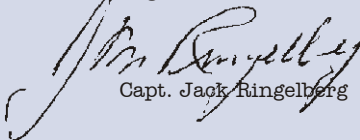


Dear Readers,

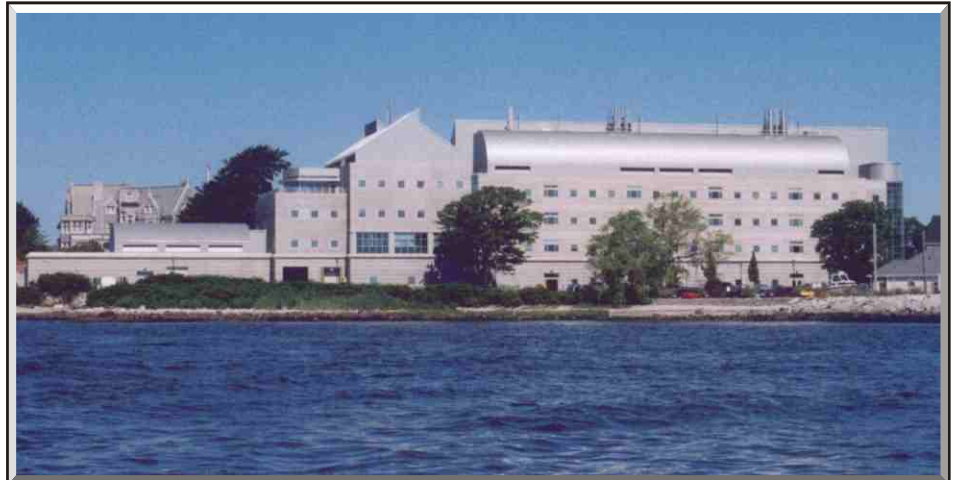
When I'm asked, "What's new with JMS?" it's hard to know where to begin. We have several new employees, new customers, new projects, and a new office. All are described in more detail here in our 2001 newsletter.

Our employees tell me they enjoy the diversity of work at JMS and there has certainly been plenty of that. During this past year JMS has worked on vessels ranging from a 36 foot crew boat named POPEYE to the Navy's latest guided missile destroyers. We have supported our clients in the fields of naval architecture and engineering, salvage, diving, vessel operations, and marine sciences. The common thread through all of our projects and the feedback we get from our customers is that we provide ship operators and builders with technical engineering solutions with a "hands-on" approach. We have provided a snapshot of many of these projects here. I hope you find them of interest and I look forward to hearing your comments on our newsletter or questions about how JMS can assist you. Contact me at jack@jmsnet.com or (860) 448-4850, ext. 12.

Regards,



Capt. Jack Ringelberg



The Marine Science and Technology Center is located on the oceanfront campus of the University of Connecticut's Avery Point Campus. Photo courtesy of Virge Kask.

JMS has relocated to the new, 137,000 sq ft Marine Sciences Building at the University of Connecticut's Avery Point campus. The new building is part of a \$55 million campus enhancement that is scheduled for completion this year, and includes state-of-the-art research labs, running seawater facilities, a greenhouse, classrooms, administrative offices, seminar rooms, multi-media facilities, as well as integration with Industrial Affiliates. JMS is excited to be associated with the university as an Industrial Affiliate, and looks forward to building meaningful and valuable relationships with UCONN's academic community.

The Industrial Affiliates Program is intended to build partnerships and take advantage of the synergies that exist between academia and industry. The goal is to bridge the gap between scientific research and development in an academic setting with the commercialization and/or industrial application of new products, procedures and ideas that are developed

in that setting. JMS is proud to be the first of two companies to participate in this visionary initiative. Our immediate contribution to the program includes bringing marine industry, government, and science & technology into one collaborative working environment.

Also located on UCONN's Avery Point Campus are NOAA's National Undersea Research Center, Coastal Environmental

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Laboratories, U. S. Sea Grant Office; and the U. S. Coast Guard's Research and Development Center, Marine Safety Laboratory, and International Ice Patrol. This high-tech university setting strengthens Southeastern Connecticut's position as a unique region in the United States that is widely recognized for its strengths in the maritime industry, military support, and research and development.

Please note that although our mailing address has changed to the Marine Science & Technology Center, our street address, phone and fax numbers remain the same.

New Employees at JMS

JMS has made several additions to our staff this past year. Each person brings a unique perspective and background to JMS, complementing our reputation as the "hands-on" naval architecture firm.

Brad Sokol joined JMS in July 2001 as a naval architect. Previously Brad worked in Seattle with Guido Perla & Associates managing the design of a SWATH Oceanographic Research Vessel for the U.S. Navy. Prior to that, he worked at Electric Boat in the naval architecture group and periodically provided engineering support in the shipyard. In addition to his general naval architecture duties, he is involved in project management and quality assurance for all JMS projects. Brad is a graduate of the University of Michigan and lives in Stonington with his wife Bridget. They are glad to be back on the East Coast, where if you're headed north, "the water is on the right - just where it should be".

John Manning joined JMS this past February. John received his bachelors degree in Ocean and Naval Architectural Engineering from Memorial University of Newfoundland in May 1999. During school, John held work term positions with Global Marine Drilling Company writing operation manuals and loading conditions for semi-submersible and jack-up drill rigs, Transocean Offshore, Inc working on semi-submersible drill rig design and with Andrew Palmer and

Associates performing subsea pipeline analysis for underwater pipelines in the North Sea. After graduation, John worked as a contractor for NAVSEA on the Strategic Sealift Program. John is currently Treasurer of the ASNE Southern New England Section and is an active member of SNAME. John enjoys spending time mountain biking, hiking, skiing and playing guitar.

Robert Tischer came onboard in December 2000 with over six years of experience in the marine design field. Previously, Bob worked as a designer at Bath Iron Works where he designed and constructed electrical equipment foundations for the



New JMS employees (from left to right) Jeremy Rice, Todd M. Sipala, John P. Manning, Robert Tischer and Brad Sokol.

U.S. Navy's DDG class destroyers. In addition to his formal training as a marine designer, he also possesses specialized training in "SUBSYSTEMS", Magnetic Particle Inspection and multiple CADD programs. Bob also held a multitude of trade positions over thirteen years with General Dynamics including grinder, electrician and structural designer/draftsman working on all modern classed submarines. Bob is currently involved in a number of projects using AUTOCAD, TrueSpace animation modeling software, and CargoMax modeling software.

Jeremy Rice was hired on as a Marine Engineer in June. Jeremy, a recent graduate of Marquette University earned a degree in Mechanical Engineering. In his final year at Marquette, he headed a students council which designed a new rudder for the Laser class sailboat. Prior to attending Marquette, Jeremy enjoyed a seven-year career in the Merchant Marine culminating in earning a 100-ton Mas-

ter/1600-ton Mate's license. During this period, he held a variety of positions aboard oil spill response vessels along the California coast and on towing vessels transporting cargo between Seattle and Alaska for Crowley Maritime. It is his familiarity with the demands placed on these vessels that provides "in the field" practicality to vessel design and construction work being done at JMS.

Todd Sipala started at JMS in April 2000 as an intern from University of Connecticut researching aquatic nuisance species and ballast water engineering technology. In December, he graduated with honors and a degree in Environmental Pollution and Policy. He was hired on in January 2001 for environmental and regulatory compliance management. Currently, he is working on an advanced degree in Occupational Safety and Health and certification as a Certified Safety Professional (CSP). Todd's prior work experience included 5 years with the U.S. Coast Guard where he conducted oil and hazardous material facility inspections and mitigated environmental damage from marine pollution incidents as the Federal On Scene Coordinator's Representative. Todd still remains active with the Coast Guard as a reserve officer working in the Ports of New York and New Jersey as a member of the COTP's marine response division.



JMS Provides Design and Shipyard Support Services

The year 2000-2001 has been a busy one for JMS. Since the fall of 2000, Southeastern New England Shipbuilding Corporation (SENECO) has delivered over ten new vessels designed by JMS with several others presently under construction. JMS, along with Bristol Harbor Marine Design (BHMD), have worked with the shipyard as the subcontracted engineering force to develop preliminary proposals and bid

packages, contract design, and detailed structural design, as well as stability review, design development for regulatory compliance, and construction support for a variety of vessel styles and sizes. The vessels are fabricated from computer numerically controlled (CNC) cut parts and generated from highly detailed drawings produced with the latest computer automated design (CAD) drafting software.

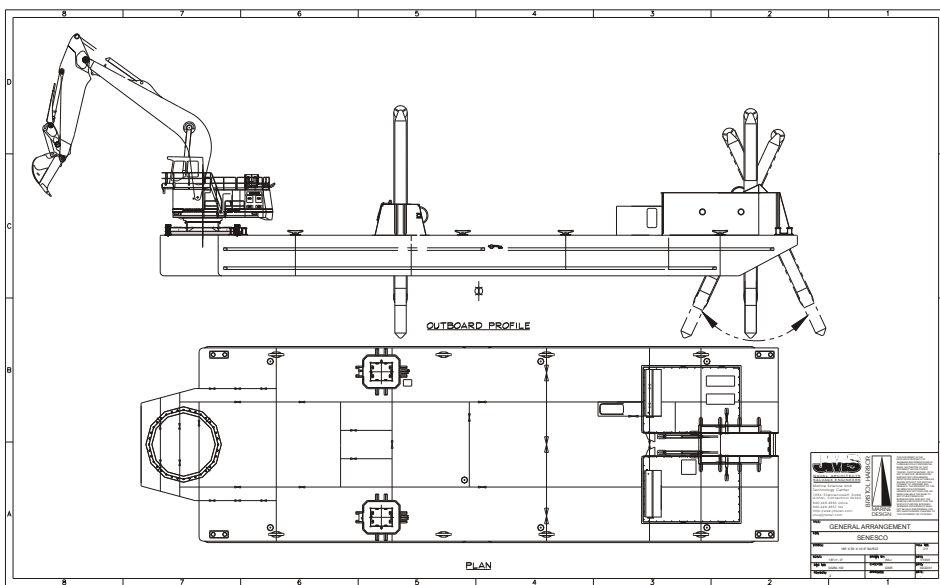
The primary style of vessel delivered in the past year has been the deck barge. The hulls have ranged in size from 75' x 40' x 8'

Millennium Chemicals
Chapman Construction

The CAPTAIN A.J. FOURNIER for Sterling Equipment is a complex vessel, designed to accommodate a Liebherr 994 ring mounted excavator, and is to be fitted with two self-hoisting spuds and one self-hoisting articulated spud. The 165'x 50'x 10.5' vessel is designed to be highly self-sufficient when on a dredging project, as it will be capable of maneuvering itself to accommodate the excavator's reach, without assistance from tugs or towboats. The structure of the vessel is substantially

the USCG witnessed inclinings in New York and develop the stability analyses based on the results.

The purpose of the analysis is to certify the vessels for USCG "Limited Coastwise" service. The stability analysis for the GELBERMAN will also be used to determine if stability is adequate to support an increase in its crane capacity. JMS is also to provide an admeasurement assessment of the HAYWARD for the purpose of reducing vessel tonnage below 300 Gross Tons. A report will be prepared identifying what modifications will be required for such a reduction.



165 foot walking spud dredge barge.

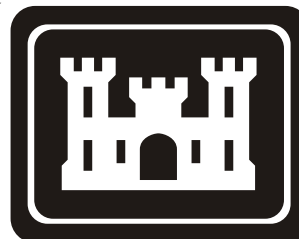
to 180' x 54' x 9', typically designed for an operational deck load of 2000 pounds per square foot, and fitted with an assortment of raked end, spud, and spud tower configurations designed to accommodate the various lifting and deck equipment necessary to suit each customer's particular needs. All have been designed in accordance with ABS requirements and most are certified with ABS Maltese cross classification and loadline assignments for ocean service. Customers have included:

- Reicon Group
- Specialty Diving Services
- Hughes Marine Firms
- John P. Picone
- Newport News Shipbuilding
- Sterling Equipment

reinforced to withstand the tremendous loading encountered while digging and maneuvering in rock and hardpan.

U.S. Army Corps of Engineers Inclinings and Admeasurement

JMS is preparing inclining test procedures for two US Army Corps of Engineers vessels, Drift Collectors HAYWARD and GELBERMAN. Models of the vessels will be created from data taken from ship's plans using HECSALV software. JMS will perform



The Professional Support Services Multiple Award Contract (NAVSEA PSS MAC) includes provisions for competitive, fixed price and cost plus fixed fee task orders to support NAVSEA and its directorates, program executive offices and field activities.

Under the scope of the contract, the CACI team will provide Program Management, Engineering, Financial Management, and Logistics Management support for all phases of ship and weapon systems technology development, design, specification, construction/production, test and evaluation, certification, operation, maintenance, improvement, modernization, overhaul and salvage.

NAVSEA Awards Professional Support Services Contracts Valued at \$14.5 Billion

JMS teamed with CACI, an international information technology (IT) products and services company, to become one of 21 teams awarded a \$14.5 billion contract to provide professional support services for the Naval Sea Systems Command (NAVSEA). The contract is for a five-year base period, with two five-year options.

JMS Provides Design Support to Blount-Barker Shipyard

JMS continues to provide Blount-Barker Shipyard with engineering support on a number of projects. In June 2001, JMS completed inclining experiments and stability analyses on two delivered vessels, the M/V INNISFREE and M/V FIRE ISLAND FLYER. Presently, JMS is providing engineering support in conjunction with Bristol Harbor Marine Design for the construction of an 85 foot tugboat. JMS is preparing structural calculations, weight estimates and stability analysis for the vessel.

The M/V INNISFREE was constructed for Chicago From The Lake, LTD. as a 240 passenger vessel for operation on the Great Lakes less than one mile from shore. The vessel has a length overall of 65' and a displacement of 63 LT. The M/V FIRE ISLAND FLYER was constructed for Fire Island Ferries, Inc. of Bay Shores, NY. The vessel is a passenger vessel rated to carry 400 persons, has an overall length of 85' and displacement of 42 LT.

The 85' tugboat is currently under construction for Buchanan Marine for operation in New Haven, CT. The vessel is being constructed to ABS structural standards and will be reviewed by ABS for stability compliance on behalf of the USCG. The tug is scheduled for delivery before the end of the year.

JMS Receives SBIR Funding

JMS, teaming with PEL Associates, received SBIR funding from the Office of Naval Research to design and develop a "SUBDAM" for the U.S. Navy. The objective is to provide flooding protection for submarines during brief stops for personnel (BSP's) while underway. Currently, water floods through the

forward escape hatch into the interior decks below during BSP's. JMS designed a rigid and durable cofferdam to seal off the forward escape hatch from intruding water.

Additional parameters surrounding the construction of the proposed cofferdam is that it must possess the ability to be stored in limited space and be able to be setup and operational in a few minutes. Phase one of the proposal began in December 2000. In February 2001, a scale model of the 688 Class forward escape hatch was built.

Working with the model, JMS's designers and engineers cooperated with material

along with Xantic Inc., the makers of the Kockumation loading program software. The new company, called Load Master International (LMI), is dedicated specifically to loading programs and has adopted CargoMax as its core business product. With the merger of the two companies and their softwares comes an installed user base of over 8000 class society approved loading programs worldwide.

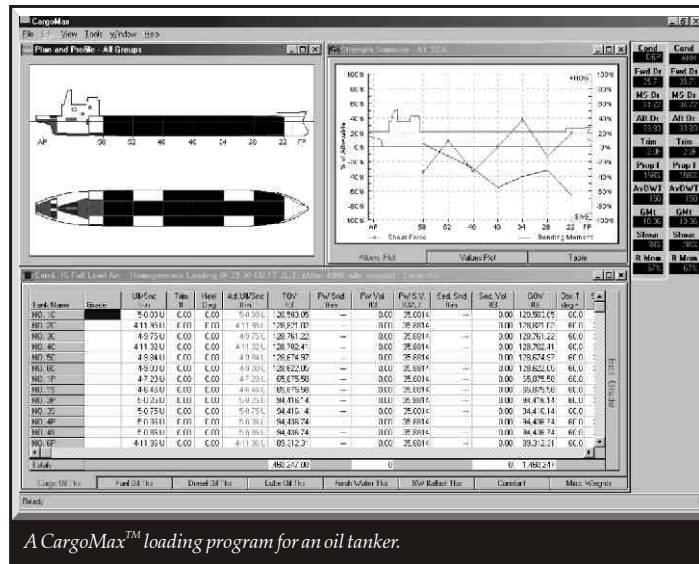
JMS has been an authorized agent and developer of CargoMax loading programs for HEC since 1994, and has developed over 200 CargoMax programs approved by ABS, DNV, BV, NK and Lloyds. JMS believes LMI will grow and strengthen an already solid and secure loading program product line and is currently developing CargoMax programs for the new organization.

CargoMax programs for a fleet of seven vessels for Services Et Transports of France is near completion. This very diverse fleet of oil tankers, LNG carriers and cruise ships marks the first CargoMax loading programs to receive Bureau Veritas (BV) approvals.

JMS has recently completed ABS approved CargoMax programs for a fleet of five grain bulkers for Liberty Maritime of

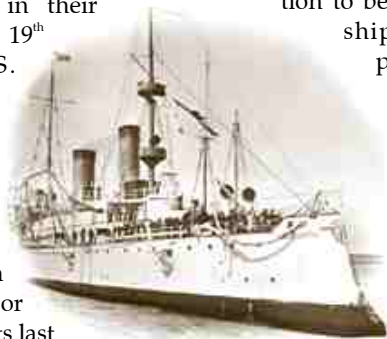
Lake Success, NY and another for Maritrans Operating Partners for their recent double hull converted tank barge, Maritrans 244. JMS provides 24/7 salvage engineering support for the Maritrans fleet of 16 tank barges using HECSALV computer models of the fleet.

HECSALV is a salvage engineering program that works seamlessly with CargoMax programs to provide rapid analysis of strength & stability during a salvage emergency. The same type of service is provided for Reinauer Transportation and their fleet of 26 tank barges with both HECSALV and CargoMax loading programs, including their recently built ITB, RTC 135.



USS Olympia Restoration

JMS recently completed Phase II of a multi-phase project to assist the Independence Seaport Museum (ISM) in their efforts to fully restore the 19th century cruiser, U.S.S. Olympia. Commissioned in 1895 this floating historic landmark is now docked at Penn's landing in Philadelphia. Olympia is the oldest steel warship afloat today and has seen little in the way of hull or structural attention since its last dry-docking in 1945.



USS OLYMPIA

The first phase of the restoration project involved building a 'historically accurate' HECSALV model of the Olympia. Working from dozens of rare ship blueprints, original engineering documents and information gathered from a thorough ship survey, JMS engineers developed a baseline engineering model in HECSALV. With this model JMS engineers were able to determine the strength and stability of the 'as built' vessel as compared to its current condition. Phase II of the project utilized the HECSALV salvage engineering model to examine various potential hazards to the vessel, such as flooding from fire fighting or hull breach, icing on deck, wind/heel loading, etc., that could jeopardize the vessel while at the pier or

during her eventual transit to shipyard. The upcoming phase III will involve an extensive ship survey and analysis to determine watertight bulkhead restoration to be done pier-side or at the shipyard. The remaining phases include development of damage control requirements for dewatering and firefighting equipment, a shore-based response management team, a damage control team, a shipboard salvage and firefighting organization and a detailed Marine Casualty Response Manual.

The exhibit side of the museum is also considering using JMS to design an interactive exhibit consisting of 3D animated displays to illustrate the design and operation of the Olympia and virtual reality simulators for museum goers to experience what it was like to operate the warship's guns.

Other Engineering Projects

JMS has been involved with a wide variety of customers and projects over the past year. Here is a snapshot of other projects recently completed or currently under-way:

Customer	Project
Weeks Marine	Dredge barge bilge piping / stability analysis
Reinauer Transportation	Tank barge directional stability analysis
Maritrans	CargoMax loading program - MARITRANS 244
Reinauer Transportation	Tank barge 30 year strength report
Xantic	CargoMax loading program - KIRAN PACIFIC
Reinauer Transportation	Tank barge damage analysis and repair plan
Xantic	CargoMax loading program - Liberty fleet
El Paso Marine	CargoMax loading program training
Reinauer Transportation	Tank barge strength & stability report, deadweight survey, repair plan
Reinauer Transportation	R/V TOGUE safety and seaworthiness inspection
Hughes Marine Firms	Deck barge spud well design
SSR, Inc.	61' Hatteras damage analysis, salvage engineering, and expert witness
Seaboats	Tug design plan submittal
U.S. Department of Justice	Damage stability analysis and expert witness
Boston Duck Tours	Flooding assessment and failure mode and effect analysis
MARAD / Maine Maritime	T/S STATE OF MAINE fire & safety plans & CargoMax loading program
U.S. Fish & Wildlife Service	R/V TOGUE safety and seaworthiness inspection
El Paso Marine	CargoMax loading program update - COASTAL HOUSTON
Hughes Marine Firms	Deck barge contract design drawings
Reinauer Transportation	Tank barge double hull conversion feasibility report
Puerto Rico Towing	Submarine collision damage survey

VESSEL OPERATIONS SUPPORT

Subchapter "T" Boat Inspections

JMS is converting two offshore supply vessels (OSVs), the M/V POPEYE and M/V BABY DOLL, into U.S. Coast Guard inspected passenger vessels. These two vessels, built in Louisiana during the oil boom of the late 70's present a unique challenge. JMS has discovered that vessels of this type, though heavily built for the demands of the oil field, retained little information of their construction. As the oil industry extended out into deeper water, these vessels were replaced by larger OSVs. These robust vessels are ideal for meeting today's stringent passenger vessel stability standards. Extensive research of each vessel's history turned up limited information. JMS had to document these vessels from scratch in order to meet the U.S. Coast Guard regulations necessary for acquiring a certificate of inspection. This required detailed plans of the vessel's structure, electrical and machinery systems and a comprehensive examination of each vessel's safety, navigation and pollution prevention equipment. In addition, JMS created a computerized hull model and performed stability tests in the presence of Coast Guard inspectors to determine total passenger loading and routes permitted.

JMS develops Dredge Safety Management Program for Weeks Marine

DSMP is a safety management system created by committee chaired jointly by the Dredging Contractors of America (DCA) and the U.S. Army Corps of Engineers. The developed program involves a series of voluntary safety, operational and environmental guidelines for dredge operators to observe. The program's goal is to exceed safety and environmental standards currently enforced by the U.S. Army Corps of



A Weeks Marine dredge involved in a beach restoration project.

Engineers, Occupational Safety and Health Administration, and the U.S. Coast Guard at all dredge sites by identifying known hazards and implementing corrective procedures. Consequently, future accidents are minimized and injury to workers eliminated. Dredge operators electing to participate in the program can do so in lieu of submitting the safety and accident prevention documentation that is required before any dredging operation can begin. JMS was contracted to integrate the DSMP guidelines into standing safety and environmental management practices within the Dredging Division of Weeks Marine Incorporated (WMI). WMI is one of the largest providers of dredging services in the U.S. and operates over twenty dredges in the Gulf of Mexico and on the Atlantic Coast providing a variety of services from channel dredging to beach restoration.

JMS Awarded NSF Contract for Ship Inspection Services

In July 2001 the National Science Foundation (NSF) competitively awarded JMS a contract to conduct scientific, seaworthiness and safety inspections aboard University-National Oceanographic Laboratory System (UNOLS) research vessels. UNOLS is a consortium of 57 academic institutions with significant marine science research programs that operate or utilize the U. S. Academic Research Fleet. In addition to scientific equipment and apparatus, the inspection encompasses hull, mechanical & electrical systems, safety equipment, training, operational procedures, and shared-use equipment. With a strong emphasis on continuous improvement, the inspection program ensures that the

ocean-going scientist can safely and efficiently conduct research at sea. This is the second contract awarded to JMS for research vessel inspection services for the UNOLS fleet.



A New Director At DIT

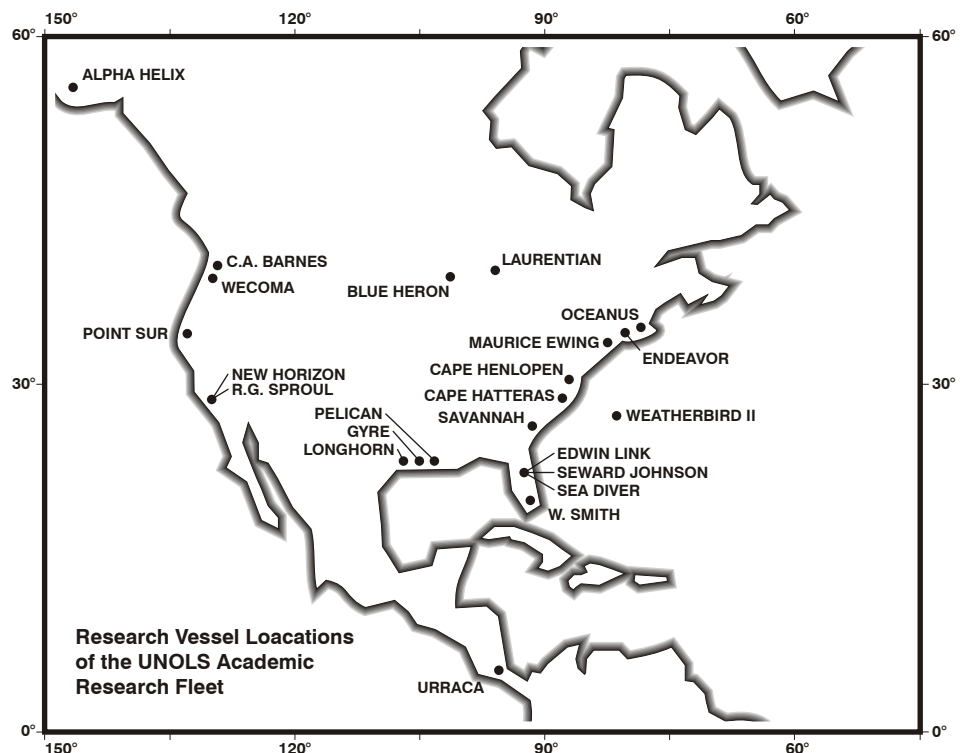
John Paul Johnston has assumed the position as Director at Divers Institute of Technology (DIT). DIT is a subsidiary of JMS providing a fully accredited program of commercial dive training. Mr. Johnston comes to DIT upon his retirement from the U.S. Navy where he served as an enlisted Saturation Diver and a Diving Officer. During his distinguished 30-year career, John Paul was a member of the Navy's deepest diving team reaching a depth of 1800 Feet at the Navy's Experimental Diving Unit in Panama City, Florida. He participated in several major diving and salvage projects and commanded one of

the Navy's largest diving and salvage ships, the USS EDENTON (ATS-1). While in command, the EDENTON conducted the first efforts toward salvaging pieces of the Civil War Ironclad USS Monitor. Additionally, he completed several assignments involving research, development, test and evaluation of new diving equipment and systems.

DIT Meets Canadian Standards

Divers Institute of Technology became the first school in the U.S. to meet stringent Canadian standards. Until recently, there was no diving school in the US with graduates recognized as qualified to apprentice for overseas diving jobs. With Canadian certification, DIT becomes the only U.S. dive school the distinction of meeting international diving standards, allowing DIT graduates to gain employment in international waters.

DIT recognized that international certification would be obtainable only by meeting a national training standard. After investigating the Canadian standard (CSA



Z 275 4-97) developed in 1997, DIT recognized it would add exceptional value to the institute's curriculum by adding realistic hands on training for DIT's senior class. Students receive during deep dives an additional 15 hours over the basic 50 hour requirement needed to meet the unrestricted surface supplied designation. Each student rotates among several stations including the opportunity to act as a dive supervisor of the entire dive protocol. DIT's master divers oversee safety and as the class's proficiency builds they add real life complexities to dives such as drills in omitted decompression, differential diagnosis of dive related decompression sickness, loss of primary gas, and so forth. Students are quizzed on symptoms, proper selection of treatment tables, and neurological exams. Divers benefit from a gradual series of dives from 65 feet to 135 feet to a final depth of 165 feet over a three-week period. Each diver experiences narcosis under controlled conditions and thus recognizes the benefit of shifting from air to mixed gas, helium and oxygen for dives over 150 feet. All students receive training in proper gas percentages, travel rates, shifting to oxygen in water decompression stops, surface interval procedures, and recompression chamber decompression. The Workman's Compensation Board (WCB) of British Columbia conducted the validation of DIT's curriculum, facilities, staff qualifications and dive protocols to meet the Canadian standard, during a two-day visit to the school. The on-site visit by the WCB included a day at sea observing students conducting dives at 165 feet in accordance with the standards.

Diving Support Service at Bath Iron Works

Since the inception of the Bath Iron Works (BIW) Dive Team in 1992 JMS has been contracted to provide on site dive supervision and project management in support of all diving operations. The majority of the dive team's work is

centered on performing underwater hull inspections during the construction cycle of newly built ships, currently the DDG-51 Class Arleigh Burke destroyer. These ships are 510 feet long, 66.5 feet in beam and displace 9100 tons fully loaded. Periodic underwater inspections are required on the sonar dome rubber window prior to manned entry, prairie masker emitter belts, sea suction, variable pitch propeller blades, shafts and associated turning gear, rudders and minor maintenance to hull appendages such as Doppler velocity sonar heads. Additionally the BIW dive team is tasked with the upkeep of docks and piers and was instrumental again this past year in underwater welding and patching of the old dry-dock at the Portland facility. Divers at BIW are all graduates of Divers Institute of Technology (DIT) which is owned and operated by JMS.



A DIT student surfaces after a deep dive. Photograph courtesy of Bill Neumann.

Bath Iron Works recently completed a \$240 million, 15 acre land level transfer facility with a 750 foot long dry dock as the centerpiece. This completes the company's transition from traditional building ways used in it's first hundred years of building ships for the U.S. Navy, to a world class facility able to build ships like the 630 foot LPD 17, which could not have been launched on the traditional stern-launch building ways.

The new land level transfer facility with it's associated dry dock and chain transfer system will ensure additional requirements for diver support services. Resumption of concrete refurbishment to

the North dock is also expected to start again following post shakedown availability on the DDG-79 USS Oscar Austin, which is currently alongside this dock.

VIDEOS AND PUBLICATIONS

US Navy Salvage Manuals

JMS is updating the US Navy Ship Salvage Manual Series for the Supervisor of Salvage. JMS was the primary author of this six volume technical manual series when it went through its last major overhaul in 1989 under the direction of the late Captain C.A. "Black Bart"

Bartholomew. This project will bring the series up to date in terms of current equipment and techniques used by salvage organizations as well as organizational structure and protocols. The series is being restructured combining certain volumes with others and improving the layout to be more efficient. The primary deliverable will be an interactive CD-ROM that will allow the entire series to be 'portable' or easily accessible when involved in remote salvage operations. The CD will also be hyperlinked for easy navigation through the

enormous amount of technical information included. The CD will also include more information beyond the content included in the printed deliverable such as past important salvage case studies, US Navy Instructions, additional engineering formulas and color photographs and illustrations.

Ehime Maru Technical Salvage Report

The US Navy is in the process of salvaging the EHIME MARU and recovering the remains and personal effects of the crew. The EHIME MARU is the Japanese fishing vessel that sank after being accidentally

struck by the submarine USS GREENVILLE (SSN 772) on 9 February 2001. The EHIME MARU is resting intact in 2000 feet of water off the coast of Honolulu, HI. The effort to raise a vessel of this size from this depth is unparalleled by any operation in the US Navy's history. JMS is under contract to document this unique salvage operation and develop the final salvage report, accompanying audio/visual presentation and 3D animated video. The operation is also unique with respect to the type of equipment to be used. Specialized offshore oil drilling/jetting machines will be used to force two large lifting straps under the hull of the EHIME MARU. These straps will lift the vessel to within 90 feet of the surface where it will be towed to a temporary shallow-water resting site and thoroughly searched by US Navy divers. The vessel will then be towed out to sea and scuttled. All set-up and connection work to be done at the 2000-foot deep wreck site will be performed by ROVs orchestrated by personnel working from surface craft.

ADCI Underwater Burning Video

The Association of Diving Contractors International (ADCI) received such positive feedback from their members about their last video produced by JMS entitled, *The Hazards of Diving in Differential Pressure Environments*, that they decided to

produce another video to spread awareness throughout the industry of the hazards of underwater burning. This new safety video is similar to the last in that it examines past accidents involving fatalities and suggests ways in which they may have been prevented. The 10-minute video again relies heavily on the use of computer animated reenactments of actual diving accidents investigated by the ADCI. The video was finished in June of this year and the ADCI will make the video available to members and non-members with the goal of improving overall safety throughout the industry.

OSHA Shipyard Safety Video

JMS is producing a shipyard safety video for the Occupational Safety and Health Administration (OSHA). Similar to the videos produced for the ADCI (see above article) this 15-minute video will rely exclusively on the use of computer animation. Eight actual shipyard accidents, investigated by OSHA, will be reconstructed and examined to clearly illustrate what went wrong and how the accidents may have been avoided. OSHA realized that producing the video using only computer animation has many advantages. The cost of producing live footage is less by eliminating the need of multiple actors, film crews, and in OSHA's specific situation, expensive shipyard equipment. Obviously, concerns for the safety of the

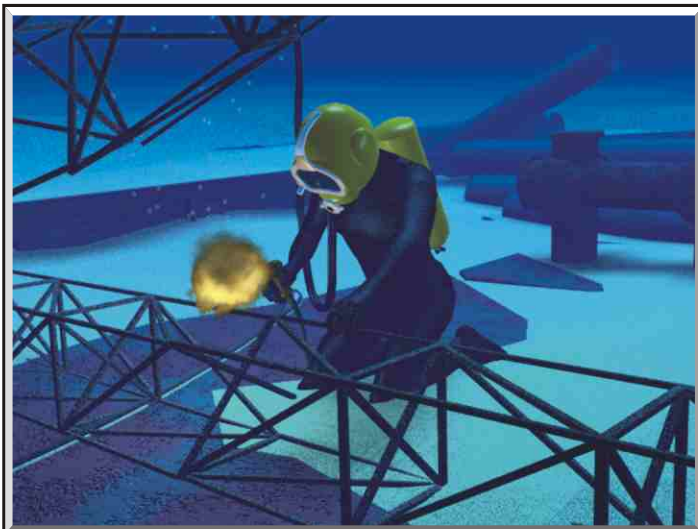
actors and film crew are also eliminated as dangerous events can be reenacted in a virtual world. Computer animation allows the viewer to observe perspectives that might otherwise be impossible to shoot with a traditional camera while virtual 'sets' can be built that might be too costly to shoot on location or to reconstruct in a studio.

MARINE SCIENCE NEWS

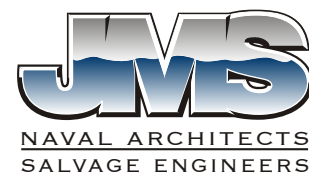
The Ocean Technology Foundation Continues to Grow with JMS Support

Several years ago JMS formed an alliance with a non-profit (501-(c) 3) foundation called the Ocean Technology Foundation (OTF). JMS provides marine engineering, technical expertise, and staff support to the foundation. The mission of the Ocean Technology Foundation "is to foster excellence in ocean exploration, marine research and education, and to promote commercial development with an emphasis on underwater activities." To that end OTF, JMS and other organizations continue to develop national and international programs.

OTF's long term vision is to develop deep-water technologies and state-of-the-art undersea systems to support ocean exploration and observatories, marine research, education, commerce, and government activities. The alliance places JMS in a visionary position within the maritime industry, allowing JMS to continue a leadership role in the new millennium.



A computer animated commercial diver performs a torch cutting operation in a simulated accident reenactment in the "Hazards of Underwater Burning".



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