Welcome

Dear Students, Alumni, and Friends,

We would like to take this opportunity to wish you a joyful holiday season and a happy and healthy new year.

Let us hear from you. We’d like to publish your news, comments, and ideas.

Address your E-mail to: nnudelman@Westlawn.edu

We reserve the right to determine if the content is appropriate and if space permits.

Norm
Norman Nudelman, Editor
nnudelman@westlawn.edu

Westlawn Students Awarded All Three Of NMRA's First Scholarships

National Marine Representative's Association Offers Financial Support To Marine Industry Students

Committed to fostering growth in the marine industry, the National Marine Representatives Association (NMRA) recently awarded its first ever academic scholarships. Westlawn Institute is very pleased that its students were selected to receive all three of these initial NMRA scholarships. We are grateful for NMRA’s decision to support the marine industry and to help students studying for careers in boating. All three Westlawn students selected have demonstrated a commitment to following in the footsteps of the many Westlawn alumni who gone on to become successful boat designers and leaders in the marine industry. Oren Niskin, Andrew Grossi, and Frederick Richardson, currently enrolled in Westlawn’s four-module professional Yacht & Boat Design Program, were each awarded $1,500 scholarships to be used to further their education.

Module 1 student Oren Niskin’s plans include starting a boatbuilding company with his two brothers. Brought up in a family that has always participated in sailing, he has been fascinated with boats since childhood. He enlisted in the U.S. Navy in 2002 as an electrician’s mate. While in the navy, he earned a bachelor’s degree in nuclear engineering technology from Thomas Edison State College. He is a member of the Coconut Grove Sailing Club in Miami Florida.

(Continued on Pg. 2)
The National Marine Representatives Association (NMRA) is a national organization dedicated to serving independent sales representatives and manufacturers who sell through them. Contact National Marine Representatives Association, PO Box 360, Gurnee, IL 60031. Tel: 847-662-3167; Fax: 847-336-7126: info@nmraonline.org, Web: www.nmraonline.org

**NMRA Scholarships Continued from Page 1**

Andrew Grossi is currently enrolled in Module 2 of Westlawn Institute of Technology's Yacht & Boat Design Course. Having spent his childhood along the shores of New York's Hudson River and the coasts of New Hampshire and Massachusetts, boating has always been an important and fun part of his life. At about age 9 his father converted a large wooden canoe to a sailboat, this being first of several sailboats on which Andrew developed his sailing skills. During summers between his college years he was crew on a 65-foot whale-watch boat on which he performed a major overhaul to both the systems as well as the finish.

Currently practicing as Architect in New York City, Andrew plans to obtain a Diploma in Yacht & Boat Design and gain employment with a top-notch Yacht Designer or Naval Architect, either at an independent firm or in the design and engineering department of a boat/yacht building company. After that, he hopes to either open his own boat design firm and boatyard, complete with build and repair/re-fit facilities, or work his way up to become the head of an already established business. He has a special interest in large sailing yachts, and hopes to include a research and development component that concentrates on sailing systems in his practice.

Module 2 student Frederick Richardson's career goals include designing and building safe, dependable craft for private, public and military use. He also hopes to one day open a design office in the northeast, specializing in sport-fishing vessels built to the highest standards with the best materials available. A veteran of the U.S. Navy, Richardson is a member of the American Boat and Yacht Council and the Royal Institution of Naval Architects in the UK.

**Know It All Contest Winner of the September 2008 Issue**

The Know It All questions and correct answers are important design tips for students as well as marine professionals. We suggest that you file them away for future reference.

The question from September issue was:

The owner of the 44-foot motoryacht, Bone Dry wants to ensure that her boat has adequate bilge pumping capacity installed. Her criteria is that the bilge pumps be capable of at least somewhat more capacity than needed to keep up with flooding from any one of Bone Dry's seacocks should it fail. The largest seacocks are 1-1/2-inch diameter, and the lowest of these is located 33 inches below the waterline.

Bone Dry is fitted with two 12-volt, electric, submersible bilge pumps, each rated by the manufacturer at 1,500 gallons per hour. The pumps both lift about 46 inches using smooth hose, with minimal bends to their overboard-discharge thru-hulls, and the wiring is properly installed of sufficient gauge.

Is this enough pumping capacity to keep up with the flooding if the largest and deepest seacock fails? Why?

Go to page 9 to see the answer and who the winner of this Know It All contest is. Also find this issue's new Know It All question.
Boat Mechanical Systems Handbook is the first book to provide an in depth coverage of the design, selection, installation and evaluation of mechanical systems on boats. It will be an invaluable guide for boat designers, builders, owners, buyers, mechanics, surveyors, and insurers. In it, Dave Gerr recommends design guidelines and components for drivetrains, engine fuel and exhaust systems, bilge pumps, steering, ventilation, anchor handling systems and more.

This guide is invaluable for anyone designing or installing mechanical systems on a new boat, retrofitting an existing boat, or evaluating a boat’s operating condition. Writing for designers, builders, owners, buyers, mechanics, surveyors, and insurers of sailboats, powerboats, and commercial vessels, the author provides design and installation guidance for each major mechanical system plus pragmatic guidelines and real-world interpretations of American Boat & Yacht Council (ABYC) and European standards. No marine professional or serious boater should be without Boat Mechanical Systems Handbook.

Biographical note

Coming soon to your favorite book seller:... Barnes & Nobles, Amazon.com, the ABYC Ships Store, and other fine book sellers.

Contents
PART ONE. DRIVETRAIN INSTALLATIONS
PART TWO. FUEL SYSTEMS
PART THREE. EXHAUST SYSTEMS
PART FOUR. RUDDERS AND STEERING SYSTEMS
PART FIVE. VENTILATION, AIR-CONDITIONING, AND HEATING
PART SIX. PLUMBING SYSTEMS WITH NOTES ON FIRE SUPPRESSION
PART SEVEN. ANCHORING SYSTEMS

ABYC & Westlawn Announce Joint Continuing Education Program

October 7, 2008, Annapolis, MD: The American Boat & Yacht Council (ABYC) and the Westlawn Institute of Marine Technology jointly announce that after completing a thorough review of mutually compatible curricula, the two organizations have bundled a number of courses together to create a series of recommended continuing education offerings. Information on these courses is now posted and available for review on the Westlawn and ABYC web sites at the following links.

- Detailed CE Course Information
- Downloadable Joint CE Course Catalog
- Westlawn CE Course Enrollment Forms
- ABYC Course Enrollment Information

Although the ABYC courses are offered in-class and the Westlawn courses are offered via distance learning, many courses support each other and provide students with a more comprehensive background on a particular subject. For example, Westlawn’s distance-learning course Metal Corrosion in Boats is a good prerequisite for the ABYC Marine Corrosion Certification. Or, if you want to advance your knowledge of Diesel Engines, it is recommended that you follow-up ABYC’s Diesel Engine & Support Systems Certification with Westlawn’s Advanced Fuel Systems for Boats.

Mike New, ABYC Education Director noted, “Westlawn has been ABYC’s educational affiliate for nearly six years now. It was time that we took a hard look at the courses being offered to see how they could be integrated to benefit the marine industry.” By collaborating, ABYC and Westlawn have enhanced our ability to service the educational needs of marine professionals.”

Dave Gerr, Director of Westlawn commented, “Both ABYC and Westlawn programs are designed to support careers in the marine industry. This was done in an effort to assist marine professionals who want to combine their technical interests with design interests and develop a full understanding of all the aspects of boatbuilding – from design through maintenance. We encourage everyone to review the course information, which can be found at the Westlawn web site www.westlawn.edu, or the ABYC web site www.abycinc.org.”

ABYC/ Westlawn certificates of completion and/ or Westlawn continuing-education units (CEUs) are granted upon successful completion of each course. CEUs and certificates are recorded in the student’s permanent record at both Westlawn and ABYC.
In May of 2005 Robert W. Buck graduated from Westlawn’s professional Yacht & Boat Design Program. The final thesis for this course consists of complete designs of a sailing yacht and a power boat. As part of his final project Bob designed a 52-foot yawl. The boat was built by Aquidneck Custom Composites of Bristol RI and was launched in August of 2007. The exquisite lines of this sensible rugged design speak volumes about Bob’s design ability and how Westlawn training can hone and focus raw talent into top-notch design skill. In fact, Bob’s Abigail was so handsome that Cruising World magazine featured the boat and the designer in its November 2008 issue.

Bob started sailing with his father at a young age and became interested in the kinetics of sailing. However despite this interest, he opted for a career in law. When he retired after practicing law for almost 20 years he enrolled in Westlawn in order to pursue his passion for boat design in earnest. He enjoyed his studies at Westlawn enormously and worked hard at it. As he approached the end of Module 4, he began thinking about the sailboat part of his final design thesis. It would be his dream boat. The result…..the beautiful Abigail.

Bob and his wife Pam usually sail out of Marion Massachusetts, located on the east end of Buzzards Bay. The bay is a windy and wavy body of water, so the yacht would have to be easy for two to handle under those conditions.

Bob felt that the yawl rig would be ideal for that purpose because the boat would balance well in a stiff breeze on any point of sail with only a jib and a jigger. In addition, the Jefa direct-drive steering system, and a well-balanced carbon fiber spade rudder, requires no more than a light hand on the on the wheel to keep the yacht on course.

Abigail is easily driven, even in light air by her 1,340 sq.ft. of Quantum “Fusion M” Technora (aramid) and carbon-fiber sails carried on a tall carbon fiber rig.

The hull is of cold molded construction using epoxy saturated western red cedar and mahogany with a Core-Cell core. The rest of the structure and deck is of GRP sandwich construction using Core-Cell as the core material to provide high stiffness, strength, and impact resistance. All parts, including the hull and deck, were vacuum-bagged.

In the interior, bulkheads are constructed of foam and fiberglass, and the sole has a balsa core between layers of glass with a quarter-inch layer of teak for the walking surface. The interior is spacious, light, and comfortable, with plenty of storage. It features a well equipped U-shaped galley, a head and cabin with double berth aft, a light and airy saloon well furnished with a settee that can be used as a berth, a large table that can seat six, and a pilot berth. The owner’s cabin has a large berth, head with separate shower, drawers, and a large hanging locker.

Click here to read the Cruising World story in full, including more photos of Abigail under sail and interior accommodations.

Sources: Cruising World, November 2008 and Robert W. Buck
Abigail

Photo Gallery (Continued from page 4)

© 2008, Billy Black, Photographer

© 2008, Billy Black, Photographer

© 2008, Billy Black, Photographer

© 2008, Billy Black, Photographer
As a class, trawlers are difficult to define. Some are fast, some go slow. Some are V-bottomed, others have rounded bottoms. Some are powered by a single engine, and others have twin engines. Some are deep keeled, while others have shoal draft. Some look like a traditional motoryacht, while others look like a workboat. Some are monohulls and some multihulls. PassageMaker magazine and the Westlawn Institute of Marine Technology will have to sort through many diverse approaches as their judges examine all the entries in the first competition to “find a new trawler design that is cruising capable, affordable, and economical to operate for a couple on a budget.”

The competition was officially announced in the September issue of PassageMaker magazine and was reported in the September issue of The Masthead.

For this competition, designers are asked to consider the needs of Bob and Jane, an imaginary couple described in the contest guidelines. Jane and Bob got serious about boating in college. Now in their mid-40s, they would love to cruise during their leisure time. In order to afford a boat for this purpose, they have set a budget that compromises on luxury and amenities to achieve a desirable level of affordability and will be economical to operate.

According to Bob and Jane, their new boat must be a trawler capable of extended cruising in coastal and inland waters, such as the Great Circle Route and the Inside Passage to Southeast Alaska, as well as tropical cruising in the Caribbean and Mexico. The boat must be seaworthy, but need not have ocean-crossing range and capabilities. Entries will also be judged on ergonomics, safety features, and ease of dinghy handling.

Putting an entry together will require serious effort, including specific scale drawings and renderings. This suggests that only professional designers, advanced boat design students or serious amateurs will have the background and skills to produce a viable entry.

The winning design will be featured in an article in PassageMaker magazine along with the honorable mentions designs. The winner will also receive their choice of either a $2,000 scholarship to Westlawn or a $1,000 cash prize.

All entries must be postmarked no later than May 15, 2009.

For more information:

Click Here to read the Soundings article

Click Here for the PassageMaker article, with competition rules as also reported in the September 08 issue of The Masthead
My aspiration to become a yacht designer began after my mother purchased copies of several boat magazines, including Yachting and Powerboat at a roadside garage sale outside of Lexington, Michigan, a place where my family and I spent many summers during my youth. I remember the impression that was made on me after viewing the photos and advertisements for several boats, including the Hatteras 53 M/Y, over and over again, page by page. Soon after, my father and I spent a lot of time walking around the docks that surrounded Lake St. Clair in the state of Michigan, admiring the abundance of old, wonderfully kept Chris Crafts that lined the lake front. It was at age 14, while vacationing with my family in south Florida, when I was brought face to face with the boats that I had admired so much in pages of my old magazines. I distinctly remember how excited I was at my first sighting of a beautiful Hatteras 60’ S/F convertible cruising North on the ICW. The boat design “bug” hit me and I remember spending the remainder of my vacation time split between studying boats as they cruised the ICW and in our hotel room where I would sketch them onto hotel letterhead.

The son of a residential architect, it wasn’t until after I graduated from high school that I learned about the yacht design program at Westlawn. The course curriculum appeared to be very comprehensive and while I entertained the possibility of studying naval architecture at the University of Michigan, it became clear to me that my focus was specifically geared towards small-craft design and the technical program offered by the Westlawn Institute of Marine Technology seemed to offer great advantages towards achieving my goal of becoming a practicing boat designer.

It was in 1986 after I had enrolled in Westlawn’s course and had relocated to South Florida when I came upon the small town of Stuart, Florida, where the firm of Tom Fexas Yacht Design happened to be located. I recalled the recent articles written in the various boating publications about the Midnight Lace 44 and the 48’ Cheoy Lee sportfishermen, and recognized that this would be the firm I would seek a position in. After a short, three-month stint of working in a small marina/boatyard, I finally had the opportunity to interview with Tom Fexas and secured a draftsman’s position in the company with a prerequisite that I continue and complete my Westlawn studies. During the course of my 13 years at TFYD, I completed my studies and eventually grew into a role as project engineer, participating in the design of a variety of boats ranging in sizes of from 30’ through 150’, including the first in a series of vessels that would be built by Grand Banks, in Singapore.

It became clear to me after this extraordinary experience that it would be important to supplement my design experience with working in a production environment in order to gain first-hand knowledge of yacht and boat design from a builder’s perspective. In the fall of 2000, I was offered an opportunity to work as senior yacht designer within the Intermarine Savannah company based in the city of Savannah, Georgia. Intermarine was responsible for building several large, luxury yachts ranging in sizes from 95’ to 145’. Several of the boats were being constructed simultaneously which demanded a high level of multitasking while acting as senior yacht designer. The experience at Intermarine provided me with exposure to VIP lamination and engineering in addition to the benefits of working alongside many talented craftsmen, engineers and designers who were
responsible for design and building the parts that made up these large yachts.

In the latter part of 2002, Intermarine was purchased by and integrated with Palmer Johnson (based out of Sturgeon Bay, WI), who also had a facility in neighboring Thunderbolt, Georgia, where two large yachts – one in FRP and the other in aluminum – were being constructed. My responsibilities as yacht designer for PJ included final outfitting of both vessels in addition to a hard-top retrofit of a 60’+ Fairline motor yacht.

Shortly before the close of PJ operations in Savannah, I secured a position as senior development engineer for Pursuit Boats, in Fort Pierce, Florida, where my wife and I were anxious to reunite with family and friends whom we had left behind a few years earlier. Pursuit, owned and operated by the S2 Yachts corporation, provided a significant opportunity to work within a mass production-oriented segment of the boatbuilding industry. Pursuit designs and builds fishing and cruising boats ranging in sizes between 23’ and 37’. The two and a half years I spent working within this organization provided the experience of working within a lean manufacturing facility, coordinating work through part vendors and leading a team of designers during the detailed development process of several boats including the C250 Center Console. While continuously sharing responsibility in both design and troubleshooting, Pursuit also made it possible for me and several colleagues to have the opportunity to learn about Six Sigma and how it enhanced the degree of repeatability in manufacturing. Through this training I eventually earned a Six Sigma green belt status that was quickly utilized during the design/build process of a 34’ SF/Cruising boat at Pursuit.

The experience of working for the S2 Yachts organization was truly beneficial and lead to an opportunity that enabled me to apply design/production-related skills in a large yacht production facility based in Singapore. It was in July of 2006 that I resumed work in the large yacht industry, hiring on as in-house yacht designer for Grand Banks Yachts. In addition to my experience and past relationship with the company, Grand Banks felt that my Westlawn credential was an important asset to have as a supplement to their existing design team. Collaborating with the team of designers based in both factories located in Malaysia and Singapore, the in-house design team successfully completed and launched the 41’ Europa in July, 2008, which has become the entry-level vessel in the Heritage Series. In addition to generating the conceptual design, my responsibilities included the hull design which was developed using 3D modeling software and perfected in the tank testing facility at the Davidson Laboratory, in Hoboken, New Jersey. Grand Banks has since continued its in-house product development process and will be introducing new, innovative models in the future.

For me, completing the yacht and boat design program at Westlawn provided the catalyst for developing my skills and knowledge as a designer and helped pave the way for opportunities that otherwise may have not become available. The program is without a doubt one of the most effective ways from which to nurture the desire to become a boat designer and, to those who have the drive and stamina to complete its rigorous curriculum, will provide the necessary skills and technical knowledge that will enable these individuals to succeed in a highly satisfying, competitive field.

Earl Alfaro

Click Here to learn more about Grand Banks yachts.
And the winner is . . . Chris O’Connor . . .

With the exception of a minor error in one of the calculations, Chris O’Connor submitted the only correct answer. He thus becomes our first two-time Know It All winner and so may be “two” smart for his own good. Congratulations Chris!

The Complete Answer Is:

We can check the minimum required pump capacity against the approximate flooding rate from the rather small hole in the hull below the waterline. A good approximate formula for flooding rate is:

\[
GPM = 5.67 \times d^2 \times \sqrt{H}
\]

Where:
- GPM = flooding rate, in gallons per minute
- d = approximate opening diameter, in.
- H = depth of opening below the waterline (head), in.

Our hole is a 1-1/2-in. diameter failed seacock 33 inches below the waterline. We’d find:

\[
5.67 \times (1.5\text{ in.})^2 \times \sqrt{33\text{ in.}} = 73.3 \text{ GPM}
\]

73.3 GPM x 60 min./hr. = 4,398 GPH

The two 1,500 GPH bilge pumps (combined 3,000 GPH) are not adequate.

It is even worse than this, however. If we had complete details on the bilge pump, pump location, and discharge piping run we could do a detailed calculation for real discharge rate. We don’t have this information but we do know that most manufacturers rate capacity in GPH or GPM, usually based on a lab test with no head (no lift, no piping friction) with the discharge right at the pump outlet, and not making allowances for current drop in the electric system or from drawn-down batteries. Accordingly, these shiny new pumps rated at, say, 1,500 GPH in the catalog will seldom deliver more than half that in a real-service installation. Indeed, 40 percent of rated capacity is about the norm. The real, in-service flow out the thru-hull outlet from each of these 1,500-GPH bilge pump will thus be about 600 GPH.

The owner’s criteria was to at least slightly more than keep up with the flow rate from the broken seacock. To ensure this, we have to advise the owner to replace the two 1,500-GPH pumps with three 3,700-GPH pumps—3,700 GPH x 3 = 11,100 GPH, and 11,100 GPH x 40% (real-world output) = 4,400 GPH.

Will You Be The December 2008 Know It All Winner?

Want to see how much you know? Want to show everyone else how much you know? The first three people to submit the correct answer to the following question will win a Westlawn tee shirt and cap, and will also receive a Know It All certificate. The answer and winners to be published in the next issue of The Masthead.

You have been asked to survey the 62-foot ketch, Sunbeam, with a 120-hp diesel engine driving a feathering propeller when under power. Sunbeam is fitted with 112.5 degree red and green running lights (side lights) port and starboard, and a 135-degree white stern light. An all-around white light is located on the masthead. The boat also has a pair of spreader lights on each of the masts and a powerful handheld 12-volt searchlight.

Does Sunbeam’s complement of lights meet the requirements for navigation lights for ocean voyages? If not, what light or lights are missing?

Design Tip From Naval Architect Dave Martin

In a draft of a book Westlawn graduate Dave Martin is working on, he relates many of his experiences and offers numerous design tips. With well over half a century in design, Dave’s insights are worth careful attention. One hint he passes along dates from his experience as a designer at Sparkman & Stephens where he started as a draftsman after completing two-thirds of the Westlawn course in 1954:

“My boss was Al Mason, a Webb graduate, and a great designer in his own right, and the best marine [manual] draftsman in the world. Next boss was Taylor Newell, an excellent designer. He drew the hull lines of a World War II aircraft carrier. He gave me the key to designing a good looking boat which was: With a light, soft pencil and a soft eraser, freehand the profile and arrangement plans on vellum lined up directly above and below each other. Then, keep modifying, being careful to keep things lined up in all views until both the profile and arrangement look good. Then, and only then, proceed with drafting the design neatly with ducks, splines, and curves.”

Today, the next step might be to go with splines and curves to a cleaner more carefully drawn preliminary, and then to the computer. Or you might well go directly to the computer from your finalized pencil sketch. Remember, always work to scale, including your sketches.
Essential Continuing Education
For Marine Surveyors, Boatbuilders, and Small-Craft Designers

Metal Corrosion in Boats (Course No: TT 500)

This very popular newly revised comprehensive Westlawn distance-study course provides a firm foundation in the causes of metal corrosion and teaches current practices in its prevention, reduction, and cure. It is also the recommended prerequisite to ABYC's NOCTI Certified Corrosion Certification course.

Topics include: galvanic corrosion, electrolytic corrosion, wastage, pitting, velocity effects, and cathodic protection. The cause and mitigation of corrosion of stainless steel, copper- and nickel-based alloy, aluminum, iron, and steel are studied. Special consideration is given to problem areas underwater, on deck and aloft, and in engine and fuel systems.

CLICK HERE for more details and enrollment information on this and other Westlawn essential continuing education courses.

CLICK HERE to learn about ABYC member and Corporate Multiple-Enrollment Discounts

Tuition Assistance

Westlawn's financial aid program offers students two options for financing their tuition for the four-module professional Yacht & Boat Design Program and for the shorter Elements of Technical Boat Design course (formerly called Yacht Design Lite).

With interest rates from 3% to 9%, students now have the flexibility to choose the payment plan that best meets their needs in these difficult economic times to help prepare for the future. Students moving on from Module 1 to advanced modules can continue to finance their tuition by rolling over any balance due as they progress in their study.

This tuition-financing program is available through TFC Credit Corporation, which has been financing student tuition for over 35 years. In that time, TFC has financed over 250,000 students at over 1,500 schools. With full-service operation centers in both New York and San Francisco, TFC Credit Corporation is a leader in education-financing. TFC's web address is www.tfccredit.com.

Download Westlawn's catalog and enrollment forms from the Westlawn website to read complete details of the tuition financing through TFC Credit. Click here for enrollment forms. Click here for the Westlawn catalog.

ABYC Courses and Schedule for 2009

The ABYC Education Department has been providing industry certifications, training, high school and college curriculum, and industry seminars for nearly twenty years. They are providing the marine industry with the skilled workers required to build and maintain modern small craft of all types.

ABYC is currently scheduling on-site factory training for 2009. Please call ABYC for custom tailored, flat rate, instruction by top industry trainers at your facility (410-990-4460, Ext. 31).

The Marine Technician Certification Program developed by ABYC with "NOCTI Certification* " has proven to be the industry standard. ABYC continues to provide the highest quality marine education and training throughout the country and throughout the year. For course dates and descriptions Click Here or see listing on Masthead Page 22.

*NOCTI (National Occupational Competency Testing Institute) is a regular provider of the assessments on which many certifying bodies depend for measures of applicants' standards-based knowledge and skills. Certificates benefit employers by showing that applicants have acquired specific skills. The status of having a certified staff can lead to higher sales and customer satisfaction.
ABYC Introduces the Marine League of Schools
Using Standards-based Curriculum to Improve Marine Education

On October 7, 2008 the American Boat & Yacht Council (ABYC) formally announced the establishment of the Marine League of Schools, a new educational initiative for the marine industry. This small group of 8 - 10 select schools, in the major geographical regions in the United States, are all affiliated with ABYC through a common standards and systems-based curriculum and commitment to quality technical marine workforce education and training.

The first schools to join the Marine League include: the International Yacht Restoration School (IYRS) in Rhode Island, Broward College in Florida, Rappahannock Community College in Virginia, and Skagit Valley College in Washington State.

Because ABYC is a leader in standards development and marine industry workforce certifications, ABYC will be acting as the sponsoring organization responsible for creating affiliation opportunities between ABYC and Marine League schools. ABYC will also provide the necessary leadership to assemble and organize the top marine technical schools in the country into a consortium, and to work with the schools to keep the curriculum current with market trends.

Each school will teach to the current systems-based National Marine Trades Curriculum-Post Secondary (NMTC-PS) that was co-developed by ABYC and the International Yacht Restoration School (IYRS). And as part of this curriculum, students at these schools will have the option to sit for the industry recognized ABYC Certifications before they graduate.

For more information, visit www.abycinc.org

Source: American Boat and Yacht Council, Annapolis MD

Vessel Hull Design Protection Act Amendments of 2008 Become Law
Intellectual property victory is result of six years of advocacy by NMMA

October 16, 2008 President George W. Bush signed the Vessel Hull Design Protection Act Amendments (VHDPA) of 2008 into law. The VHDPA Amendments, which correct a technical issue found in the original VHDPA of 1998, provide boat manufacturers with increased protection from intellectual property violations that occur through “hull splashing.”

“The VHDPA Amendments recognize the great amount of time and money that goes into developing state-of-the-art vessels,” said National Marine Manufacturers Association president Thom Dammrich. “This new and improved VHDPA is a huge step forward in protecting the intellectual property of boat manufacturers.”

NMMA has been working diligently through three sessions of Congress over six years to strengthen and clarify the Vessel Hull Design Protection Act of 1998, which was the first industrial design protection statute of its kind. Because of the way a hull was defined in the original legislation and subsequent court opinions, enforcement has been curtailed because of the difficulty in proving infringement. The VHDPA Amendments correct this technical issue, allowing boat manufacturers the full protection originally intended in the 1998 VHDPA.

For information on VHDPA, contact NMMA counsel Bryan Zumwalt at (202) 737-9764; bzumwalt@nmma.org.

Source: NMMA 10/16/08

New EPA Emission Standards for Gasoline Boats and Personal Watercraft

On September 4, 2008 the U.S. Environmental Protection Agency finalized a new emission control program to reduce hydrocarbon, nitrogen oxide, and carbon monoxide emissions from marine spark-ignition engines in the following categories: personal Watercraft, outboard motors, IO’s, inboard engines, and onboard generators. The new exhaust emissions standards that will take effect in the 2010 model year apply only to new boats. The final rule also includes new standards to reduce evaporative emissions from fuel systems by the use of low permeation fuel lines, and low permeation fuel tanks. In addition, boatbuilders will be required to install equipment that captures fuel from fuel vents and prevents fuel spit back during fueling. This is general information for consumers, boaters, and other users of outboard motors and personal watercraft that use gasoline engines, or spark-ignition (SI) engines. There are also links to the related regulations and technical documents. For additional information about our emission standards, click on this Fact Sheet link: Final Emission Standards for New Nonroad Spark-Ignition Engines, Equipment, and Vessels

Source: US Environmental Protection Agency: http://www.epa.gov/OMS/marinesi.htm

Boat U.S. Magazine, November 2008

Compliance Guide for Right Whale Ship Strike Reduction Rule (50 CFR 224.105)

All vessels greater than or equal to 65 ft (19.8 m) in overall length and subject to the jurisdiction of the United States and all vessels greater than or equal to 65 ft in overall length entering or departing a port or place subject to the jurisdiction of the United States must slow to speeds of 10 knots or less in Seasonal Management Areas. The purpose of this regulation is to reduce the deaths and serious injuries to these endangered whales that result from collisions with ships and yachts. Mandatory speed restrictions are

Continued on Next page
required in Seasonal Management Areas along the U.S. East Coast during times when right whales are likely to be present. When in these areas, keep a sharp look out.

Click Here to learn more and view the Management Area maps.


BOATU.S. Foundation Clean Water Grants Help Your Community. Over $300,000 Awarded Since 1997

ALEXANDRIA, Va., November 17, 2008 – Would you like to help make your home waters a little cleaner? The Boat U.S. Foundation for Boating Safety and Clean Water is offering grant funds up to $4,000 each for community non-profit groups to develop projects that address environmental problems on local waterways. Since 1997 the annual Boat U.S. Foundation Clean Water Grant program has awarded over $300,000 to improve the marine environment, funding 149 projects in 35 states. This year’s deadline to apply is February 2, 2009. “Groups have flexibility in deciding what needs to be addressed, whether it’s a pollution issue, preventing the spread of invasive species, or other environmental concern,” said Boat U.S. Foundation Director of Environmental Programs Susan Shingledecker. In the past, groups have received funding to create brochures that help educate boaters about the availability of pump-out stations, built and installed information kiosks on waterway ecology, added monofilament recycling bins for anglers, erected signage on clean-water practices, and hosted a river clean up contests. “The bottom line is that we will consider any project that strives to educate boaters about protecting the marine environment.”

To view previous grant projects or learn more about the grant program, please visit cleanwater/grants by clicking the link below. Applications may be submitted electronically or mailed. www.BoatUS.com/foundation/

Memoriam

Olin J. Stephens II, one of the most prominent naval architects of the 20th century, designer of more than 2,200 cruising and racing yachts, died Saturday, September 13, 2008 in Hanover, New Hampshire. He was 100 years old.

Mr. Stephens was born on April 13, 1908 in the Bronx, New York. His father was a coal merchant who moved the family to Scarsdale, New York in 1913, where Olin and his brother Rod went to school. It was while spending summers on the New England coast that Olin and Rod learned to sail.

Graduating in from Scarsdale High School in 1926, Olin enrolled in Massachusetts Institute of Technology’s naval architecture program but had to withdraw from the college within a year due to illness. But his interest in boatbuilding and yacht design remained strong and he began his career by taking a job at the Nevins boat yard, on City Island, in the Bronx, N.Y. Later he worked with the well known designers Henry J. Gielow, and then Philip Rhodes.

In 1928 a partnership was arranged with Drake Sparkman, a yacht broker, and on November 11, 1929, Sparkman & Stephens Inc. was formally created with five partners: Drake Sparkman, James Sparkman, James Murray, Olin Stephens, and Roderick Stephens.

Mr. Stephens' first success was with the design of the ocean racing yacht Dorade, a 52-foot yawl that prompted a ticker-tape parade in New York after finishing first in the 1931 Trans-Atlantic Race. He designed Ranger, one of the 135 ft. J-class sloops in collaboration with Starling Burgess for the 1937 America’s Cup series. Several other America’s Cup boats were designed by Sparkman & Stephens including Columbia (1958), Constellation (1964), Intrepid (1967), Courageous (1974), and Freedom (1980).

Olin Stephens retired from active design in the 1980’s. Although he continued to do some design work in recent years he was content to spend time gardening and painting at his homes in Vermont and New Hampshire.

Mr. Stephens was inducted into the America’s Cup Hall of Fame at the Herreshoff Marine Museum in Bristol, Rhode Island in 1993 and into the North American Boat Designers Hall of Fame in 2005 (to be housed at the Mystic Seaport Museum, in Mystic Connecticut).
Dear Norm,

Thank you for dedicating time and space to my little project.

This is a daysailer 18’ of easy rigged and trailered. One person can lift the mast in five minutes.

Inside Argentina there are many small lakes with good climate and wind for tourists and lovers of the sailing. The objective of this ship is to cover this market.

It is manufactured by Shipyard Campanili, in the city of Cordoba, Argentina.

Characteristics:

Day sailer 18’
Easy travels, easy sail
Great stability
Five people arrangement
Small draft
Construction PRFV
Unsinkable

Lifting Centerboard and Rudder

<table>
<thead>
<tr>
<th>LOA</th>
<th>5.5 m</th>
</tr>
</thead>
<tbody>
<tr>
<td>LWL</td>
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<tr>
<td>Beam</td>
<td>2.1 to 1.65 m</td>
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<tr>
<td>Displacement</td>
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<tr>
<td>Lead</td>
<td>33%</td>
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<tr>
<td>(Centerboard 80 Kg, Fix lead 80 Kg.)</td>
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<tr>
<td>Disp/Length</td>
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<tr>
<td>Prismatic Coefficient</td>
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<td>Fore Triangle</td>
<td>5.58 m²</td>
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<tr>
<td>Main Triangle</td>
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<tr>
<td>Stability range</td>
<td>115°</td>
</tr>
<tr>
<td>RM 1°</td>
<td>15 Kgm</td>
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<tr>
<td>GMT</td>
<td>1.5 m. (5’)</td>
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<tr>
<td>Máx GZ</td>
<td>0.364 m to 40°</td>
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<tr>
<td>Wetted Surf.</td>
<td>5.48 m²</td>
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<tr>
<td>Lever Arm</td>
<td>3.8 m</td>
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<tr>
<td>Lead</td>
<td>650 to 900 mm</td>
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<tr>
<td>(15% to 20% of LWL) according to CB position</td>
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I’ve been on boats that were so loud—from engine noise alone—I couldn’t hear any conversation at less than a shout, and that from no more than a few feet away. When sitting quietly at anchor, many approaching power craft announce their rumbling, buzzing presence from a mile off or more. Tests have conclusively proved that noise of this sort leads to fatigue, ear damage, and even elevated blood pressure. What’s more, when you’re aboard such a vessel you can’t hear the waves, the birds, the fish jumping, or any of the other fine things you’re supposedly on the water for in the first place. What I’d love to see (and to own) would be a “stealth” boat. I’d like to be able to whiz by at 30 knots—the only audible noise, water whooshing along the hull. Though a true “stealth” boat is theoretically possible, it would be a complex undertaking. There is no excuse, though, for not designing and building a boat with sufficient sound insulation so that noise in the cabin was at comfortable conversational levels or less—something around 75 decibels (dB) or lower. Whether designing, building, modifying, repowering, or refitting, you should be working on noise control as a fundamental consideration from the early stages.

Sealing the Leaks
So, how can you design your Rickety Racket to be a Stealthy Streak? The first thing is to make the engine compartment airtight (except, most important, for the engine air vents themselves). Study every inch of the engine box and/or the bulkheads and the sole over the engine compartment. Check for holes or gaps. Plan to close every single
hole tight. Specify neoprene ring grommets to seal around all hoses, pipes, and wires in bulkheads. Or, use fiberglass insulation jammed in holes and taped or clamped firmly in place. At all the engine hatches, install neoprene gaskets and clamp-action latches. These steps alone will yield a noticeable noise reduction.

**Padding the Box and Mass Damping/Decoupling**

The next step is to apply sound insulation to the inside of the engine box or to the inside of the engine compartment. Sound insulation comes in several flavors. There’s foam, and fiberglass, and there’s insulation with lead sheeting buried in it, or with similar heavy-mass sheets of other materials. The lead (or other heavy-mass sheet) isn’t to protect you from some obscure nuclear mishap but to damp out the vibrating energy in noise. Engine noise causes the foam or fiberglass to vibrate. Even though the foam deadens the sound, it does vibrate a bit itself, which in turn transmits some noise, particularly at low frequencies. If, however, the sound has to vibrate the mass of a dense sheet, much more energy is used up than with foam or fiberglass alone—less noise is left to transmit. Engineers—in their usual manner—have coined a phrase to describe all this: “mass damping.”

The mass damping sheet (lead or heavy vinyl) also decouples the vibration/noise in the inside of the engine compartment from the outside and reflects back noise as well. Thus, a sheet of fiberglass or foam insulation facing into the engine compartment absorbs some noise. A mass damping sheet outside of this absorbs low frequency vibration and reflects back sound. A final layer of fiberglass or foam insulation, outside the mass damping sheet, is now decoupled from the vibrations inside the compartment. In other words, the mass-damping sheet and inside insulation “float” on the outside insulation layer. This is the most effective combination for cutting noise.

Most average boats under 45 feet, or so, use 3 inches of insulation. A good combination is 2 inches of fiberglass or foam inside, a mass damping sheet, and an outside layer of 1-inch insula-
tion. Premanufactured sheets like this are available for easy one-piece installation. Increase to 4 inches total if you can, but a bare 2 inches will be well worthwhile if that's all you have room for.

**Mass Damping Sheets and Other Mass Damping**

In the old days, the only common material for mass damping was sheet lead. It was usually specified as 1 pound per square foot or 2 pound per square foot, or 1/32-in. thick lead sheet (which is about 1.85 pounds per square foot).

Lead is still one of the best materials in terms of mass damping, and it doesn’t burn, but it is expensive and has environmental drawbacks. Over the last few decades, vinyl mass damping sheets in 1 to 2 pound per square foot density have become widely available and are very effective. These vinyl mass damping sheets are somewhat thicker than comparable lead (though this is a very slight difference). The vinyl can burn however; though, it is not highly flammable like some insulation foams. One pound mass-damping sheet is common but 1.8 to 2 pound per square foot is noticeably more effective. The drawback . . . extra weight, obviously. Big boats, over 50 feet, should use the 1.8 to 2 pound sheet whenever possible.

Mass damping can also be used directly on critical structures. A useful method of reducing engine vibration transmitted to the hull, for instance, is to bolt lead weights to the engine beds themselves (beds of any construction—wood, fiberglass, or metal) to help absorb vibration. Weights equal to about 10% to 12% of the combined weight of the engine and the transmission are about right.

The drawback is obvious—the added weight itself. This isn’t too much of an issue—if allowed for in initial design—on displacement boats but it is generally excessive weight for most planing hulls.

Although foam insulation is acceptable for pleasure craft and can provide slightly better sound deadening, I prefer fiberglass insulation on boats. Foam burns, fiberglass doesn’t. Indeed, fiberglass

**Defining The Decibel?**

The term “decibel” (dB) is a unit for measuring the loudness of a sound or the strength of a signal (say an electric signal). For our purposes here, we’re only interested in sound. The “bel” in decibel is in honor of Alexander Graham Bell, the inventor of the telephone (among other things). Decibels (dB) are actually a ratio, specifically the logarithm of the ratio of two sound levels. One Bel (a term not commonly used) is when the output noise is ten times greater than the input noise on a transmitting device. A decibel is a tenth of a Bel. This is where the “deci” in “decibel” comes from.

You can see from the table that a quiet room a night is about 20 to 30 dB, while a noisy engineroom is about 100 to 120 dB. One dB is about the threshold of hearing. Since decibels are a ratio there has to be a standard or reference sound level or pressure (pressure wave) and it is commonly 0.0002 microbars of pressure. (A bar is one atmosphere or 14.7 psi.) This is the threshold of hearing—a barely perceptible sound for a young person with perfect hearing in an otherwise exceptionally quiet environment.

Sound (noise) is a difficult thing to quantify accurately because it is something you perceive. Simply measuring the precise energy in the sound pressure waves doesn’t translate exactly into the amount of “loudness” or “softness” you distinguish in a sound. People respond to or hear sounds differently at high frequency, mid-range frequency, and low frequency. Accordingly, sound is usually measured with decibel meters based on a standard scale called the “A scale.” This scale accounts not only the energy in the pressure waves but the sound’s frequencies to give decibel readings that relate more closely to how you perceive sound. Levels from such meters are properly in dBA—the A being for the A scale.

Note that decibels (dB) are logarithmic units (log to the base 10) and so the decibel scale (from zero to 200) covers an incredible range of power. Twenty dB represents 100 times the power as 0 dB (0.0002 microbars of pressure), while 40 dB is 10,000 times the power of 0 dB, and so on. In terms of perceived loudness, experiment has found that an increase of 10 dB is about equal to what most people would say is doubling the loudness.
sound insulation can actually help delay the spread of a fire, giving you a bit more time to put it out.

**Big-Boat Engine Compartment Insulation**

On vessels over 50 feet, or so, you can and should consider thicker and more sophisticated insulation than above. The drawings show insulation for the underside of an engine compartment, with a cabin above, on a larger boat. Note that there is 3 inches of foam or fiberglass insulation directly under the cabin sole. Beneath that, is the 2 pound (or 1/32-in. thick lead) mass damping sheet (lead or vinyl). Then, note the air gap. This is even more complete decoupling than with the interior insulation glued directly to the mass-damping sheet. Below this gap is a layer of 3/8-in. plywood which supports the interior insulation layer 2 inches thick.

It’s important to incorporate the soft neoprene spacers at the fasteners between the inside insulation structure and the outer insulation structure. See also that the underside of the fasteners are further isolated with elastomeric (soft) ring grommets. It is critical that vibration from the interior insulation structure not be directly transmitted to the exterior insulation layer. The maximizes the decoupling and so the sound reduction.

The same construction described here can be used on the fore-n-aft bulkheads of the engine compartment for really optimal quieting effect.

**Db Plywood**

In all wood panels around the engine compartment, I usually specify dB-ply panels from Greenwood Products (www.greenwoodproducts.com). This is plywood with a mass damping sheet embedded in it. Though not required, it is amazingly effective a deadening the transmission of sound, and makes the boat that much quieter. Though the drawings here just call for plywood (which is acceptable), I’d use dB-ply.

**Cabin-Space Sound Insulation**

As good as any engine-compartment insulation may be, some sound will radiate out into the cabin spaces. If the cabin is all hard surfaces, this sound will echo and reverberate. To make things quieter still, use carpet with sound-deadening carpet underlay on the cabin sole, and a sound dead-
ening headliner on the overhead. The combina-
tion dramatically reduces noise in any cabin
space.

The Ideal Decibels
So what target in quiet (low noise) should you
strive for in decibels (dB)? There isn’t a precise
answer, but you can refer to the Decibel
(dB) Levels table for guidance. For most
boats, you should strive to achieve cabin
noise, at cruising speed, under 80 dB. A
really fine yacht, with optimum sound
control throughout should achieve
around 65 to 70 dB at normal cruise and
around 65 at low cruise. In the real
world, it’s hard to get much lower than
this, but great attention to detail could
bring cabin noise down to close to 55
dB. This would be perceived as nearly
silent running and is no mean feat.

At anchor, generator noise is much more
noticeable. (There isn’t the surrounding
or masking noise of wind and motion
through the water.) Anything over 65 dB
from the gen set is really too high. You
should be able to get down to 45 to 50
dB in the cabin, a bit lower on a large
boat with excellent sound control.

Clean Insulation
Install insulation that comes with a my-
lar, vinyl or similar smooth easy-clean
surface on its exposed face. Insulation
without this facing gets grime and oil
soaked quickly. An even better alter-
native is surfacing the exposed side of the
insulation with perforated aluminum
sheet. This makes a relatively abrasion
resistant surface that is easy to wipe
clean. Avoid using aluminum wire mesh screen or
fence material. This is almost impossible to clean
and actually catches dirt.

Fastening Insulation
Adhesive sheets or glue are available to attach
the insulation to the overhead, bulkheads, or the
hull sides. In general, I recommend against this.
It’s better to be able to remove the insulation
quickly and cleanly for maintenance and repairs.
The insulation can be fastened with long screws
and “ceiling” rosettes or with pin fasteners—see
illustrations next page. These not only allow rapid
removal of the insulation, but are quicker and
neater than gluing the sheets in place.

Padding the Walls (and Floors)
Many boats take all the steps described so far,
and no more than this—combined with a proper
muffler—will dramatically reduce noise to com-
fortable levels. Still, your Rickety Racket won’t be
a true Stealthy Streak. What more can you do?
First, line the inside of hull, in the engine compart-
ment, with 1-inch to 2-inch sound insulation with
1- or 2-pound mass damping sheet. This prevents engine noise from transmitting through the hull sides into surrounding air and water and up to your ears. It also prevents engine noise from bouncing back and forth inside the hull.

Second, line the lower portion of the bilge with vinyl sound absorbing tiles or sheets. It’s important not to run the standard fiberglass or foam sound insulation too far down into the bilge. Water, oils, and grease, will quickly make this a foul, dirty mess. At these low locations, you must use a smooth-surface plastic sheet material that won’t absorb water or oil and that’s easy to clean.

The area over the propeller will further benefit from the addition of glued-on mass damping tiles. These dramatically cut both transmitted vibration and direct propeller noise.

**Sound-Box Song Silence**  
An ultimate stealth trick is to add a sound box around Rickety Racket’s engine. This is precisely like the sound boxes that come as optional equipment on many diesel generators. Usually, you won’t have room to add a sound box on Rickety Racket unless it was designed to have one in the first place. Remember, ALL the sound box panels must remove QUICKLY AND EASILY, AT AN INSTANT’S NOTICE. If you have the space, however, you can make the box of aluminum angles bolted together to form the corners, with, say, 1/4-inch plywood sheets fastened to the angles with quick-release latches.

The inside of the panels, facing the engine, should be covered with 1-to 2-inch mass-damped/fiberglass insulation.

To ensure proper ventilation to the engine, the bottom 2 inches of the box should be open the full length of both sides. Further, the upper sides of each side panel, just below the upper corners, should have vents with baffles in front of them. A sound box will cut noise in the engine compartment by almost half, so all the other insulation (around the engine compartment proper) has less work to do, or can be more effective. Remember that fuel, water, and exhaust lines have to penetrate the sound box. The whole arrangement takes careful thought and consultation with the manufacturer.

Though not common on main engines, sound boxes or enclosures are common (virtually standard) on generators and I always specify them.

**Quiet! Air Entering**  
Clearly the openings we can’t seal at all are the engine-air intake and exhaust vents. These absolutely must have a bare minimum clear cross-section area equal to total engine horsepower divided by 3.3. If your Rickety Racket had twin 220-hp engines plus, say, a 5-kw generator (figure 1.5 x 5 kw = 7.5, say, 8 hp) it would require 136 square inches of clear unobstructed duct opening (220 hp x 2 = 440 hp + 8 hp = 448 hp / 3.3 = 136 sq.in.). If sound baffles are built into the air vents, this number should be increased by at least 40 percent to 190 square inches.

Keeping this in mind, you can reduce engine

**Ceiling Rose Fastening**  
Courtesy Vetus Den Ouden
noise still further by lining the inside of the air ducts with 1/2- to 1-inch thick insulation covered with a mylar protective easy-clean facing. Where possible, the outside of the ducts (inside the boat) should be covered with 1- to 2-inch mass-damped insulation. Further, ideally, there should be a baffle before the vent exit that forces the air to travel around a 180 degree bend or to make U-turn. Both sides of the baffle should have the duct insulation on it. Remember though, that every part of the air intake, even every place around the baffle, has to have at least the minimum clear cross-section area. If, for example, Rickety Racket, had four engine vents, they should total 190 sq. in. so each should have 47.5 square inches clear area—in this case about 8-in. by 6-in.

All the air duct openings should be overboard, to direct noise away from the boat, but be very certain that water can’t find its way back in through these vents.

Muffling the Muffler
Have we done all we can do to stamp out noise? Has Rickety Racket earned its name change to Stealthy Streak? No, not yet. First, we have to look at the exhaust. Rickety Racket has to have a proper muffler. Keep in mind, that the larger the muffler the more effective it is; use the largest size you can fit. Next, you can warp the muffler and the exhaust line with 1-inch fiberglass insulation. Wrapping the exhaust line with insulation is seldom done, but it doesn’t cost much and reduces noise still more.

Submarine Exhaust
Even better, you can install underwater exhaust. This, however, is a big project. There are a few production boats on the market fitted with underwater exhaust. They’re difficult to design properly; but, if they do work, not only do they shoot exhaust noise down into the water where you can’t hear it, but they generate a mild supercharging effect from suction at cruising speeds. An underwater exhaust that worked well is the one I helped design for the Cape Dory 40 (a pretty durn quiet boat). This system avoids the great pitfalls of underwater exhausts: too much back pressure at idle, and sucking exhaust gases into the propeller intake stream. Underwater exhaust installation is covered in detail in my new book, Boat Mechanical Systems Handbook.

Flexi-Mounts
There’s still one very important source of noise to address—engine vibration. It’s not possible to really separate noise and vibration. But noise as vibration can be transmitted to the hull through the engine mounts as well as through the propeller shaft. To eliminate this, the engine should be mounted on flexible engine mounts, with a flexible propeller-shaft coupling. It’s VITAL that the engine mounts and the shaft coupling be properly matched. If the mounts allow more movement than the coupling can accept, the coupling can fail—big trouble!

Vibrationless Drive?
The ultimate in engine isolation is the Aquadrive system readily available worldwide. Another similar system is PYI’s Python Drive. The Aquadrive (or the Python Drive) comes with a true double CV-joint and with a built-in thrust bearing, and is equipped with matching very high-flexibility soft engine mounts. The system virtually eliminates engine vibration transmitted to the hull, and—at the same time—it greatly eases shaft-alignment problems. The Aquadrive takes up more room than a standard coupling and is more expensive. Usually, it has to be designed in from scratch; however, if you have a
moderately long shaft run inside the hull, you can usually retrofit it.

Now, if you’ve somehow managed to design and build your Rickety Racket with all these noise reduction methods, you’ll have a boat so quiet it will truly qualify as a stealth machine. Get the paperwork out and have the name officially changed to Stealthy Streak!

**Sources For Noise Control Products**

- Soundown Corp. - www.soundown.com
- Vetus den Ouden - www.vetus.com
- Glacier Bay, Inc. - www.glacierbay.com
- Halyard (Marine & Industrial) Limited - www.halyard.eu.com
- Technicon Industries, Inc. - www.tcnind.com
- Aquadrive - www.aquadrive.net
- PYI, Inc. - www.pyiinc.com
- Greenwood Forrest Products - www.greenwoodproducts.com

_Harris 33 Trimaran_
by Westlawn Grad Robert Harris
### Training Links - For ABYC In-Class Courses

To register for an ABYC Education Program, click on the event name you would like to attend.

<table>
<thead>
<tr>
<th>DATE</th>
<th>EVENT NAME (CLICK FOR DETAILS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec 16, 08 - Dec 18, 08</td>
<td>SC400 ABYC Standards Certification Course - Annapolis MD</td>
</tr>
<tr>
<td>Jan 13, 09 - Jan 15, 09</td>
<td>BEL200 - Basic Marine Electrical - Annapolis, MD</td>
</tr>
<tr>
<td>Jan 20, 09 - Jan 23, 09</td>
<td>ELC400 - Electrical Certification Course - Mystic, CT</td>
</tr>
<tr>
<td>Jan 27, 09 - Jan 29, 09</td>
<td>BEL200 - Basic Marine Electrical - Seattle, WA</td>
</tr>
<tr>
<td>Jan 27, 09 - Jan 30, 09</td>
<td>MS400 - Marine Systems Certification, - Tampa, FL</td>
</tr>
<tr>
<td>Feb 03, 09 - Feb 04, 09</td>
<td>ACR400 - A/C and Refrigeration Certification, - Cleveland, OH</td>
</tr>
<tr>
<td>Feb 03, 09 - Feb 06, 09</td>
<td>MS400 - Marine Systems Certification, - Seattle, WA</td>
</tr>
<tr>
<td>Feb 05, 09</td>
<td>EPA100 – EPA Coolant Certification Class, - Cleveland, OH</td>
</tr>
<tr>
<td>Feb 10, 09 - Feb 13, 09</td>
<td>MS400 - Marine Systems Certification, - Charleston SC</td>
</tr>
<tr>
<td>Feb 17, 09 - Feb 19, 09</td>
<td>SC400 Standards Certification, - Portland, OR</td>
</tr>
<tr>
<td>Feb 23, 09 - Feb 26, 09</td>
<td>ELC400 - Electrical Certification Course, - San Diego CA</td>
</tr>
<tr>
<td>Feb 23, 09 - Feb 25, 09</td>
<td>SC400 Standards Certification Course, - Miami/ Ft. Lauderdale FL</td>
</tr>
<tr>
<td>Mar 03, 09 - Mar 06, 09</td>
<td>DENG400 - Diesel Engine &amp; Support Sys. Cert., - Mystic, CT</td>
</tr>
<tr>
<td>Mar 10, 09 - Mar 13, 09</td>
<td>ELC400 - Electrical Certification Course, - Astoria, OR</td>
</tr>
<tr>
<td>Mar 10, 09 - Mar 13, 09</td>
<td>MCC400 - Marine Corrosion Certification - Norfolk, VA</td>
</tr>
<tr>
<td>Mar 24, 09 - Mar 27, 09</td>
<td>ELC400 - Electrical Certification Course, - Jacksonville, FL</td>
</tr>
<tr>
<td>Apr 07, 09 - Apr 10, 09</td>
<td>ELC400 - Electrical Certification Course, - Annapolis MD</td>
</tr>
<tr>
<td>May 05, 09 - May 08, 09</td>
<td>SC400 Standards Certification Course, - Mystic CT</td>
</tr>
<tr>
<td>May 12, 09 - May 15, 09</td>
<td>MS400 - Marine Systems Certification, - Miami/ Ft. Lauderdale FL</td>
</tr>
<tr>
<td>Jun 03, 09 - Jun 05, 09</td>
<td>SC400 Standards Certification Course, - Tampa, FL</td>
</tr>
</tbody>
</table>

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Click on Topic for more information:

- Professional Yacht & Boat Design, 4-Module Program
- Elements of Technical Boat Design (Formerly Yacht Design Lite)
- Continuing Education
- Applications & Enrollment

All Westlawn Courses are nationally accredited by the Accrediting Commission of the DETC

### 2008-09 NMMA Boat shows

#### 104th New York National Boat Show
December 13 - 21, 2008
Jacob Javits Convention Center
New York, New York
[www.newyorkboatshow.com](http://www.newyorkboatshow.com)

#### Strictly Sail Chicago
January 29 - February 1, 2009
Navy Pier
Chicago, Illinois
[www.strictlysailchicago.com](http://www.strictlysailchicago.com)

#### Miami International Boat Show
February 12 - 16, 2009
Miami Beach Convention Center
Miami, Florida
[www.miamiboatshow.com](http://www.miamiboatshow.com)

#### Strictly Sail Miami
February 12 - 16, 2009
Miamarina At Bayside
Miami, Florida
[www.strictlysailmiami.com](http://www.strictlysailmiami.com)

### US SAILING SYMPOSIUM


[Click here for information and to register online](http://www.usailing.org/symposium/)

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**Announcement**

WE’VE CHANGED OUR EMAIL ADDRESSES. PLEASE UPDATE YOUR CONTACT LIST.

In order to work efficiently with other colleges and schools and to better serve our students, Westlawn has changed its email to our .edu domain—westlawn.edu. .EDU is the top level domain for educational institutions.

The new Westlawn e-mail addresses are:

- General information: info@westlawn.edu
- Dave Gerr, director: dgerr@westlawn.edu
- Norm Nudelman, provost: nnudelman@westlawn.edu
- Stu Waring, senior instructor: swaring@westlawn.edu
- Patti Schulte, student services coordinator: pschulte@westlawn.edu

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**Training Links & Events Schedules**

- **Date**: Dec 16, 08 - Dec 18, 08
- **Event Name**: SC400 ABYC Standards Certification Course - Annapolis MD
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- **Date**: Feb 03, 09 - Feb 06, 09
- **Event Name**: MS400 - Marine Systems Certification - Portland, ME
- **Location**: Portland, ME

- **Date**: Feb 05, 09
- **Event Name**: EPA100 – EPA Coolant Certification Class - Cleveland, OH
- **Location**: Cleveland, OH

- **Date**: Feb 10, 09 - Feb 13, 09
- **Event Name**: MS400 - Marine Systems Certification - Charleston SC
- **Location**: Charleston, SC

- **Date**: Feb 17, 09 - Feb 19, 09
- **Event Name**: SC400 Standards Certification, - Portland, OR
- **Location**: Portland, OR

- **Date**: Feb 23, 09 - Feb 26, 09
- **Event Name**: ELC400 - Electrical Certification Course - San Diego CA
- **Location**: San Diego, CA

- **Date**: Feb 23, 09 - Feb 25, 09
- **Event Name**: SC400 Standards Certification Course, - Miami/ Ft. Lauderdale FL
- **Location**: Miami/ Ft. Lauderdale FL

- **Date**: Mar 03, 09 - Mar 06, 09
- **Event Name**: DENG400 - Diesel Engine & Support Sys. Cert., - Mystic, CT
- **Location**: Mystic, CT

- **Date**: Mar 10, 09 - Mar 13, 09
- **Event Name**: ELC400 - Electrical Certification Course, - Astoria, OR
- **Location**: Astoria, OR

- **Date**: Mar 10, 09 - Mar 13, 09
- **Event Name**: MCC400 - Marine Corrosion Certification - Norfolk, VA
- **Location**: Norfolk, VA

- **Date**: Mar 24, 09 - Mar 27, 09
- **Event Name**: ELC400 - Electrical Certification Course, - Jacksonville, FL
- **Location**: Jacksonville, FL

- **Date**: Apr 07, 09 - Apr 10, 09
- **Event Name**: ELC400 - Electrical Certification Course, - Annapolis MD
- **Location**: Annapolis MD

- **Date**: May 05, 09 - May 08, 09
- **Event Name**: SC400 Standards Certification Course, - Mystic CT
- **Location**: Mystic CT

- **Date**: May 12, 09 - May 15, 09
- **Event Name**: MS400 - Marine Systems Certification, - Miami/ Ft. Lauderdale FL
- **Location**: Miami/ Ft. Lauderdale FL

- **Date**: Jun 03, 09 - Jun 05, 09
- **Event Name**: SC400 Standards Certification Course, - Tampa, FL
- **Location**: Tampa, FL

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**US SAILING SYMPOSIUM**


[Click here for information and to register online](http://www.usailing.org/symposium/)
Training Links & Event Schedules (continued)

INTERNATIONAL CONFERENCE ON INNOVATION IN HIGH SPEED MARINE VESSELS
28-29 January 2009, Fremantle, Australia
http://www.rina.org.uk/hsmv2009

HUMAN FACTORS
25-26 February 2009, London, UK
http://www.rina.org.uk/humanfactors09

FUNDAMENTALS OF CONTRACT & CHANGE MANAGEMENT FOR SHIP CONSTRUCTION, REPAIR & DESIGN
March 2009, London, UK
http://www.rina.org.uk/fundamentalsmarch09

SUPER & MEGA YACHT DESIGN
April 2009, Genoa, Italy
http://www.rina.org.uk/superandmegayachts

SAFEDOR CONFERENCE
27-28 April 2009, London, UK
http://www.rina.org.uk/safedor2009

ANNUAL DINNER
30 April 2009, London, UK
http://www.rina.org.uk/annualdinner2009

BASIC DRY DOCK TRAINING COURSE
11-14th May 2009, London, UK
http://www.rina.org.uk/drydock2009

INTERNATIONAL CONFERENCE ON SHIP MANOEUVREERING IN SHALLOW AND CONFINED WATER
13-15 May 2009, Antwerp, Belgium
http://www.rina.org.uk/bankeffects

SURV 7 – SURVEILLANCE SEARCH AND RESCUE CRAFT.
27-28 May 2009, Poole UK
http://www.rina.org.uk/SURV7

WARSHIP 2009
June 2009, London, UK
http://www.rina.org.uk/warship2009

ICCAS: INTERNATIONAL CONFERENCE ON COMPUTER APPLICATIONS IN SHIPBUILDING
1-3 September 2009, Shanghai, China
http://www.rina.org.uk/ICCAS

INTERNATIONAL SYMPOSIUM ON SHIPBUILDING TECHNOLOGY
September 2009, Osaka, Japan
http://www.rina.org.uk/ISST2009

HISTORIC SHIPS
October 2009, London, UK

ICSOT: ICE CLASS SHIPS
October 2009, Busan, Korea
http://www.rina.org.uk/ICSOT2009

INTERNATIONAL CONFERENCE ON SHIP AND OFF-SHORE TECHNOLOGY
December 2009, Kharagpur, India
http://www.rina.org.uk/icsotindia2009

If you would like to receive any further information on any RINA event then please contact the events department: 10 upper belgrave street, London, SW1X 8BQ
Tel: 44 (0)20 7235 4622,
Fax: 44 (0)207259 5912
Email: conference@rina.org.uk

Westlawn students are eligible for student membership and Westlawn graduates are eligible for graduate membership in RINA.
Back Issues of The Masthead

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- **April 2007** Tech. Article: Passenger-Compartment Ventilation Fundamentals
- **June 2007** Tech. Article: Stability is the Key – Part 1, Initial Stability
- **Sept. 2007** Tech. Article: Stability is the Key – Part 2, Reserve Stability
- **Dec. 2007** Tech. Article: Basic Criteria for Powerboat Stability
- **Mar. 2008** Tech. Article: The Concepts and Applications of Tons and Tonnage
- **June 2008** Tech Article: Practical Speed and Powering Calculations
- **Sept. 2008** Tech Article: Speed and Powering Update & Conducting Speed Trials

New Orca 3D Hull Fairing And Design Plug-In For Rhino

For those students who've been relying on RhinoMarine plug-ins in Rhino for hull fairing, there’s important news. I’m happy to report that the same software engineering team that developed FastShip/FastYacht and the RhinoMarine plug-ins have joined DRS Technologies, and formed a new division known as DRS C3 Advanced Technology Center. They have developed an all-new marine design plug-in for Rhino, known as Orca3D, which is being actively updated and supported by this group of naval architects.

The software is available in two levels:
- Level 1: Hull Design & Hydrostatics/Intact Stability
- Level 2: Hull Design, Hydrostatics/Intact Stability, Speed/Power Prediction, & Weight/Cost Tracking

Pricing for Westlawn students is exceptionally reasonable at $125 for Level 1 and $250 for Level 2. Level 1 will serve the needs for your Westlawn coursework.

You can download full demo versions (a 15 day trial license) for free and then purchase online. Have your Westlawn student ID number and student ID card available.

DRS C3 ATC
160 Sallitt Drive, Suite 200
Stevensville, MD 21666 USA
Tel: (410) 604-8000
Fax: (410) 643-5370
www.orca3d.com

Who We Are

Westlawn is a not-for-profit educational affiliate of the American Boat and Yacht Council (ABYC). Our School is nationally accredited by the Distance Education and Training Council (DETC), and approved by the Connecticut Department of Higher Education.

Our Mission

Founded in 1930, the mission of the Westlawn Institute of Marine Technology is threefold:

- To provide our students with the skills and knowledge required to build a rewarding career in the profession of yacht and small-craft naval architecture.
- To support continued growth of the recreational and small-craft marine community through the development of well-trained, safety-oriented, boat designers developing better products for the benefit of the boating public.
- To provide continuing education to marine-industry professionals.