



## Improving Your Fuel Efficiency on the Water



by VINCENT T. PICA, II

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Now, I'm the first to say, "You've got a \$30,000 boat tied to the dock and you're fretting about \$200 in fuel? Wassup, doc!?" But, with that said, "Waste not, want not!" and this column is about that.

### Some Basics

Would it be any surprise to know that heavier boats need more fuel at a given speed to move through or over the water (*see SSP, "We All Get Heavier With Age - Including Our Boats" 5/23/07*) So, why lug around gear that you don't need? Go through all your lockers, lazzerettes and compartments and just get rid of the gear that is sitting around gathering mildew. We all have it - get rid of it. Store in it the garage, in a dock-side locker or just the garbage heap. Do you have an on-board water tank? I had a 25' Chris-Craft once that had a 40 gallon water tank - which I kept full whether I was going out for the afternoon or an over-night'er. At +8 pounds per gallon, this was like having a lineman from the NY Giants sitting on my boat - in his uniform and gear! Some of the bigger boats have 100 gallon tanks for showers - 3 linemen! Fill up the water tank where and when you are going to use it...

### Name that Tune

Your prop is the next most important item to tune. "Tune up my prop?" you say? Yes. If your prop (pitch) is too large for the boat, you are wasting energy. Wait - it came with the boat as original equipment. How can it be too large now? Simple - as the boat gets older (i.e., heavier), the prop's "pitch", i.e., how far the boat goes with one revolution of the prop, has to come in in order for the engine to still match the pitch and distance.

A ding in the prop (never hit the bottom, you say?) can take as much as 10% in fuel efficiency out of the power-plant. Think of it this way. You ask for 20 gallons and the fuel tender puts 18 in your tank, pours 2 gallons down the fuel storage sump and charges you for 20 gallons... Make sense to you, Bunky?

### Bottom's Up!

A fouled bottom is like dragging the anchor as you motor. It reduces hull "lubricity" versus the water and, if the hull is fouled, the running gear is probably too. There are plenty of eco-friendly bottom paints now so keep the bottom clean and painted.

### Speed Kills (Fuel Efficiency!)

Let's stop for a second and review some maritime math. For vessels under sail, the longer the "wetted surface", the faster the boat can go. This is why, in sail boat races, boats are assigned handicaps like golfers to normalize this issue. In theory, the handicap eliminates any structural advantages that a 25' sail boat has over a 16' sail boat so it is then all about the crew. The formula for a boat's "hull speed" (sometimes called the "displacement speed", and soon you will understand why) is:  $V = 1.34 \times \text{SQRT}(\text{LWL})$  where SQRT means Square Root and LWL means length of the water line in feet. V(velocity) conveniently comes out in knots.

So, the theoretical hull speed of the 25' sail boat is 6.7 knots and the 16' sail boat's hull speed is 5.4 knots. In an interesting historical side note, this little fact was what caused a number of the great sailing clipper ships to mysteriously sink. How? Well, the captain throws on more sail to make the ship go faster. As you know, a ship's form is to some extent a big, long "V" - the bottom of the "V" is in the water and the top, planked over, is the deck area. Well, the only way for the ship to respond to the increased power from the sails was for the "V" to dig deeper into the water so there was more wetted surface to service the power. More sail? More power. This drove the "V" deeper into the water - until the "V", or the ship, drove herself under the water and sank.

But wait. I have a 25' boat and she goes considerably faster than 6.7 knots. How? She uses horsepower to defeat the physics of the "hull speed" equation - also known as the "displacement speed" equation. As our power boats go faster, the "V" comes up OUT of the water - we convert from a displacement vessel to a "planing" vessel. But at 6.7 knots, I'm burning 2 gallons an hour. At 25 knots, I'm burning 10 times that but only going about 4 times as fast. It can get very complicated from here when we start talking about bow waves and stern waves interacting and the trim of the engine versus the waterline of the boat, etc. Suffice it to say this: You'll use less fuel at 20 knots than at 25 knots and you'll use less fuel at all speeds if you REDUCE your wetted surface (trim the bow up a bit (experiment at a fixed prop speed to see what your speed-over-the-water does at a given prop speed)) by using your trim tabs - and reducing the weight of the boat (back to the basics!) so the "V" doesn't sit so deeply in the water naturally.

Lastly, install a fuel meter in your boat. If all our cars and boats had them (anybody in Washington DC listening?), our national fuel consumption would improve overnight! Nothing slows a boat down from 25 knots to 15 knots faster than realizing that you're burning 20 gallons an hour (\$100!) at 25 knots...

BTW, if you are interested in being part of USCG Forces, email me at [JoinUSCGAux@aol.com](mailto:JoinUSCGAux@aol.com) or go direct to the D1SR Human Resources department, who are in charge of new members matters, at DSO-HR and we will help you "get in this thing..."



by TONY SALERNO

## FISHING WITH TONY

### ASMFC SETS SCHEDULE FOR BUNKER REDUCTION ACTION

The Atlantic States Marine Fisheries Commission (ASMFC) announced this week the schedule of hearings on Atlantic Menhaden Draft Addendum V. Atlantic coastal states from Maine through North Carolina have scheduled hearings to gather public comment on Draft Addendum V to Amendment 1 to the Interstate Fishery Management Plan for Atlantic Menhaden.

The new draft addendum proposes establishing a new interim fishing mortality threshold and target in an attempt to increase abundance, spawning stock biomass, and menhaden availability as a forage species. In other words, the hearings are meant to get public input as to the possibility of reducing bunker harvest in the future by as much as 40%. Based on the revised 2009 Atlantic menhaden stock assessment, menhaden was not over fished but had experienced over fishing in 2008. Given the current over fishing definition, which sets the fishing mortality rate target at 0.96 and the threshold at 2.2, this is the first time over fishing has occurred since 1998.

The scientists say that over fishing has occurred in 32 of the last 54 years, yet the main culprits of this resource fiasco over at Omega Protein seem to get all the support in the world to keep doing their thing. It's staggering to think that the management plan for menhaden that the bureaucrats keep deferring to gives 80% of the resource over to a publicly-held corporation which vacuums as much bunker as they can from the Chesapeake, depleting the resource and causing terrible damage to the ecosystem, while the local traditional bait guys get just 20% of the overall harvest.

Thirteen coastal states from Maine to Florida have already banned reduction operations in coastal waters, with Virginia being the last state in the ASMFC, which allows Omega full access to its waters in the Atlantic and Chesapeake Bay. Many fishermen and environmental activists alike believe that the localized depletion of Chesapeake Bay bunker has contributed greatly to the problems with water quality on the Bay and with resource issues pertaining to blue crabs, oysters, striped bass and weakfish stocks. The reduction boats are the real problem here, and its time we stop dancing around the issue of the reckless disregard of an industrialized corporate giant masquerading as a fishing operation. It serves no conservation benefit to punish the bait fishermen who supply our tackle shops, bait suppliers, anglers and commercial fishermen. What we really need is to adjust the allocation in favor of low impact gear and harvest types and put an end to the mechanized vacuum harvest of menhaden once and for all."

Copies of the draft are available to fishermen and other interested groups and are encouraged to provide input by attending one of public hearings or providing written comments to Toni Kerns, Senior Fishery Management Plan Coordinator for Management, 1050 N. Highland St., Suite 200 A-N, Arlington, VA 22201; 703.842.0741 (FAX) or at [tkerns@asmfc.org](mailto:tkerns@asmfc.org) (Subject line: Menhaden Draft Addendum V). Comment deadline is November 2, 2011.

## MSC Kyle Sports Saturday Program is Back

Welcome back to the fall program of MSC Kyle Sports for Special Needs Inclusion Sports Program. The program will start October 8th at the William Floyd Middle School, 630 Moriches Middle Island Road in Moriches 12-2 pm. Registrations are available now. Please call 631-767-4354 or e-mail [djmetz@optonline.net](mailto:djmetz@optonline.net). All registrations and waivers must be signed prior to participation.

For all our children, we will now have our Saturday program extended to the new MSC Kyle Sports Adaptive Playground located right across the street at the Moriches Athletic Complex on Moriches Middle Island Road. Everyone can come down and share in the new community adaptive playground dedicated to MSC Kyle Sports by Councilman Dan Panico. Inclusion is for every child and with our success each year with MSC Kyle Sports, the community and all our children with special needs and disabilities can all benefit by joining our program and getting involved in all our community events.

Anyone interested in becoming a volunteer or coach for MSC Kyle Sports, please contact me prior to our October 8th program date. We look forward to another successful year of inclusion sports, program events, and fundraisers for MSC Kyle Sports for Special Needs. Please view our web page at [www.kylesportsforspecialneedsmsc.com](http://www.kylesportsforspecialneedsmsc.com) and visit us on Facebook Mastic Sports Club Kyle Sports for Special Needs.

Debbie Metz  
Commissioner of Special Needs  
Mastic Sports Club



Debbie Metz & Kyle Meier at the new MSC Kyle Sports Adaptive Playground

