



Improving Your Fuel Efficiency on the Water

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Can there be a timelier subject than improving your fuel efficiency on the water? At \$5.25/gallon in places, fuel bills of \$200-\$300 per outing, or more for the "battlegoons" can be the norm. 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", May 23, 2007)? So, why lug around gear that you don't need. Go through all your lockers, lazaettes 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

An engine tune-up is definitely in order. Even at \$90/hour for service work, a 2-hour tune-up can pay for itself before the summer is out. If you contemplate spending \$1,000 in fuel over the season (5 weekends at \$200 per?), adding 10% fuel efficiency almost gets you there - and that's 5 weekends... Many of us boat from May to November...

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 (as it gets older and heavier, "pitch", i.e., how far the boat goes with one revolution of the prop), has to come in or you are wasting energy. 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 can cut your fuel efficiency in half! I've seen it myself. 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 conveniently comes out in knots.

So, the 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] 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...

Community Events

July 23

The Board of Education of the South Country School District will conduct a business meeting at 7 p.m. in the board room of the Administration Building, 189 N. Dunton Ave., E. Patchogue. For more information, please call the district clerk at 730-1542.

July 26

East Moriches United Methodist Church, Homemade Baked Goods Sale. 370 Montauk Hwy. Call 878-0887 for more information.

Come one, come all to the Annual Chicken Barbecue held at Mt. Sinai Congregational Church, 233 N. Country Rd. from 4:30 to 7 p.m., rain or shine. The best BBQ chicken will be served and a fun-filled square dance to follow! All proceeds from ticket sales and our Dollar Raffle will benefit the church. Tickets are \$14 for adults and \$7 for children under 12. For more information, please call 473-1582.

Bellport Fire Department Buzzard Hook & Ladder Co. will hold their 11th annual craft fair, 10 a.m. to 4 p.m. Over 50 vendors. Vendors are needed: \$40 per 10' x 10' space. Call Betty at 286-2764 for more information.

July 27

Fundraising Yard Sale, Cub Scout Pack 15. Rain date Aug. 3. 9 a.m. to 5 p.m., St. Andrew's Episcopal Church, front lawn, 250 Neighborhood Rd., Mastic Beach. Call Cubmaster Rich for more information at 631-618-5146. Come search, discover, buy!

Cornell Cooperative Extension's 4-H Youth Development Program is holding its Annual Fundraiser at Martha Clara Vineyards, 6025 Sound Ave., Riverhead. The barn dance and BBQ is in support of the 4-H Club and Community. Enjoy good food, good music and lively contra-dancing with Caller Chart Guthrie and Dunegrass playing Americana music. BBQ featuring pulled pork and chicken, grilled sweet potato fries, baked beans and cole slaw. For ages 21 and over please. The fun will start at 3 p.m. Admission is \$25 in advance, \$30 at the door. For more information, please call 852-4959 or go to Cornell's website at cce.cornell.edu/suffolk.

July 28

The William Floyd Community Summit and the Smith Point Volunteers have arranged for Louis Medina, director of the Suffolk County Youth Bureau, to speak on an ever-growing concern: gangs and graffiti. The meeting

is open to everyone interested in the quality of life in our community. Feel free to bring your teens and tweens! 7 p.m., William Floyd H.S. auditorium. For more information, please email smithpoint11967@aol.com.

July 29

Knitting classes for all levels will be held from 7 to 9 p.m. July 29, Aug. 5, 12, 19 and 26 at the Jewish Center of the Moriches, Main St. and N. Ocean Ave., Center Moriches. Yarn and needles will be included in the \$18 fee for the five sessions. For more information, call Barbara at 874-4926.

August 10

Mercy Haven's 2nd Annual Ride for Change. Registration begins at 9:30 a.m. \$25/biker, \$10/passenger. Beginning at main office at 859 Connetquot Ave., Islip Terrace. After-party hosted by WBAB includes food, drinks and raffles. Call Victoria at 277-8300 for more information.

August 11

Vacation Bible School. "God's Big Backyard" to be held August 11 to August 15, 9 a.m. to noon at St. Andrew's Episcopal Church, 250 Neighborhood Rd., Mastic Beach, for children 1st through 8th grades. \$15 per child,

\$10 each additional child. Snack will be provided. Please call Susan for more information at 281-9133.

August 30

Vendors wanted for annual flea market, antiques, jewelry and collectible fair, hosted by The Polo Fellowship Club of Potunk Masonic Lodge. Vendor space 15'x15' is available at \$40. Set-up time is between 7:30 and 9 a.m. Fair hours are 9 a.m. to 5 p.m. Held on the grounds of the lodge, 114 Montauk Hwy., corner of Quarter Ct., Westhampton. Call Kenn at 399-3949 for an application.

ONGOING:

Join today. APA Pool League. Every Monday night at J.V. Kavanaugh Council, 7 p.m. Between Pawnee and Madison, Mastic. \$20 per year/\$8 per night you play. Lowest priced beverages in town. Call Pete at 767-4753 for more information.

Every Thursday night: Lambs Chapel Church Food Pantry, 6:30 to 8:30 p.m. 25-6 Frowein Rd., Center Moriches. Call 879-4180 for more information.

Send your community events to:
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