



Strokes Go Up, Weigh Goes Up, Pollution Goes Down



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So, after a couple of seasons with my new 4-stroke, 3.5hp engine, (had to drop down to 3.5hp or face putting 80 pounds on the transom where formerly 40 pounds of 5hp had ridden), the engine just wasn't as friendly to an all-outdoor environment as the old 2-stroke was. Happily, my mechanic was able to address – and explain – what the changes from 2-stroke to 4-stroke means. This column is about that.



The Old 2-Stroke engine – What is a “stroke”?

The basics of a 2-stroke engine versus 4-stroke engine has to do with what is known as “Thermodynamic” cycle. Basically in a 2-stroke engine, the beginning of a compression stroke and the end of the combustion stroke also occurs at the same time as the intake and exhaust functions. In a 4-stroke, each of these functions takes place within its own stroke. The return of the engine to its original position after going through these strokes is the “Thermodynamic” cycle – 2 strokes for the old model and 4 strokes for the newly legislated, current state of the art.

So, What's the Problem?

A decade ago, the two-stroke motor, found on 75 percent of all boats and personal watercraft (jet skis), generated 1.1 billion pounds of hydrocarbon emissions each year. This was the annual equivalent of spilling as much oil and fuel into US waterways as the Exxon Valdez – 15 times over. These high emissions were attributed to the design inefficiency of the two-stroke motor, which had remained essentially unchanged since World War II. What made it so inefficient?

Largely, it was this – about a quarter of the fuel and oil, mixed directly into the furl, went unburned and thus was emitted directly into the water and air. Imagine having the gas dock operator selling you 3 gallons of gasoline and charging for 4 gallons, putting the pollution aside... The EPA estimated that one hour of operation by a 70-horsepower two-stroke motor emitted the same amount of hydrocarbon pollution as driving from New York to Los Angeles in a modern automobile – and back.

4-stroke engines emit 97% less pollution than conventional two-strokes. Why? Simple – 4-stroke outboards use the same combustion process used in automotive engines. This means that, unlike the 2-stroke engine, 4-stroke engines never have an exhaust and intake valve open at the same time. This keeps any unburned fuel from being ejected from the engine. Also, 4-stroke engines don't require additional lubricating oil to be blended in with the gasoline to operate and aren't part of the exhaust, unburned or otherwise. Like your car engine, the lubricating oil is a separate system within the engine complex, stored in the crankcase, unmixed with the gasoline. Also, they burn hotter, [read: more efficiently] and thus are more efficient at gas consumption. Manufacturers quote as much a 25% better fuel mileage. (Of course, slowing down would help even more – tests show that you burn over 50% more fuel at WOT than at mid-ranges. See what the effect on your speed over the water is if you just throttle back. (See SSP, “Fuel Efficiency on the Water”, 7/23/08.)

OK, So What's the Problem Now?

Well, they are heavy. When I went to replace my 5hp engine, I found that the 4-stroke replacement weighed 80 pounds – 2x's what the 2-stroke engine that it was to replace. When I contemplated trying to get that engine in and out of an 8-ft dinghy, floating dock-side, I said, “Ah, that's not going to happen without me and/or the engine ending up in the drink – what's the next size down?” 3.5hps in a 4-stroke weigh about what 5hps do in a 2-stroke. A car engine, not a weed wacker...

But the 2-stroke guys haven't missed some of this dialogue. The latest technology response is DFI – direct fuel injection (DFI). The required fuel mixture is injected directly into the cylinder after the piston passes the exhaust port. This prevents any unburned fuel from being prematurely forced out of the engine. DFI retains the advantages of a two-stroke engine's efficient power cycle and lighter weight and greatly lowers pollution levels normally generated by 2-strokes. In short, they're not your father's 2-strokes any more.

All this can't be bad for boaters...

And many thanks to Roy Bartel of Remsenburg Marina for his staunch support of US Coast Guard Forces...

BTW, if you are interested in being part of USCG Forces, email me at JoinUSCGAux2010@aol.com or go direct to John Blevins, who is in charge of new members matters, at FSO-PS@emcg.us and we will help you “get in this thing...”

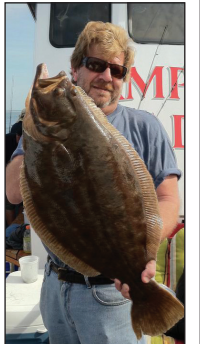


■ by TONY SALERNO

FISHING WITH TONY

FLUKE STILL DOMINATING LOCAL WATERS

Even as temperatures continue to flare, the fishing continues to keep par as well as fluke stay in the limelight, particularly along the waters of Shinnecock and Moriches Bays. “Fishing has been nothing short of phenomenal” states Captain Jim Foley of the Hampton Bays based open boat the Hampton Lady as the captain continues to put patrons on some of the largest fluke seen in the area for some time. Sharpies are finding an easy limit of fluke to 11-pounds nearly on a daily basis, while novices also walk away with generous bags of tasty fillets. As a bonus, most fares see a nice mix of sea bass, porgies and triggerfish. Aside from the Hampton Lady, Captain John Capuano of the Shinnecock Star also based at Soleau's Dock reports a great bite going on inside the bay on the top of the tide and just outside the inlet when conditions permit. Patrons are seeing plenty of big fluke, sea bass, porgies and triggers on most days.



10.02 pound fluke caught aboard the Hampton Lady by Steve Jagoda

Just west of Shinnecock along Moriches Bay, fishing is not quite of the same caliber as to the east, however the fishing has picked up tremendously in the past week both in the bay and outside of the inlet with many more keepers in the ratio to keep things interesting. Captain James Russo of the Center Moriches based open boat the Rosie has been enjoying good action with fluke to 6-pounds inside the bay during the last of the incoming tide to the start of the ebb. When the tides in the bay are unfavorable, Captain James has been steaming east of the inlet halfway between Moriches and Shinnecock in 55 feet of water where he has been finding plenty of keeper fluke to 11 pounds, along with plenty of sea bass, ling and triggerfish.

Along the north shore, Candy and Tim Caraftis of Caraftis Fishing Station on Main Street in Port Jeff reports fluke galore among the waters of the sound, just that most are shorts. Nonetheless, the flatties do provide fast reliable action with a few keepers in the herd to spice it up a bit. In addition to the fluke, Candy reports porgies are inside the harbor as well as all the points jutting into the Sound. Candy adds it is imperative that you chum with clam to bring the scup to the boat, and employ clam strips and sandworms to the hook for bait. Both moving tides are producing good catches of fish to 2-pounds.

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