



Cat's Paws to Grey Beards: Wave Theory - and Practice

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Waves can be the most beautiful and the most fearsome aspect of the sea. Whether you float above them or dive beneath them, you had better understand them and most certainly respect them. This column is about that.

Winds Are Known From Whence They Blow, Currents By Where They Go

A northerly wind means a wind FROM the north, thus blowing you south. A northerly current means a current heading TO the north, setting you in the same direction - north. What does that have to do with waves? Largely, waves are the off-spring of the wind. Ignoring for the moment that wave action can be created by tidal forces sluicing through a narrow channel (see SSP, "Mastering the Inlet", 12/12/07), waves are created by the wind. When the water is fairly still, as you'll often see early in the morning, and the wind starts to pick up, those little overlapping wavelets, called the Cat's Paws, will eventually build into something significant. The greater the distance that the wind has blown over the water unhindered by land (called its "Fetch"), the greater the size of the waves. If you ever wondered why mariners for centuries have feared Cape Horn at the bottom of South America, it is because the "fetch" there is essentially infinite. Wind can blow continuously, unimpeded by land, around the entire planet in the space between Cape Horn and Antarctica. Again. Again. And again. 100' waves are not uncommon...

Packing a Punch

The "sea state", which can be characterized as the sum of the height, frequency and direction of waves, is the key to understanding comfort - and safety - of any passage over the water, even more so than the strength and direction of the wind. Anyone that has ever been caught in 6' seas that are but 6 seconds apart in frequency would gladly trade them for 10'

waves that are 30 seconds apart. The first is a kidney-busting beating; the latter is a sleigh ride. Of boats that sink at sea, slightly more than 1 in 20 of them sink because they break apart from the pounding of the waves upon the hull (see SSP, "We're Sinking!", 12/13/06.) BTW, for very different reasons, four times as many boats sink at their dock than sink at sea (see SSP, "The Dangerous Dock!", 12/6/06.)

So, I'm Heading Out To Sea - How Are the Waves?

One of the unsung heroes of our maritime services is NOAA (www.noaa.gov) and their National Ocean Service (<http://oceanservice.noaa.gov>). They, along with the Army Corps of Engineers, understand how important wave action is and maintain 70 wave-gauging stations placed around the coastline of the U.S. (including the Great Lakes) collecting data on wave height and direction in near-shore areas. Now you can get an hourly update from these stations, direct to your cell phone. I get Buoy #44017, which is 23 nautical miles southwest of Montauk. Go to <http://www.buoyalarm.com/> to find the buoy or buoys you want to monitor. Oh, and it is your favorite price. Free.

"buoy44017: 4.3 ft @ 5.9 sec - 10:00pm" (typical text message to my cell phone)

"Surf Happens" - But How Do I Gauge It?

For the more scientifically inclined, the energy within a wave is proportional to the square of the wave's height. Like many things in nature, a 4' wave isn't four times as powerful as a 1' wave. Four-foot seas are 16 times as energetic as one-foot seas, all else being equal. How much energy is in one of those 100' "grey beards" passing by Cape Horn, compared to a 4' wave in Moriches Inlet? Do the math. Not 25 times more powerful (100' / 4') but 625 times more powerful! (100 squared / 4 squared)

But things are rarely equal. A long, slow, four-foot sea is one of life's great pleasures as sea. What matters is how close together and how steep those waves are. A good way to compare waves for steepness is the wave height divided by the square of the frequency period. This is essentially how fast your sleigh ride is going to be - or the beating you are going to take. Halving the frequency period (from, say, 10 seconds to 5 seconds) of a wave quadruples the acceleration of your sleigh ride, and more than likely multiplies the sea sickness aboard the boat (see SSP, "Mal de Mer - Oh! My Stomach!", 2/21/07.) Another way to gauge what awaits you at sea is a Severity measurement. This indicates the amount of energy carried by each bit of wave and is proportional to the energy of a wave (the square of its height) divided by its wavelength (how much distance the waves are apart, measured from peak to peak.) As you can probably do in your head, 6' waves that are 6' (distance, not time) apart are more severe than 6' waves that are 12' apart. We don't need the Cray computer for that one...

In a subsequence column, we'll get into different kinds of waves - tsunamis, deep, shallow, non-wind, etc - and the effect they have on mariners. But this column will hopefully get you thinking about safety before you leave the dock.

Here's one more - what is the longest wave on Earth?

The wave that is created by the moon, pulling the water up and around the Earth. What is its Frequency...? Email me with the answer!

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

WINDY WEATHER DETERS ANGLERS NOT FISH

It did not seem like long ago that we were bombarded with monsoon like rains. Now as we approach mid May, it seems the wind has been relentless for the past week or so, which has put a damper on fishing activities. In actuality, the gusty winds have made it difficult for boatmen to ply the ocean and open Long Island Sound waters for local favorite such a stripers, bluefish and RSA fluke. And to really rub salt in the wounds there is plenty of action to be had in the open waters during the windows of opportunity that seas are calm.



In the ocean, striped bass and bluefish are on the high chase of anchovies and sand eels near all the south shore inlets while fluke pave the ocean floors in 45 to 70 feet of water south of Moriches and Shinnecock Inlets. Along the north shore, fluke are beginning to settle in on the shoals as they feast on the spawning sand eels that continue to become more and more abundant with each passing day. This will bode well for this coming weekend fluke opener. In the meantime, bluefish continues to terrorize massive schools of baitfish that have been hovering the areas of buoy 11, Cranes Neck and Old Field Points. Stony Brook Harbor and the Nissequogue River have also been the places to be if seeking bluefish. Diamond jigs, tins and poppers have all accounted for the choppers to 12 pounds.

Stripers are really liking large sand or tapeworms in the back of harbors, especially Port Jefferson and Stony Brook. In addition, if you happen to spot a school of bunker, don't hesitate to snag a few and let them swim back with their siblings as chances are better than good that it won't be long before a quality striper or blue will find your offering and gobble it up.

Speaking of stripers, you will find loads of schoolies in the vicinity of the Smith Point Bridge and Narrows Bay. Darters and plastic swim shads are doing the job in these areas, while you can also find the linesiders on the backsides of Moriches and Shinnecock Inlets gobbling up fresh whole clams.



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