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Coast Guard Aux NEWS

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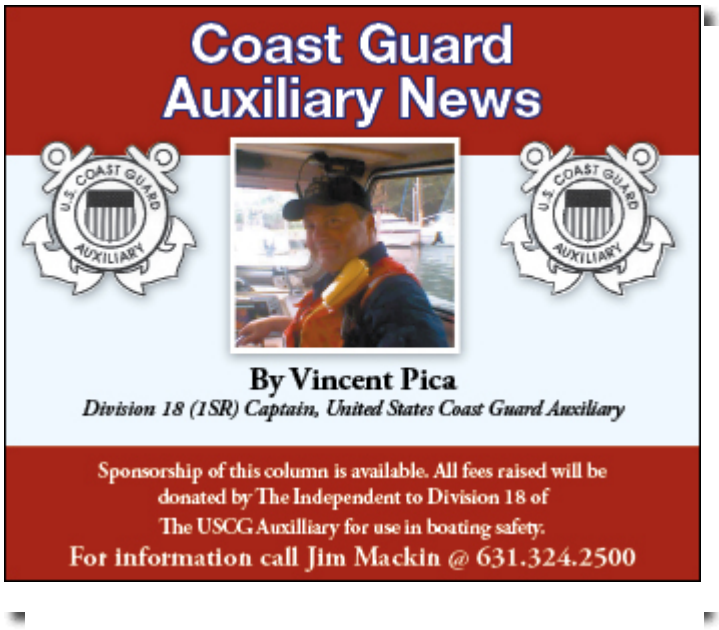

Mastering the Inlet

Formed by the 1938 Hurricane, the inlets that intersect the barrier island (known to the west of the Moriches Inlet as Fire Island and to the east simply as "the barrier island") are formidable adversaries… taking a boater or swimmer every few years to grief… this column is about getting to know that adversary better… and in that knowledge is the path to safety and seamanship.

Know Thy Enemy

Books and books have been written about the science of the tides so no newspaper column is going to give you a PhD in tidal physics. But with that said, there are some simple, and ancient, rules of thumb that will make you a better, safer seaman. The power of the Inlet starts with the tide so let's understand what

the tide is so we can understand our adversary.

Most of us realize that there are two high tides and two low tides per day in these waters. Scientists call this type of pairing "semidiurnal" tides. But the two high tides are different from each other in scale as are the two low tides. Why? Well, scientists call all the factors that result in a tide's particular "state" its constituents. In most locations, the largest constituent is the fact that it takes the Earth about 24 hours and 48 minutes for the Earth to rotate once relative to the Moon (the tidal lunar day.) And half of that, or 12 hours and 24 minutes, constitutes the major driving force of the "semidiurnal" tides as centrifugal force pulls on the sea on the side of the Earth away from the moon while the moon itself is doing its work of trying to lift the seas to it (creating low tides in between.) Constituents other than the tidal lunar day (which explains 67% of the tide) are factors like the gravitational influence of the Sun, the tilt of the Earth's rotation axis, the inclination of the lunar orbit and the elliptical nature of the orbits of the Moon about the Earth and the Earth about the Sun. And the weather too.

Observation and Prediction

Since ancient times, people have been observing and predicting the tides. Despite the puny tides of the Mediterranean (6", high to low, in places), the peoples who lived along its shores were always conscious of it. It is believed though that Pytheas, a Greek geographer and explorer, went to the British Isles in 325 BC and realized the extent and power of the moon on the tides. He observed what we now call Spring and Neap tides. When the moon is new or full, the highs are higher and the lows are lower – what we call Spring tides as the moon and the Sun align and pull together like a tug-of-war team. Conversely, when the moon is at the quarters (what laymen call a "half moon"), the highs are lower and the lows are higher – what we call Neap tides as the moon and the Sun are at right angles to each other and work against each other's influence. Pliny the Elder, Strabo and even Aristotle all had a hand in explaining the mechanics of the tides. Various attempts were made over the centuries but the first known tide-table is thought to be that of John, Abbott of Wallingford (d. 1213), based on high water occurring 48 minutes later each day, and three hours later upriver at London than at the mouth of the Thames. Of note, the tide arrives at the Forge River in Moriches Bay three hours after it enters the Moriches Inlet…

Computers do it now of course. The tables on this page are computer-generated and, except for atmospheric/weather effects which are inherently unpredictable, the tides for the next thousand years can be predicted to the minute. But can an ancient rule of thumb help you master the Inlet? With all the usual caveats about "rules" of thumb, etc, etc, etc, the rule – called the Rule of

Twelfths – assumes that the rate of flow of the tide increases smoothly to a maximum halfway between high and low tide before smoothly decreasing to zero again and that the interval between low and high tides is approximately six hours. A picture of this observation might look like this:

It says simply that starting at "slack tide" (when the tide pauses before reversing), the flow accelerates at 1/12th of its force in the first hour, 2/12th in the second hour and 3/12th (25%) in the third hour before decelerating at the same rate on the down slope – 3/12th in the fourth hour, 2/12th in the fifth hour and 1/12th in the sixth hour (leaving off the last 12 minutes of the cycle). This "power curve", when multiplied by so many millions of gallons of water trying to force their way into the bay through an inlet (or worse, force their way OUT of the bay into the face of the natural inward wave action of the sea), is your key to starting to mastering an inlet. Leaving at slack tide or an hour afterwards (or before since the rule of thumb is roughly symmetrical) is clearly the least stressful time to do so. Leave at mid-tide, when the power curve is cranked up to the max, and don't be surprised to see breakers 4' to 6' high waiting for you – on a good day.

With respect to Moriches Inlet, never forget that a bar lies directly across the mouth of the Inlet – dead center between the jetties is 40o 45.816 North, 072o 45.273 West – and thus you are safest making way westerly to a point of 40 o 45.396 North, 072 o 46.721 West. Captain Kevin Osterbery of the M/V Euphoria (http://www.euphoriacharters.com) and I have recently charted that point as the first break in the bar allowing a passage to the open sea – but recall that this "doorway" moves with each storm… So, remember your Rule of Twelfths when preparing to make to sea – and mastering the Inlet.