

# SAFE BOATING THROUGH THE ST. LUCIE INLET



The St. Lucie Inlet has a reputation for being one of the most treacherous in Florida. Sinking or severe damaging of vessels, injuries, and even deaths have occurred here. Many losses have been caused by engine failure at critical times, poor judgement on the part of the boat operator, or lack of local knowledge of tides, shoaling, and other conditions. The purpose of this pamphlet is to convey vital information to boaters that will aid in their safe passage through the St. Lucie Inlet.

## Information:

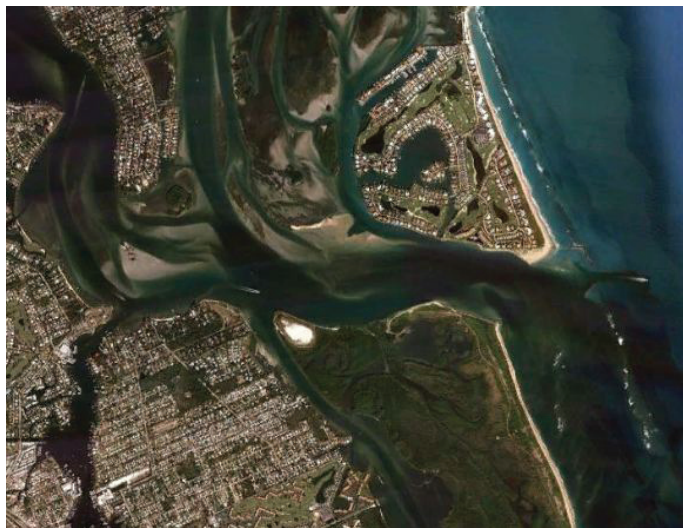
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| Florida Fish & Wildlife Commission      | 850-488-4676 |
| US Coast Guard - Ft. Pierce             | 772-461-7606 |
| US Coast Guard Auxiliary                | 772-465-8128 |
| US Army Corps of Engineers              | 772-221-3349 |
| St. Lucie Inlet Coastal Weather Station | 772-225-2300 |

## HERE ARE SOME THINGS TO REMEMBER:

- Listen to the most recent weather forecast for the times you plan to go out AND come back in the inlet.
- Look in the Tide Tables or local newspapers for the times of predicted high and low tides for the day you plan to go out. Remember the outgoing (ebb) tidal current at low tide is the worst time to make a passage through the St. Lucie Inlet.
- Safe boating practices are even more important in inlets. Check your boat before you head out. Life preservers should be worn when going through inlets.
- Expect the unexpected. Watch the clouds to anticipate severe weather such as thunderstorms. Be on the lookout for shifting shoals and changing channels.
- Engine failure is common in small boats in rough seas. The extra roughness agitates gasoline and settled dirt or water in the fuel system, which can cause engine failure at a critical time. Pounding by waves can also break critical parts of the engine or boat, and taking on water can short out the ignition system.
- In you're not sure, ask! If there is anything you are not sure of, be it tides, navigation channel markers, weather, or your boat, ask someone knowledgeable. There are many experienced boaters, marina operators, tackle store owners, fishermen, and others in the area who can give you information.



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St. Lucie Inlet

## Newcomers

If you are a boater new to this area, it is highly recommended that you make your first passage of the St. Lucie Inlet as an observer. An experienced boater with local knowledge at the helm can point out various hazards and conditions to avoid. This is especially important if you have no prior experience with any ocean inlets.

## Notes on Navigation at Night

Unless you have been through the St. Lucie Inlet many times, and especially recently, it is not advisable to navigate the inlet at night. The "Sea Buoy" located nearly due east of the entrance to the inlet is a Flashing Red (4 sec.) whistle buoy (red) #2. It is roughly 2500 feet east of the navigation channel entrance. Lights are displayed on the North jetty and the South breakwater, marking the entrance to the inlet. Use extreme caution as you navigate the St. Lucie Inlet at night.

## **WHAT MAKES THE ST. LUCIE INLET SO DANGEROUS?**

There are four characteristics which work together to make inlets dangerous:

1. TIDES - Changing water levels.
2. TIDAL CURRENTS - Strong flows through the inlet
3. WINDS, SEAS, AND SWELLS - Dangerous waves.
4. SHALLOWS AND SHOALING - Changing depths.

The small size of the St. Lucie Inlet combined with the rapidly shoaling bottom, changing water depths, shifting sands, and strong tidal currents associated with high and low tides, make the St. Lucie Inlet particularly hazardous.

### **TIDES - Changing Water Levels**

Tides are the alternate rising and falling of sea levels as a result of the gravitational forces exerted on the earth by the moon and sun. On the East Coast of the U.S., the tides are measured relative to mean low water (MLW), which is the chart datum (reference point) of soundings on nautical charts. This rise and fall occurs twice during a 25-hour period at the St. Lucie Inlet. There are usually two high tides and two low tides each day. The mean range or difference in height between high and low tides is 2.6 feet, but is greater (3+ feet) during spring tides, which occur twice a month around the time of new and full moons. Tides may also be higher than normal due to wind forces from storms and other atmospheric conditions.

### **TIDAL CURRENTS - Strong Flows Through the Inlet**

Accompanying the rise and fall of the tide, is the horizontal flow of water known as the TIDAL CURRENT. This flow is especially strong in inlets where there is a constricted passage between two large bodies of water. In the St. Lucie Inlet, this current averages about 2-3 knots, but may be as strong as 6-7 knots during abnormal tide conditions or at different locations within the inlet. Tidal currents can be observed by watching the flow of water around a buoy, bridge, jetty, or anything that is anchored to the bottom. These currents can have very dangerous effects if boaters try to anchor or maneuver in them.

Tidal currents associated with the St. Lucie Inlet flow in from the sea (flood flow) during high tide and out to sea (ebb flow) during low tide. Slack water (no tidal current) occurs about midway between high and low tide for the St. Lucie Inlet. The flood current flows into the inlet for about 3 hours before and after the predicted time of high tide. The current then stops for a brief time (slack water), and starts flowing out of the inlet as an ebb current for the next 6 hours. The time of maximum flood and ebb flow

in the St. Lucie Inlet happens to roughly coincide with the predicted time of high and low tide. The ebb tidal current is characteristically faster flowing than the flood tidal current, due to the shallower depths occurring at low tide. The times of flow for the flood and ebb current may vary slightly due to effects from weather and sea conditions, such as precipitation and freshwater drainage.

### **WINDS, SEAS, AND SWELLS - Dangerous waves**

Wind and sea conditions should always be considered when contemplating a passage through the St. Lucie Inlet. Local winds usually cause waves which appear choppy in shape with irregular patterns called SEAS. Near thunderstorms, the local winds may be very strong and can cause severe choppy conditions. Storms far out at sea often create SWELLS, which travel along as rolling waves with fairly regular patterns. There may be no local winds as swells come ashore, and swells may not be included in the daily marine forecast. Maximum caution should be used when there are large swells or high seas in the area.

### **SHALLOWS AND SHOALING - Changing Water Depths**

Shoals and sand bars have altered the inlet since its man-made cut in 1892. Presently there are three shoal areas of concern: (1) between the detached breakwater and the south jetty, (2) inside the north jetty in the impoundment basin area, and (3) just outside the inlet entrance. The first area was previously used to deposit (or spoil) the sand from maintenance dredging of the navigation channel. This sand is constantly shifting and is very shallow, with some parts exposed at low tide as sand bars.

The second area of shoaling is just inside the north jetty. The impoundment basin is designed to trap or impound the sand which comes from the north, down the coast and through the north jetty. (This sand is periodically dredged and deposited on the beaches south of the inlet). At times this area becomes filled with sand and with continued shoaling, encroaches on the north side of the navigational channel. The third area is just outside or east of the inlet entrance (between the north jetty and detached breakwater). Here, shoals may build, causing a significant difference in depth from the inside navigation channel to just outside the entrance. Although it is deeper shoaling and navigable, the difference in depth causes adverse sea conditions, especially during an ebb current. Tidal currents and waves constantly change the position of these sand shoals, so use caution when near these areas.

## **RUNNING THE INLET IN BAD CONDITIONS**

When approaching the St. Lucie Inlet under rough conditions, wait outside around the "Sea Buoy" and survey the inlet area. Observe the wind and seas and where the waves are breaking in the inlet. Also, determine the lull or calm period between the sets of swells. There are generally 3 large ones or 7 large ones, then a couple of small ones, and then a lull before another set starts. If you have a depth recorder running while maintaining a fixed position, the up-and-down movement of the baot will give you a read-out of this pattern.

When coming in, try to time your run just after the last set of waves, following them in. DON'T OVER RUN A SEA. If necessary, slow down a little, but stay on the back of the wave. If the waves are far enough apart, get behind the last big one before the lull and follow it in, keeping the next wave directly on your stern. Try not to let it hit you on the quarter or pick you up and start the boat surfing. Once this happens, you have little or no control. NEVER STOP OR TURN AROUND IN THE MIDDLE OF COMING IN OR GOING OUT OF THE INLET. The boat is most vulnerable to capsize when struck by waves from the side.

Some consideration should be given to boats that are coming in under rough conditions by the boats trying to get out. When a boater is coming in and it's rough, he or she will have less control than a boater trying to get out. Besides, if it is that rough, no sensible boater should try to go out the inlet at that time.

### **WORKING WITH THE TIDE**

When the incoming wind and seas meet the ebb or outgoing tidal current, some of the worst conditions are created in the inlet. The two opposing forces cause the waves to increase in height and become confused like the rapids of a river. This occurs most often where the inside waters meet the open ocean waters just outside the inlet entrance. Also, during the ebb flow the tide is low, making the inlet shallower and the tidal current faster. Simply stated, THE MOST HAZARDOUS TIME TO MAKE PASSAGE THROUGH THE INLET OCCURS AT THE TIME OF PREDICTED LOW TIDE WITH THE OUTGOING (EBB) TIDAL CURRENT AND HIGH SEAS OR SWELLS. The four elements of Tides, Tidal Currents, Wind-Seas-Swells, and Shoals can combine together to make this a very dangerous inlet.