

# Could your boat withstand a hurricane?



2017's hurricanes devastated boats both in and out of the water. If your boat is in the Caribbean, **Don Street** advises on how you can keep it safe and continue to sail during the hurricane season

An area from west of St Barts to the east coast of Puerto Rico is often called Hurricane Alley, because the islands in the area have over the last 35 years frequently suffered either a direct hit or major damage by a hurricane that has passed close by.

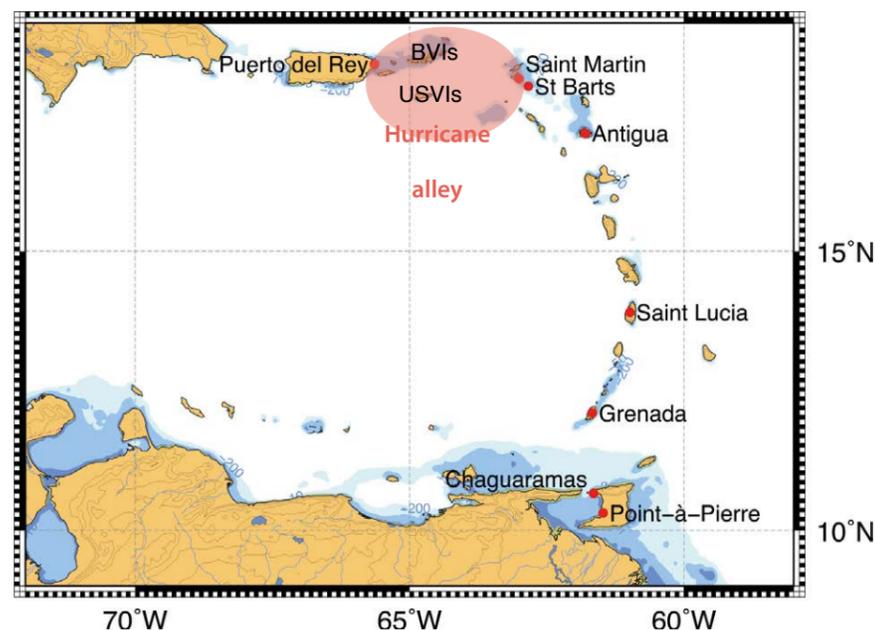
With two exceptions, none of the yard managers have laid up boats during hurricane season in such a fashion that they would stand a very good chance of surviving a hurricane.

The yard attached to Marina Puerto Del Rey had 237 boats properly laid up: tied down, well supported by screw jacks, masts out, no total losses: just three per

cent suffered major damage during 2017.

In St Martin, Sir Bobby Velasco says: "I lay up my boats the way my daddy taught me: wooden cradles, everything tied together with cross spalls, well nailed together and masts out". Boats in Bobby's marina survived undamaged except for sand blast damage from hurricane-blown sand. Elsewhere in St Martin, where boats were hauled ashore there was massive destruction.

In marinas in hurricane alley in 2017, outcomes varied from massive destruction, to many boats sunk, to no sinking but major damage, except Marina Puerto Del Rey. Puerto del Rey with its



Left, Independent Boat Yard, Benner Bay, St Thomas in the US Virgin Islands, after Category 5 hurricanes Irma and then Maria hit in 2017. Damage here was less than in the BVIs. Photo: Evelyn Nye

## Don's experience

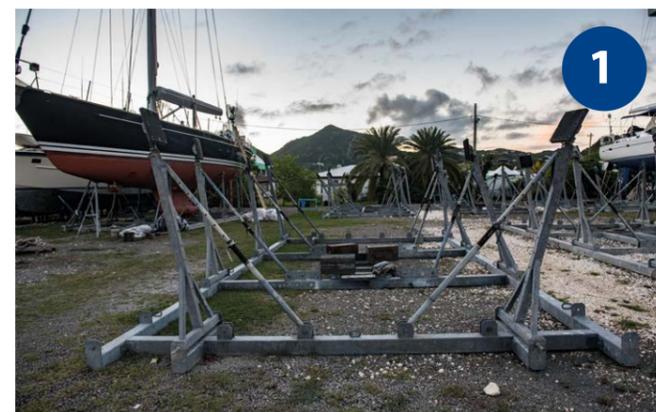
Donald M Street, who arrived in St Thomas in the US Virgin Islands in November 1956, is the compiler of the Imray lolaire charts which cover all of the eastern Caribbean east of Aruba, and is author of guides covering the same area. Over the past 70 years he has built up a tremendous knowledge of how hurricanes affect the yachting industry in the eastern Caribbean and the northeastern coast of the US.

In Manhasset Bay, Long Island, where Street learned to sail, the 1938 hurricane sank or put ashore 400 boats. In the New London Newport area it killed 486 people and caused the modern equivalent of \$1.4 billion of losses.

The 1944 Great Atlantic hurricane had hurricane force winds over a 600-mile circle. It sank a US Navy destroyer, a light ship and two USCG coast guard cutters.

On *lolaire* and other boats Don has survived seven hurricanes. In 1984 *lolaire* was caught on the north side of St Martin, by the late season (mid-November) hurricane Klaus. *lolaire* survived using six of her seven anchors. Subsequently he obtained the NOAA book *Tropical Cyclones of the North Atlantic Ocean* that records the track of hurricanes from 1851 onwards, and has studied and recorded many recent hurricanes.

After Hurricane Hugo in 1989 Don published detailed guidance in all four of his guides, *Caribbean Compass* and various yachting magazines. If his advice had been followed hundreds of boats would not have sunk, and hundreds of millions of dollars of insurance claims would not have been made.



How to lay up safely ashore in a hurricane zone:

1. Use a robust cradle.
2. Tie the boat down – to dead men or sand screws in the sand.
3. Dig a pit for a fin keel.
4. Take out the mast!

Photos taken at Catamaran Marina, Antigua

12ft-high 1,000ft-long breakwater was specifically built so that boats would survive a direct hurricane hit to the marina. The marina has a total capacity of 950 boats, of which 552 were in the water. Just 4% suffered major damage, 2% were total losses.

In the islands to the south of Hurricane Alley – Antigua, St Lucia and Grenada, where large numbers of boats lay up ashore for the hurricane season – the marina managers claim they have learned their lessons by observing the disasters: Antigua as a result of Hugo, Grenada as a result of Ivan in 2004. They lay up boats properly so that they will survive a hurricane.

Fin-keeled, deep-draft boats have their keels in a pit, boats are in specially built steel cradles or are very well chocked by numerous screw jacks, and boats are tied down with straps to either dead men buried in the sand or sand screws.

But the vast majority of the boats are stored with their masts in. Wind pressures go up with the square of the velocity. When the wind gusts to 180mph the wind pressure is astronomical: 83lb per sq ft. That means that on a 60ft mast with the wind gusting 180 mph, the load exerted 30ft above the deck is 5,450lb. When the wind is fore and aft, or near

to it, this load really does not matter. But with that load on the beam, will the boat stay in the cradle?

Every time a hurricane passes through hurricane alley, boats pour into supposed safe havens, such as Ensenada Honda on Culebra, Hurricane Hole St Johns, or inner Benner Bay on St Thomas. In every major hurricane they are disaster areas with a total of well over 100 boats sunk, and a similar number suffering major damage.

## If a hurricane is forecast...

Hurricanes are tracked by satellite from their earliest stages by NOAA Hurricane center. They head west, never altering course more than 5 degrees in 24 hours. Any zig to the south never lasts more than 24 hours. If a hurricane springs up, each day plot a 10-degree cone from the position of the hurricane. The area of the cone gets smaller as the hurricane approaches.

If you are in the cone 48 hours before the hurricane is to hit your area, **pick up the anchor and head south on beam reach or close reach.** That will give you enough time to be well south of the hurricane. You will experience manageable winds and big seas. Once the hurricane passes, turn around, head back to your anchorage and examine the destruction you avoided by heading south.

## From hurricane alley:

Just head south or southwest, **do not try to fight your way east to an island or harbour in the islands of the eastern Caribbean.**

## From Antigua or islands to the south:

**It is just a case of heading south.** In years gone by you could head southwest to Venezuela, but with the present disastrous political situation this should be avoided.

The **anchorage in Grenada** will look attractive, but they will be so **overcrowded** there will be the danger of boats dragging and damaging others

**Head south to Trinidad, but do not stop in Chaguaramas.** The anchorage is overcrowded, the bottom is poor holding, and there is a strong reversing tide that makes anchoring difficult. Continue **south to Point-à-Pierre.** Anchor at 10°N well below any danger from a hurricane.

You can continue to sail safely during the hurricane season by following these guidelines. Read detailed advice in March 2018 *Caribbean Compass* at [www.caribbeancompass.com/online/march18compass\\_online.pdf](http://www.caribbeancompass.com/online/march18compass_online.pdf) and in the August issue of *Cruising World*. This article is just a summary.