A Guideline for Hurricane Preparedness

NOTE: The recommendations in this guide were garnered from other cruisers, but primarily from Gwen Hamlin and Don Wilson, s/v Tackless II, (St. Thomas, US Virgin Islands), during the week of August 25, 2003.

This information was gathered at a cruiser's group meeting at Puerto Don Juan, Bahia de Los Angeles, Baja CA, while preparing for hurricane Ignacio to hit the area. There were over 30 boats seeking refuge in this anchorage. Puerto Don Juan is a nearly perfect hurricane hole. Obviously, with that many boats, each with its individual ground tackle capacity and theories, we were going to need a lot of coordinated effort to make the jigsaw puzzle of free-swinging boats fit. Equally obvious, there was a wide range of experience among the cruisers. Some had storm experience in the Pacific Northwest, a few boats had experienced Hurricane Juliet here in the Sea, and almost all of us have had Chubasco experience in the preceding months. However, a half-hour of forty or fifty knot gusts is a far cry from 12 hours of 60 plus. Very few cruisers had really thought through all the preparations necessary to withstand a full-blown hurricane.

Archie Ackart, *s/v Sea-tacean*, proposed that we have a meeting on the beach of all the boat crews and asked if Don and Gwen would speak about their experiences preparing for hurricanes. There were two other cruisers at the meeting with direct hurricane experience. For the meeting, Don and Gwen put together their checklist of considerations that we could follow before and during a hurricane, and that list formed the outline for a really good discussion, leading to a fairly general consensus of how to proceed. We've tried to incorporate all of the comments into the summary below. Ignacio never came up the Sea, but Marty came up a month later!

NOTICE: As important as a checklist like this is for preparing for a hurricane, it is not much good if you don't have the necessary equipment aboard. Therefore this list ought to be useful to sailors just now equipping their boats to go cruising in Mexico or other hurricane prone areas.

Summary of Hurricane Preparation Considerations

THE FIRST RULE IS: Get to the best and/or nearest hurricane hole you can, and get there as early as possible to be able to choose your position.

THE SECOND RULE IS: Always prepare for the worst case scenario. Forecasters do the very best they can, but we are talking about weather. Big storms can miss you, and apparently small ones can hit the bull's eye. It is far better to go through the motions for nothing a dozen times, than to be caught unprepared once.

Anchors, rode, scope and deployment strategies:

1) **Deployment Strategy**: This was the most important, and yet the hardest, issue to come to a consensus on. Every sailor has different beliefs about what are the best anchor, the best rode, and the best strategy for anchoring in a storm. In the Virgin Islands, our preferred strategy is to stake ourselves out in the mangroves with, for example 3 to 4 anchors off the bow (or one side of the boat) and as many lines as possible from the stern (or other side) tied into the trees. Obviously, that strategy was not available to us in Don Juan where there is almost nothing green, let alone mangroves! Strategies proposed were:

- Riding to a single anchor with one or two backups ready on deck.
- Riding to a single anchor, with a second anchor dropped at a 1:1 scope to help limit the swing (can also act as the backup).
- Setting two anchors "crowned" (one behind the other on one rode).
- Setting two anchors at a 60-90 degree angle.
    - Some boats use an anchor marker/float to help others position clear of your anchor. This is OK, but remember to **remove the float before the bad weather sets in**. Otherwise, boats, including your own, may foul the prop on the float & line.

The concerns most important in Puerto Don Juan were swing radius for 30+ boats, and sufficient scope for the 30-40 foot depth. We proposed the setting of two anchors (60-90 degrees apart), which is the second most common strategy in the Virgin Islands to reduce the swing radius. Many people were concerned about

the possible fouling of the two anchors, although in a hurricane, boats are more likely to experience a 45-180 degree wind shift as the storm passes as opposed to turning complete circles. For hurricane Marty, at the last minute, several boats set second anchors, but at a narrower spread. Their rodes tended to become twisted and it took 2 to 3 hours to straighten out the mess and retrieve their anchors.

Several people were keen on the idea of "crowning" their anchors (attaching one anchor behind another on the same rode to increase holding power). We don't remember anyone using this technique in the Virgin Islands, but judging by conversations on the nets, it is popular on this side of the world. This seems a valid technique if the wind is expected from a constant anticipated direction. When a major wind shift is possible, however, this system may have a greater potential to foul than the two-anchor plan. Plus, should the nearer anchor begin to drag it could plow a furrow that the second one would fall into.

On the basis that Ignacio was likely to be just at or even below hurricane force by the time it reached Don Juan, most boats opted for the single anchor strategy, either with the backups on deck or with a second anchor at a 1:1 scope to help reduce "tacking." This pseudo-sentinel strategy seems to make particularly good sense for those boats on rope rodes or very light chain. (Sea-tacean used a small steadying sail to reduce sailing and the resulting anchor pressure during the gusts.) If concerned about the chance of anchors fouling during a major wind shift, as might happen in the passing of the eye, one could always walk forward to retrieve the "sentinel" anchor and when the shift has taken place, re-deploy it.

In retrospect, Don and I agreed that our preference is still the two-anchor (at a 60-90 degree angle) strategy.

2) **Anchors**: Every boat should have at least 2 and preferably 3 anchors that they can deploy, one of which should be a "storm" anchor. Ideally, these anchors should be able to handle different bottom conditions. On Tackless II, we carry a 60lb CQR (heavy enough to be our storm anchor and reliable enough to be our primary (we have never dragged - knock on wood), a 45# CQR in bow rollers, a Fortress #23 as a stern anchor, and a Fortress 37 to assemble as a second storm anchor. We also have a small folding fisherman or kedge anchor.

3) **Rode**: Each boat needs to have enough rode on board to achieve storm scope with 2 or three anchors. Obviously "enough" will depend on the depth. Scope for hurricanes should be at least 10-12:1 for rope rodes and 7:1 for all chain. Most of the boats in Don Juan had all chain on one rode and chain with rope on their secondary.

4) **Scope**: Scope is the depth of the water plus the height of the bow over the water plus the tide range. In Don Juan, the average depth was fairly deep at 30-40 feet, and the tidal range on the day Ignacio was predicted to pass over was 10 feet. That meant a boat in 35' with a bow roller 4' above the water plus the tide using all chain should have about 350' of chain to deploy (we had 290' available). Many boats did not have near enough scope for the depth they found themselves in at Don Juan. A way to increase the holding power (the horizontal pull) of shorter scopes is to add a weight, or sentinel, to the rode. Traditionally this is done with a weight that is attached to a rode so it can slide up and down the rode. It should be positioned about half way down the rode and be controlled by a pennant from deck. Jerry-rig sentinels could be spare anchors, even dive weights hung from a shackle, but they must be attached in a way that does not produce chafe. You can buy ready-made sentinels or have a custom one welded together, but it does seem like a good thing for boats that don't have the space for sufficient rode to carry.

After these issues of anchoring, the checklist gets much simpler!

5) **Snubbers**: All-chain rodes should have one or more snubbers to help absorb the shock loading on the chain (links can actually stretch after 12 hours of hurricane tension!). We recommended adding dock lines as back-up snubbers, attached to the rode with a rolling hitch (also known to climbers as a Prusik knot). People were reminded that chain rode should not be left on the windlass, but cleated off, so that any shock (should a snubber fail) is not transferred to the windlass. Other cruisers had other systems for securing rodes on deck and off the windlass, but several boats found themselves with no safe way to even cleat off snubbers. A hurricane is not a great time to discover your deck cleats don't have backing plates!

6) **Chafe Gear**: Rope rodes and snubbers need to be protected by chafe gear. Fire hose is ideal as is reinforced water hose. *Be careful that your chafe gear doesn't split and cause chafe!* During a storm you can prevent chafe on your rope rode by repeatedly paying out more line a little bit at a time. This takes constant vigilance as rode can chafe through very quickly. (Lonnie of *s/v Tyee* had a great set up for a

chafe-free snubber, using a short piece of chain over the bow roller shackled to two pieces of the line on each end. The inboard piece is secured on deck while the outboard end can be changed out for different lengths as conditions warrant.)

7) **Sails**: No ifs, ands or buts: in hurricane conditions, furling headsails should always come off and get stowed below. (The same goes for any boat stored in a hurricane zone.) It is too easy for the wind to get under a furled headsail. The damage that results from an unfurled headsail in a storm, not just to itself, but to boats around it, is legendary. The stories we told of the Virgin Island were backed up with reports on the nets as Ignacio passed over La Paz (and Marty). Despite counsel on this from our weather guru Don, there were still reports of headsails that got away. One would at least hope these boats were unattended, but then one must ask, what were the owners thinking going away and leaving their headsails up during hurricane season! If you can't get your mainsail, club-footed staysail or mizzen off easily, lash the sail in its cover tightly to the boom.

8) **Booms, Staysail Booms, and Whisker Poles**: All spars should be tied down.

9) **On Deck**: All loose items on deck and attached to lifelines should be stowed below or lashed down. The cleaner you can make your decks the better. (DO NOT, however, get carried away and move fuel cans into the cabin! One possibility is to store them ashore well above the anticipated high water level.)

10) **Wind Generators**: Take the unit down if possible. At a minimum, remove the blades.

11) **Solar Panels**: Remove solar panels if at all possible. In locations where there could be flying debris, those left in place should be covered.

12) **Dinghies**: Do not leave a dinghy on davits. If you can't deflate or lash your dinghy to your foredeck, remove the outboard, slightly deflate the pontoons, and fill it with water. Attach a backup painter and trail the dinghy behind the boat, being sure to put chafe gear on the painters. Hard dinghies that aren't self-draining would probably do best weighted down on shore above the tide line. Those that are self-draining (like whalers) can be anchored out like big boats.

13) **Hatches and Ports**: Tightly dog down all hatches and ports. Low pressure can blow even dogged hatches open! (It happened to Tackless II.) Imagine was can happen if they aren't dogged down tight.

14) **Deck Canvas**: Remove all deck canvas, including bimini tops. Depending on the strength of forecast winds, some people may decide to gamble with leaving up a well-found dodger.

15) **Reduce Windage Aloft**: Halyards, flag halyards, lazy jacks and radar reflectors may seem negligible in calm conditions, but they can add up to a lot of resistance up high where you don't want it. Tackless II has six external halyards, lazy jacks, and two flag halyards, all of which are normally secured to pin rails at the shrouds. In a severe storm situation we run out all but the main halyard, which we use after the storm to put all the other halyards back. This is a particularly important consideration if you are storing your boat on the hard.

16) **Seacocks**: Close all unnecessary seacocks. DO NOT close bilge pump or cockpit drains.

All these steps should be spaced out over the time preceding the hurricane's approach. If you do them all five days before the storm comes, and it turns before reaching you, then you are less likely to do all that you should the next time.

During the storm:

- We suggested that the group select a frequency (other than VHF16) to monitor during the storm so that everyone can keep in touch.
- Have your life jackets handy, and to use them whenever you go on deck (to check chafe, etc.).
- You may want to close off dorade boxes or at least turn the dorade opening away from the wind. The "breeze" below can get quite strong.

- It's hard to imagine during high summer in Baja, but the driving rain of a hurricane can be freezing, so plan on breaking out that foul weather gear.
- Keep a mask and snorkel handy; it can really help you see and breathe in heavy wind/rain conditions.
- A good way to help relieve the pressure on your anchors is to drive the boat into the wind, being careful not to actually "make way." You do not want to create slack and give the wind a chance to drive the boat back with a jerk. Also, verify that you have adequate fuel to run your engine a prolonged period of time (and if you have multiple tanks, have selected the correct tank).

Should the worst happen: Nobody likes to talk about what to do when the worst happens, but...

- If the boat is dragging, the engine can't help, and if your emergency anchors don't grab, stay with the boat. Even if the boat drags ashore, in most cases it is still the safest place to be until water actually starts coming in.
- Do not jump overboard into the water. No matter how bad it may seem, in the water is worse. Once the boat has come ashore, if you can get out safely, do so.
- Very important: Take your ditch bag, with your passports, documents, insurance papers and money with you.

All over: By August 28, Hurricane Ignacio was gone before it came. Although we didn't actually get to test all these preparations THIS TIME, everyone in Puerto Don Juan felt we'd been through a very good drill. We always hope there won't be a next time.

Then came Marty: Hurricane Marty visited Puerto Don Juan the night of September 22. Marty came right up the Sea to about 30 NM south of Puerto Guymas, but then veered to the northwest and went up between Isla Tiburon and Isla Angel de la Guardia with storm force winds. The twenty-four boats huddled in Puerto Don Juan employed the above strategies. Steady winds in the 40-knot range were experienced, with gusts into the high 50s. All 24 came through with no problems.

Five boats that went through Ignacio in Don Juan ignored Rule #1 and stayed in the Refugio Bay anchorages at the north end of Isla Angel de la Guardia. All five boats suffered damaged bow anchor hardware. Two boats went aground. Mirador soon re-floated himself, but Spirit Healer was declared a total loss. This north facing anchorage had the same winds as Don Juan **AND** ten-foot seas! Fortunately no one was injured.

FAIR WINDS and SEAS!