CATAMARAN POINTERS by Melcon June 2021

1. Basics
    a. Catamarans are intrinsically faster than monohulls because the narrow hulls do not produce bow and stern waves that limit the displacement speed $\max speed = 1.34\sqrt{waterline}$
    b. Catamarans are intrinsically faster than monohulls because of their high righting moment due to the width of the boats. This righting moment allows them to carry more sail area.
    c. Monohulls can move out of displacement mode by planning but this still slow, approaching the speed of catamarans on boats like the Aussie 18s.
    d. Catamarans often have significantly greater sail area than monohulls because their width gives them tremendous righting moment.
    e. Catamarans "tip over easily" because they have a large canvas area and are often sailed poorly
    f. Catamarans do not point as high as monohulls because a higher VMG can be gained by footing. Catamarans can point as high as monohulls even though the often have l less efficient and smaller foils.
    g. The myth of catamarans being "difficult to tack" came about because of the popularity of two of the worst designs ever: Hobie 14 and Hobie 16.

2. Upwind
    a. Fast
        i. Flat is fast—keep the windward hull within 18 inches of the water
        ii. Keep the jib luff telltales streaming
        iii. Keep the main leech telltales streaming
        iv. Centerboards should be all the way down
    b. Depower
        i. Increase the downhaul to depower the main (flattening)
        ii. Increase the jib luff tension to depower the jib (flattening)
        iii. Progressively drop the traveler to depower
        iv. Increase twist in main (let out mainsheet) to depower
        v. Under-rotated the mast to reduce the camber.

3. Tacking
    a. Tacking is slower than on a monohull because of the width (2x greater) of most catamarans
    b. Tack only when you are ready!
        i. Pick your spot to tack—i.e. avoid steep waves
        ii. Before tacking be at speed and be pointing
        iii. Put the helm down slowly and then hold it at 40 degrees or so for the duration of the tack. Putting the help down too fast or too far will stall the rudders and result in a failed tack

iv. When flipping the tiller, be certain that you do not let the rudders straighten during the tack
v. Have the crew back the jib and then release it when you are successfully through the tack. Failure to release the jib can result in falling off past the new close-hauled course, or capsizing.
vi. Keep your weight back to help the bows move around
vii. When racing, tack through to a footing course to get speed back and then point

4. Close reaching
    a. This is the fastest point of sail for catamarans
    b. Ease the main traveler to maintain control
    c. Sails are eased slightly from the close-hauled position
    d. Weight should be carried far enough back to keep the leeward hull from being driven under water
    e. Rounding up unexpectedly from a high speed reach may result in a capsize

5. Falling off for downwind sailing
    a. In moderate and heavy winds, always ease the traveler as you fall off—failure to do this may result in a capsize. In light winds nothing matters
    b. The jib should be let off as you bear downwind, but should be kept powered up to help the bows fall off to a downwind course
    c. Watch the leeward bow and move towards the stern to keep it from burying

6. Downwind
    a. Catamarans sail for VMG downwind—they do not sail directly the leeward mark.
    b. The normal course down wind is for the telltales to show a beam reach, i.e., the wind in coming in at 90^{o} to the boat. Even though the apparent wind is at 90^{o}, the true course will be about 135^{o}, a deep reach.
        i. Always be aware that the indicated wind (the apparent wind) can be dramatically different from the true wind
        ii. This “apparent wind sailing” is seldom encountered on a monohull.
    c. One centerboard can be raised—raising both boards will leave you without steering control
    d. Over-rotate the mast to induce camber
    e. Barber haul the jib (if available)
    f. The traveler is well off-center on a reach—generally as far at the leeward hull
    g. Weight is back as far as necessary to keep the leeward bow from burying
    h. The main has considerable twist—keep the roach telltales streaming
    i. The jib is let off considerably
    j. Add fullness to the main by letting the downhaul off

7. Jibing
    a. Jibe after preparing for the maneuver
    b. Always let the traveler off before jibing. Not doing this will result in a roundup after completing the jibe, and possibly rounding up to a capsize.
    c. Pick you spot! Jibes are safest when you are going the fastest, i.e., at the end big a gust.
    d. When flipping the tiller, be certain that you do not let the rudders straighten during the jibe
    e. In heavy air it is critical that you steer back downwind as the boat goes through the jibe. Failure to do this may result in the boat rounding up into a capsize.

8. Heaving to
    a. Heaving to is a particularly effective way to “park” a catamaran
        i. The jib is backed
        ii. The traveler is at the leeward hull
        iii. The main is let out with considerable twist

9. Comments
    a. Catamaran sailing is different from sailing monohulls because the apparent wind is a critical factor in determining speed and course
    b. In light winds catamarans are very forgiving—as the wind builds quick reactions become essential for fast and safe sailing
    c. A novice crew is a liability in catamarans in moderate and heavy winds
    d. Catamarans accelerate much more rapidly than monohulls
    e. The high righting moment of a catamaran, combined with the narrow hulls, is the key to their speed
    f. Catamarans are not suited to casual sailing in moderate and high winds.
    g. Sailing a catamaran with the windward hull high out of the water may look spectacular, but is slow and stupid. It may lead to a capsize
    h. The fastest point of sail on a catamaran is a tight reach—sailing downwind in a heavy breeze and waves the most fun and challenging.
    i. All sailing is fun—catamarans are just a different king of sailing

10. Favorite Catamarans
    a. Tornado, Prindle 18-2, Nacra 5.8, Nacra 5.2, Seas Spray (centerboards)
    b. Prindle 18, Prindle 16, Hobie 18 (asymmetric hulls)