

Gov Cup 22 Notes

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Recordings:

Here is the link to the file with the recording of the 2022 Governor's Cup debrief I held on Saturday, August 20, 2022.

<https://drive.google.com/drive/folders/10mNBTR3Co9afkR-MChUD6tIIzmQUjXLu?usp=sharing>

Also in the file are

- 1) The complete recordings of the video from Days 4 and 5 of the 2022 Governor's Cup
- 2) The edited files of the prestarts, the windward legs, the downwind legs and the penalty kills in the 2022 Governor's Cup
- 3) My notes from the debrief, with a table of counter numbers for both the edited recordings and the complete recordings from Days 4 and 5

Gov Cup 22 Notes on Boat Handling and Boat Speed

Compiled by Dave Perry from input from Jeffrey Petersen & Max Brennan

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General Notes

- These boats are very light and high performance and can race in 4 kts of breeze.
- Their rudder and keel are very small high aspect foils, they can turn hard, but loose flow very easily.
- The rudder is far forward and the stern is wide, be careful of the stern swing when maneuvering.
- The boats are delicate and most collisions result in damage, so aim to avoid contact at all costs.
- Bring lots of e-tape (no black). Tape all halyards, clips, turnbuckles, and some of the blocks as they twist and can cause problems later on (specifically the traveler blocks).

Pre-Race Setup

- Tie the main and spinnaker halyards with a bowline, as short as possible. Do NOT tie the main and spinnaker halyard by pushing a loop through and then pushing the knot through the loop - the knot is too small and will pull through the eye on the top of the main and spinnaker. It is NOT a ball like on dinghy halyards and should not be used as such.
- It's okay to use the "push the loop through" knot for the jib halyard as the eye is much smaller and the halyard is thicker. In fact on some boats it's the only way to do it. Make sure the knot is on the port side of the jib so it doesn't snag the spinnaker during hoists.
- Once the main is up, coil the main halyard, fold the coil in half and place it over the main halyard cleat, and then tape it tightly. Make sure the tape covers the ends of the coil so the jib sheets can't get caught between the coil and the mast. This both keeps the main halyard tail out of the way and prevents the jib sheets from getting stuck on the main halyard cleat.
- Once the topping lift is attached and the pole is on the boom, pull the slack out of the topping lift and tie a knot. Make sure it's not tight enough to interfere with the main, but not too much looser. We daisy-chained the rest of the topping lift tail and tied it to the front of the port hiking strap.

- You can adjust what side of the mainsheet the continuous loop of the traveler passes. This somewhat depends on how the roles are set up, but behind the entire mainsheet is the best way.
- It's important to adjust the hiking strap tension for the conditions and number of crew. In the lighter air we liked them quite tight to facilitate rolling in maneuvers, and once hiking slightly looser to be able to maintain full hike. For sailing with 4 they need to be slightly looser than for 3 crew.
- The hiking strap bungees are often led through different places when the boats are set up. On the front of the front strap they are sometimes led through the loop in the webbing which makes the bungee somewhat useless at holding the strap away from the deck. We changed this so the bungee just loops around the whole strap, passing behind the jib cleat, to hold the strap as far above the deck as possible. For the aft attachment of the strap, through the end of the strap is okay. Some are passed through the adjustment Dyneema, which we changed.
- The tillers lift very easily if the bolts are loose. Ask the bosun to tighten these if it feels loose.
- The aft spinnaker blocks and the mainsheet blocks swivel, but have small switches to lock them. We liked them locked to avoid the sheets getting twisted, particularly on the aft spinnaker blocks as it can make it difficult to trim.
- It's legal to adjust batten tension. We didn't play with it too much unless it looked very wrong one way or the other, except when it was very windy (traveler all the way down) we liked the gaff batten quite loose.

Tacks

- Try to tack on the top of a wave or swell.
- Try to find some smooth water to tack into.
- Count tacks from 3. "3" is the start or the turn and body weight in. "2" is hold to leeward. "1" is roll extra hard to shoot the boat forward through head to wind, then cross and press the boat using coordinated weight movement.
- Press all members of the team all the time. If it is light, account for that and don't press as hard, but all three or four members should move across the boat as one group, weights always aligned. Never split the weights unless super light, then okay for Driver to be split from the rest of the team.
- Driver switches the traveler in the tack / Middle or Main trimmer trims main in the tack.
- If traveler is up going into the tack:
 - Driver takes traveler and with two pulls gets the car $\frac{3}{4}$ of the way up. Then Main Trimmer/Middle uses back hand to finish the traveler up to the top of the track, pulling hard to put the last bit of roll into the boat. This prevents either person from having to cross their hands for an extra pull. Main Trimmer/Middle holds the traveler as everyone begins to cross.
 - While stepping to the high side, Driver takes traveler back and cleats it.
 - Main Trimmer trims slightly into the tack, eases at max roll and then trims on the flatten. The ease is only 1 inch to maintain leech tension. Very easy to over ease.
 - Bow can roll standing up when under 5 knots, one foot on the rail and one in the cockpit.
- If traveler is down going into the tack (heavier air)
 - Driver holds the traveler up on the new side as everyone begins to cross.
 - Mainsheet Trimmer/Middle grabs the traveler on the windward side and cleats it. In breeze we liked it at just above center for the exit of the tack.
 - Once the main comes back into final trim, Driver can drop the traveler down again.

Not hiking yet

- We found that inducing a decent amount of leeward heel into the tack and rolling slightly earlier (just before head to wind) than in heavier boats like the J22/Sonar helped keep the flow attached and speed through the tack high.
- It's important to ease the main the right amount on the exit - this is why having the helm do the traveler is nicer than having the mainsheet hand do it. It's a bit tricky to get right because with the square top main, a little ease induces a lot of twist.
- We found big gains in pressing the boat faster and harder, all the way to flat, because it helped maintain the flow over the thin keel and rudder. Better to have everyone up for a moment than splitting the weight and having just one or two up for a longer press.
- Just after the press you can rip the mainsheet back in pretty fast, unless it's too light. This should be synchronized with the jib coming in to final trim.
- Still dangerous to over-press and heel to windward - have everyone move back in together after the press.

Hiking

- If you were hiking going into the tack, it's important to hit the straps immediately and hard out of the tack.
- You can still get away with a bit of roll in medium hiking conditions - but it's important to keep the main eased enough and hike fast enough for the boat to shoot forward rather than binding up and going sideways.
- If it's windy/fully depowering, hiking flat out for the first 10 seconds out of tacks and keeping the boat on its feet is the most critical. Otherwise with the thin foils you will sideslip a *lot*.

Sets

With 3 people in the boat.

Bear away set

Pole up

- bow does their own topping lift
 - always grab the topping lift first when putting the pole on
 - topping lift must be up (at the correct mark) before the pole goes on the mast!
- pole lives on port side of boom
- put slack in topping lift so it doesn't affect main shape
- low ring in light air
- Pull jib halyard up through the fairlead on the mast so it is easier to uncleat for bow, and the jib drops faster.

“Normal” breeze (pole is coming back a reasonable amount during the hoist)

- Bow hoists, then uncleats jib halyard and drops jib
- Middle pulls guy back (sheet cleated for hoist)
 - Leeward clew at the leeward shroud is a reasonable spot to cleat the sheet
 - Pull the guy back a little too far, then drop it forward again to the right spot once the spinnaker starts filling. (This helps get the spinnaker out from behind the jib and induce the fill earlier.)
 - Step to leeward and grab the sheet, give it a pull to fill it, and then ease to proper trim once the spinnaker is drawing.
- Driver bears away, eases main, and tries to catch first wave

Light air (pole is not coming back off the headstay much/at all)

- Pull the leeward clew of the spinnaker out around the shroud (maybe 1-1.5 feet behind) and cleat the sheet.
- Middle hoists, then immediately goes for the sheet.
- Driver pulls guy back - just get the tack to the pole (sheet cleated for hoist)
- Bow uncleats jib halyard and drops jib when the tack gets to the pole. This is because without the pole coming back, the spinnaker will not fill until the jib is down. This lets the jib come down much earlier (before the spinnaker is all the way up) and gets the spinnaker full straight away.
- Driver goes to leeward and the middle person can grab the guy.

With 4 people in the boat

- Whoever is not trimming the spinnaker hoists
- Whoever is trimming the spinnaker pulls guy back (sheet cleated for hoist)
- Bow uncleats jib halyard and drops jib
- Driver bears away, eases main, and tries to catch first wave

Tack set

With 3 people in the boat.

- Heavy air – dangle pole on starboard approach to mark
- Lighter air - Bow raises pole to mark, goes to leeward and holds inboard end
- In tack, Bow puts pole on mast and is ready to drop the jib
- Middle hoists
- Driver pulls guy back (sheet cleated for hoist)

With 4 people in the boat:

- Whoever is not trimming the spinnaker hoists (usually the floater - the person in between Bow and spinnaker trimmer)
- Whoever is trimming the spinnaker pulls guy back (sheet cleated for hoist)
- Bow uncleats jib halyard and drops jib
- Driver bears away, eases main, and tries to catch first wave

Tack set

With 3 people in the boat (same as the light air bear away set after the tack)

- Heavy air – dangle pole on starboard approach to mark
- Lighter air, bow raises pole to mark, goes to leeward and holds inboard end
- In tack, bow puts pole on mast and is ready to drop the jib. The Bow should start going forward as the boat turns to head to wind. The pole needs to get on the mast before the Driver starts the square.
- Middle hoists
- Driver pulls guy back (sheet cleated for hoist)

With 4 people in the boat.

- Whoever is not trimming the spinnaker hoists
- Whoever is trimming the spinnaker pulls guy back (sheet cleated for hoist)
- Bow uncleats jib halyard and drops jib
- Driver bears away, eases main, and tries to catch first wave

Gybes

- Use weight to turn the boat. You can roll as hard as you want. The flatten timing is critical to flatten at peak roll for best acceleration. Too early or too late slows the boat.
- Try to gybe on a wave or swell
- Trimmer have a good rotation; no break in spinnaker. The goal is to rest the new guy clew patch on the headstay for spinnaker stability in the role
- The farther the spinnaker is projected, the easier the gybe in light air
- Driver pick good exit angle (little above VMG in lighter air)
- Driver keep the main tight on exit to not close off the trailing edge of the spinnaker. Too eased of a main on exit of the gybe acts like a speed brake.
- Bow rolls off the rig with back hand and holds the pole with their front hand. (You can ever kick a foot out if you want to get fancy.)
- Bow always needs to stand with shoulder to the mast for stability and power, and always be on the outboard side of the pole
- When Bow steps to windward, use hand to hold the guy stable in the flatten, and then put the pole on the mast.

Drops

- Pole off before jib up. Apply windward weight when pole comes away and the Driver slightly bears away
- Give Bow plenty of time. The kite is easy to free fly, and getting the pole on the boom is the longest step in the drop process.
- Pole lives on port side of boom. If approaching on starboard, the driver needs to pull the main in so the Bow can get the pole on the leeward side of the boom. Be careful not to trap the spinsheet with the pole.
- Bow puts both feet between shockcord for holding the spinnaker in the bow compartment and spreads legs, and pulls the spinnaker down between legs, then steps out of shockcords.
- If port approach and late, can round mark with pole up.
- While Bow gets the jib halyard to the right tension, the spinnaker trimmer pulls the spinnaker to the starboard side and hands it off to the Bow to save some time.

- Bow solo drops, and Middle trims jib around the mark.
- Bow should be done packing the spinnaker away no more than 5 seconds past the mark. Be very careful to not drop the sheet over the bow (very easy to do in these boats).
- If the Bow is late to the drop, you can rip the topping lift up and let the pole dangle in the air above the gooseneck, drop the spinnaker, then deal with the pole. This ensures the pole won't get caught in anything and also that the spinnaker will come down in time.

Upwind Speed

Jib

Halyard tension It's really easy to be too loose on the halyard as soon as the pressure is up. If you move cars back it's especially important not to be loose on the halyard as the top of the leech becomes very open very quickly. Make sure to get enough halyard tension particularly at leeward marks - most people sail the second beat with the halyard too loose. Under 6 kts - baby scallops at the hanks of the jib. Over 6 kts - firm luff.

Jib lead We start all the way forward as our base setting (½ hole showing from the front of the track, no farther forward – the car must be fully on the track or it will break). As soon as everyone is hiking we go to one showing in front, and when getting into traveler down consistently we go to two showing. Three showing was our maximum lead back when it was very windy. It also depends on the sea state - generally there is significant chop so this is a factor in why we stayed so forward for so long. Generally we were more forward than other boats for more power. It's also somewhat common to have the cars in different positions on each tack, because the wave angle is often different and more drive is needed on one tack to get through the waves.

How active on the jib sheet? In marginal conditions with the car all the way forward, we were pretty active with always matching the jib trim to the main trim. We adjusted frequently, but the range is pretty small. As it gets windier and the boat powers up, it's not as necessary to be as active on the jib. Be careful not to ease the jib too far when trying to power up as it twists off rather quickly (especially with cars back) and actually begins to depower the boat, forcing the helm into a lower mode. This cycle is easy to get into especially when it's choppy so at some point you need to keep the jib in and bow up, though the initial small ease does help a lot. We make micro but frequent adjustments to the jib trim. The range is 90-100% of max trim, which is block to block when car is max forward

Main

Outhaul/Downhaul The main is huge and there is no backstay so these are your only meaningful depowering controls. Be careful not to forget about them as the breeze comes up!

Outhaul Keep firm, but very easy to flatten the sail out too early. However too deep also closes slot very quickly, average tighter rather than looser if unsure.

Downhaul Used to clean up the main luff, no wrinkles is fast.

Vang The limiting stop on the vang makes it essentially useless as a depowering control. It's useful downwind and in the prestart, so find a good setting for these. But upwind it really doesn't do much at all as it will go slack even when two blocked if you have enough mainsheet on.

Big mains with square-top head – very powerful

Good to sail at or near max weight (579 pounds): We feel the best average sailing weight is around 545 pounds. Sailing at max weight is great in the heavy air but it's not so common in Newport, and in the light/choppy stuff being a bit lighter definitely felt like a benefit.

Sail fairly upright, but add some heel to help get through waves: We sailed more upright than felt comfortable in the light air, but it was fast. The keel is very thin so when boatspeed is low, heel really makes the boat go sideways a lot. The most important thing we found was keeping the weight together, both fore/aft and up/down. Weight forward is really crucial! The more the Driver can be in front of the mainsheet, the better. We sailed with the front two always moving up and down together, packed pretty far forward.

When it's windier and the boat is going faster, we think it's faster to keep the mainsheet tight and heel than it is to ease the main and be flat. The windy it gets the more heel you need to carry to help get the boat through the chop. If choppy and too flat the boat will stop since it is so light.

Experiment with main leech tension. There is no backstay, so leech tension helps keep the forestay firm. Leech tension is everything in these boats especially in the breeze. When max trim the sheet should feel pretty loaded up. It's very easy to over ease and spill out the top, especially when the traveler is up. If there is little to no tension on the sheet, you are too eased, even in the light air.

We sailed very tight on the mainsheet when possible. The boat is very sensitive to small changes in moding upwind so any time you can click into a high groove with the mainsheet really tight and boat really flat, you are gaining. The ease to repower up the boat is smaller than you think - we only used about 2-3 inches range on the mainsheet between max ease and max trim. Too much farther and just like the jib, the main twists off a lot really fast and you begin losing power.

Even though the adjustments are small, we are adjusting frequently in communication with the Driver and in lighter air the jib trimmer. The main also acts as the backstay, so a little adjustment does a lot. *Even when it's very windy, easing the mainsheet is not good to depower.* This causes the headstay to sag, which powers the jib up, and the main twists off really fast because the vang is so useless. This ruins the boat balance and you will lose all your height really quickly. The traveler is your best depowering tool - it can go all the way to the bottom of the track if necessary to keep the mainsheet tight.

Traveler max up until overpowered. The traveler track is pretty long. When it's windy enough to start clicking the main all the way to max trim, the traveler can't be all the way up or the boom comes pretty far to windward and the boat stalls pretty fast. When the main comes in tight, drop the traveler 2-3 inches - we were pretty active with going between traveler up + main 95% and traveler down a click + main 100% when it was marginal conditions.

When full hike, keep main tight and use traveler to control the heel angle of the boat. Driver does this.

Active steering through the waves to keep the bow from slapping is critical especially when close to another boat. Sometimes one wave set will make or break a race.

Body Weight Upwind

In super light air, Bow goes and sits on top of the spinnaker.

Frequent body weight movements over waves and for little puffs/lulls are really good for marginal speed gains. They should be coordinated by one member (usually the Middle) and everyone moves on their call.

Driver in front of the traveler bar at all times until the team is full hike all the time. Sometimes Driver splits between back and front straps.

Downwind Speed

Bow keeps a hand on the pole (when straight line sailing) to stabilize it and keep the spinnaker steady. The twings are not at a good angle and the pole has no foreguy to pull it down, so it shakes in the chop.

Very easy to get caught sailing too high especially in the bad sea state that frequents the Gov Cup venue. Always be trying to be sailing as low as possible without losing too much speed.

Spinnaker trimmer calls the angle based on pressure. They also call bodyweight presses and rolls.

Use body weight to turn the boat based on spinnaker pressure, and flatten the boat relatively hard after turning up. These heels to turn up and flattens to stop turning are very fast, especially in the breeze, but be careful of rule 42 (Propulsion). It is very easy to break it if you over do the movements.

Usually Bow is sitting forward of the mast and to leeward as a default place.

Driver and spinnaker trimmer sit as far forward as they can while still being able to do their jobs.

Pole height is critical especially in light air. The spinnakers like low poles in light air.

Prestart boat handling

The boats have very small keels, so they go sideways quickly when downspeed. Get flow first before attempting to turn the boat.

The rudders are also very thin, so they are not effective for sculling when downspeed. Again, get flow before attempting to use the rudder to turn the boat.

The boats turn very quickly and are agile and can spin on the keel axis, however a big turn will kill flow and stop the boat for a while.

Using body weight in the prestart aggressively to facilitate turning is very powerful, especially in the lead/push back to the line. Having the team stand and move as the Driver turns up and down can make the difference between getting a hook or not, or avoiding being hooked.

The key to good pre start boat handling is being smooth on the rudder, conserving momentum and only scrubbing flow or momentum when absolutely critical.

The boats stop and go backwards quickly, so those are effective tactical tools.

When head to wind and wanting to turn to accelerate on port tack, back the jib to the port side of the boat, and push the boom out to the starboard side of the boat. Pushing the main out to starboard helps rotate the boat onto port tack (and vice versa).

When accelerating out of the dial up, it is very easy to exit too low. Try to aim for a speed build angle just above a beam reach.

When pressing the boat for the acceleration, make sure the rudder is straight.

In the circling, in waves, sometimes starting with a tack is more effective (circling counter-clockwise).

When using the tack circle, when lead boat gybes, sail down to their line, pass astern of them and start your tack while they are tacking. Backwind the jib and you end up in control and on the same ladder rung as them.

It is very easy to over-use the rudder as it have no stop on it and can spin 360. Rudder should never exceed a 60 degree angle from centerline. Any more than that and you will be scrubbing flow, which takes time to build.