

Transpac Weather and Tactics

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Stan Honey has navigated in 23 Hawaii races, winning line-honors or class 14 times. As navigator, Stan has set 7 records in Hawaii races including single-handed, double-handed, and multiple fully crewed records for monohulls to Hawaii.

Overall race structure and necessary decisions

The primary feature that dominates the Transpac is the Pacific High. There is no wind in the center of the high, and increasing wind as you get farther south, up to a limit. The central question of the Transpac is how close to sail to the high, or how many extra miles to sail to get farther from the high? In years when the Pacific High is weak (or weakening) and positioned well south, there can be strikingly more wind to the south. There have been Transpacs where yachts that are 10 miles to the south of competitors can experience 1 knot more wind. A sled, in 1 knot more wind will sail 1/2 knot faster, and therefore would gain 12 miles per day on the northern competitor. This condition can persist for the entire middle third of the race, eliminating any chance of recovery for the yachts that are positioned too far north. Note that all yachts in this middle third of the race are nearly fetching the finish on starboard gybe, so the boats caught too far north cannot gybe out of their predicament without sailing a dramatically unfavored angle, passing far astern of the competitors to the south. This condition dominates the results of most Transpacs.

Occasionally, however, the Pacific High will be strong (or strengthening) and located far to the north. In these conditions, it is possible to be too far south. The boats that sail closer to the high will not only get more wind but will sail the shorter distance. Typically, in these sorts of years, the wind stays "reachy" throughout the middle third of the race, so the boats that paid extra distance to get south cannot even "cash in" the southing and reach up in front of the northern boats. Everyone is reaching fast, the boats ahead and to the north get the eventual veer first and gybe to port passing in front of the boats to the south.

Transpac in Five Sections:

1. Get to the synoptic wind before the inshore "glass-off."
2. Windy reach to the ridge.
3. "Slotcars" through the middle third.
4. Run for the last third.
5. Approach.

Get to the synoptic wind before the inshore wind dies at night.

The “synoptic” wind is the wind that results from features shown on a synoptic weather map, such as highs, lows, troughs etc. It blows all night. You must know where the nearest edge of that wind is and find a way to get to it the first day so that you do not spend the first night in the inshore glass-off.

In a light southwesterly, tack up the Palos Verdes coastline until the southwesterly has started to fill in, and you can at least lay the Isthmus. When you tack onto starboard to cross the channel, continue all the way across. Do not pinch and do not tack on the shifts in mid-channel. There is substantial adverse current and lighter wind in mid-channel. It is better to get right across into the accelerated wind and reduced current at Catalina. Port tack is good along Catalina from Arrow point to the West End, with good breeze, current relief, and often a backed wind. Once past the West End of Catalina do not tack onto starboard too early. There is light air south of the West End that must be avoided.

If you have the misfortune to start in a Catalina Eddy, it will be tricky but critically important to get into the synoptic because when there is a Catalina Eddy there is nearly always particularly good wind offshore. You must “broken-field run” using your understanding of the structure of that particular Catalina Eddy, to get to the synoptic wind. A good mesoscale model like the HRRR is useful.

Windy reach to the ridge

The Pacific High nearly always has a ridge extending off its southeast corner. On the weather map this is visible as "U" shape of the isobars on the southeast corner of the high. After rounding the West End, you will have a windy reach for a couple of days, depending on your yacht's speed, but when you get to the ridge, the wind will lighten and veer very quickly. For this reason, you will find that after reaching in good breeze for two+ days, when you finally get the spinnaker up, and are struggling to carry it, within 6 hours or so, you will be lifted and sailing your “ocean” vmg angles in lighter air; you just crossed the ridge.

The most critical decision of the Transpac is where to cross the ridge. The reason this is critical is, once you get to the ridge and the wind veers, you cannot cheaply get into a “slot” that is farther south. You are already sailing as low as you can on your offshore polars, and you cannot gybe without huge penalty given how favored starboard gybe is at this point. That is why the middle third of the race is called "slotcars."

If you are too far to the north, you will be slowly passed by the yachts to the south of you, and there is nothing that you can do about it; you cannot gybe, you cannot sail lower. As the wind gets lighter, your polars force you to sail higher and higher, until you "spin out" up into the high. When you eventually are forced to gybe to avoid the calm, your angle on port gybe has you heading behind your competitor's transoms.

The "slotcars" leg ends when the wind eventually veers far enough so that both gybes are symmetrical around the course to the finish, allowing you to sail either gybe.

The run

The final third of the race is "the run." This is why we sail Transpacs, the wind picks up as you approach the Islands, and you are surfing in tradewind swells. Generally, the right-hand side of the course is favored in the final third of the race, because the wind slowly veers as you sail further west. Therefore, the best course is to favor starboard gybe and come in on a port gybe layline to Molokai at Kalaupapa.

Do keep an eye out for tropical depressions or their weaker siblings which are sometimes referred to as "inverted troughs." They are both visible as omega shaped waves in the isobars in the tropics. If you will be approaching the finish following an inverted trough, or a tropical, approaching the finish from the right-hand corner works particularly well as there is often a veer and light air east of an inverted trough. If you will lead an inverted trough or tropical to Hawaii, then it often pays to gybe down in front of it because there is often more wind and a back in the wind west of a tropical or inverted trough.

Approaching the Finish

Pick your approach to come into Molokai at Kalaupapa on port gybe. Gybe close to Kalaupapa and sail along Molokai in the accelerated wind. When you get to the west end of Molokai, if you are above your layline to Koko Head, gybe back on port west of Ilio Point, where there is accelerated wind, to get to your layline for Koko Head. Never approach Oahu northeast of Koko Head, take another gybe onto port in mid-channel if you must. It is fine to sail within 1/2 mile of Koko Head, and from Koko Head sail a straight line to the finish. If you are lifted after Koko Head and must gybe along Oahu, stay out of the bays.

The finish line is deceptive, and many yachts get too close to shore when they cannot see the red buoy. The best technique is navigate to the buoy, rather than depending on seeing it. With spectator boats around, especially at night with their port side red running lights "flashing" in the seas, the buoy often cannot be unambiguously identified until it is close.

Squalls

Squalls do not always have the pattern of a "catspaw." Catspaws have diverging wind in front of and around them. Some tradewind squalls from midnight through until just before dawn can have converging winds at their leading edge. The wind converges because there is an updraft in front of the squall. In addition, the average wind in the squall is veered about 15 degrees or so to the right of the prevailing surface wind, and the squall itself moves about 15 degrees to the right of the path of the surface wind. Behind squalls the wind is light, particularly near and after dawn.

Slower boats: As the squall approaches, gybe to port and stay on port right through the squall, and then gybe back when the squall has past completely over you and your wind speed and angle has returned to the prevailing conditions. If you gybe back to starboard too early, you run the risk of crossing behind the squall and getting into the light air in the wake of the squall.

Relatively fast boats e.g., sleds or TP52s: Gybe to get in front of any squall within reach. Gybe back and forth in front of the squall for as long as you can. Each gybe "back" towards the squall will be at a horrible angle, because of the way the wind "toes-in" in front of the squall but do it anyway; the velocity makes up for the horrible angle. When the squall finally passes you, exit on port gybe and get away from the squall to avoid getting becalmed behind it. Port gybe is more effective to avoid the calm behind a squall because the squall itself is moving to the right of the path of the surface wind, so port gybe allows you to diverge rapidly from the light air area behind the squall. It is perilous to exit a squall on starboard gybe because of the risk of getting becalmed behind the squall, particularly near dawn.

Maxis or multihulls: Treat squalls like potholes and avoid them. On starboard gybe avoid overtaking a squall and sailing into the light air behind it. On port gybe avoid passing just behind a squall. You can of course get accelerated wind by passing in front of a squall, but the increased wind is too brief to be worth the cost of the maneuvers and the risk of getting it wrong and suffering the light air behind the squall.

Weather Information

GFS and OPC charts are the best forecasts once you are beyond San Nicolas and are in the synoptic wind. OPC charts have the benefit of including improvements made by NOAA meteorologists. HRRR is a good source of mesoscale data for the area inshore of San Nicolas. NAM is good for the area surrounding the Islands to pick your laylines.

Notes

Old-school routing notes: If you are racing a light displacement boat, it is worth sailing extra miles to get extra wind, because no matter how hard it blows, a sled will sail still faster if you get more wind. On the other hand, if you are racing a moderate displacement boat, do not sail any extra miles to get more wind than necessary to reach hull speed. If you sail farther to get more wind, you will have more fun, but your average speed will not increase enough to pay for the extra distance.

There are slides from a zoom presentation on the above topics posted at www.honeynav.com/ That presentation may also be available from the TranspacYC.