



SAILTAC

RACE REPORT

2026 PH Mac - Cove Island

5th of 15 in class · 23rd of 93 overall

Course

Sat, Jul 18, 2026 12:10 PM → 11:22 AM · Cove Port Gate → Sandy Point →
Finish - Round Island Light

DISTANCE

283 nm

ELAPSED

47h 12m

AVG BOAT SPEED

6.3 kn

max 11.0

AVG SOG

5.9 kn

max 11.9

AVG BSP – SOG

+0.4 kn

not all current — see
calibration

AVG VMG

3.3 kn

to wind axis

VMG TO MARK

5.1 kn

made good to next mark

WIND (TWS)

12 kn

gust 39

AVG PERFORMANCE

98%

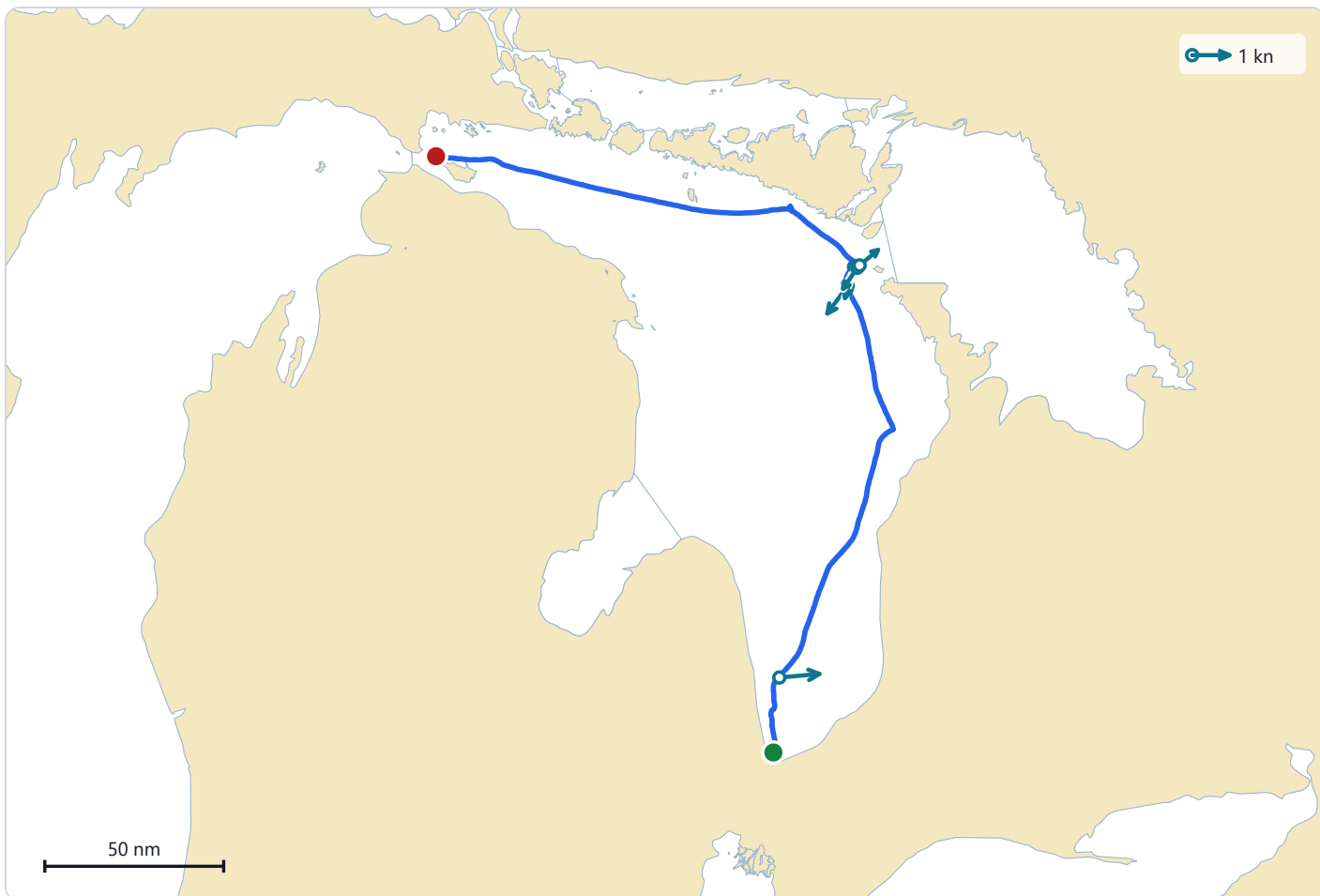
of polar target · scored over
43h 20m

TACKS / GYBES

7 / 2

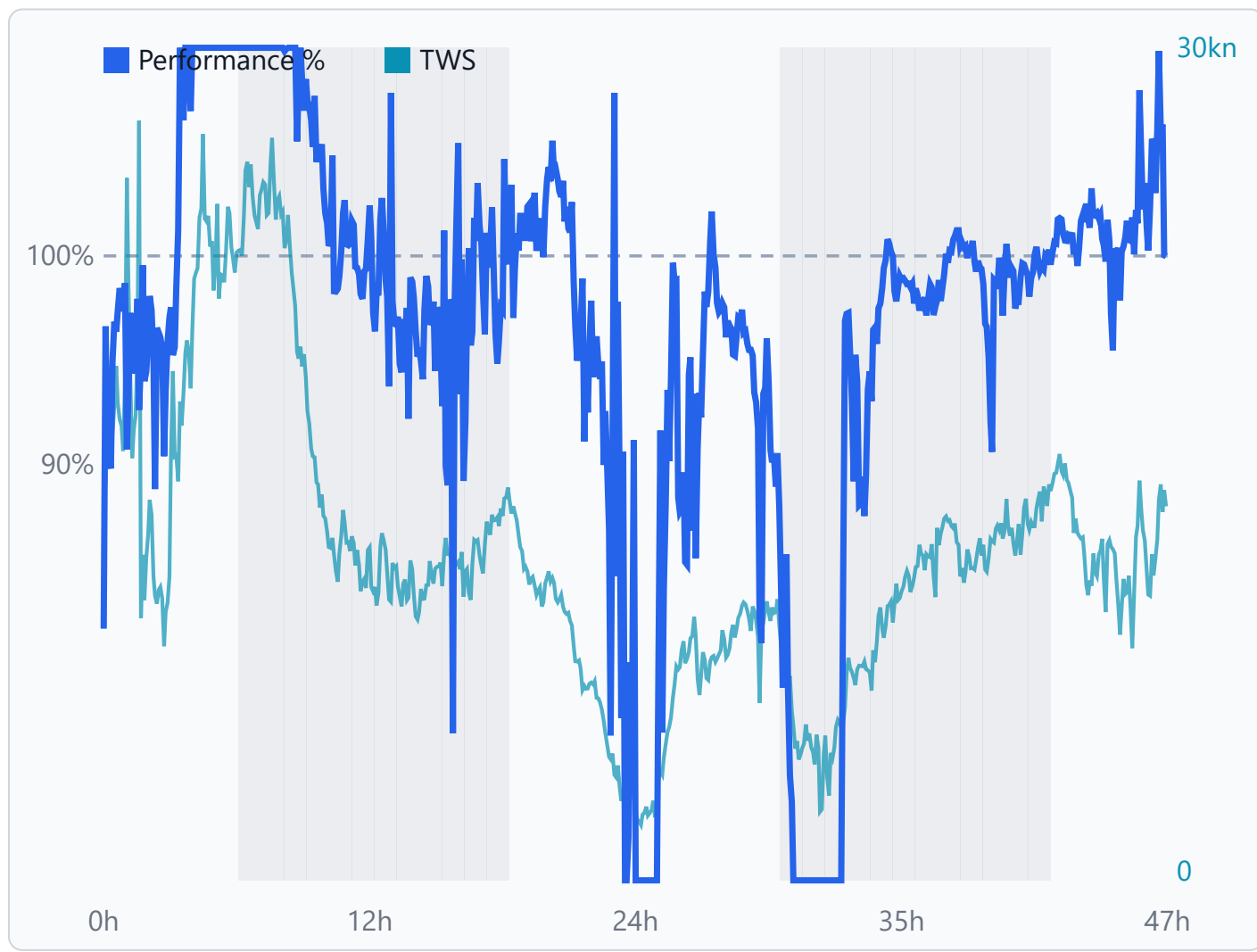
13 sail changes

Data quality: 3h 50m under 5 kn is counted as sailing but not scored — percentage of polar target isn't measurable when the target itself is a fraction of a knot; 174 boat-speed samples above what the GPS could support were dropped as paddlewheel spikes; 15 changes of tack happened with no steerage way — the wind crossing a parked boat — and are not counted as maneuvers.



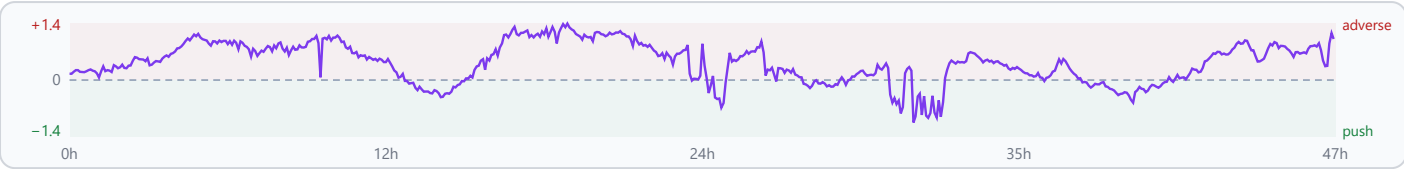
Each dot is where a fifteen-minute window was solved; the arrow from it is the way that water was flowing, and its length is the drift against the key. Windows spent beating are left off — on a beat the boat's own leeway solves as current setting dead downwind, and drawing that would be charting the boat rather than the lake.

PERFORMANCE & WIND OVER THE RACE



BOAT SPEED MINUS SOG, ALONG TRACK

Boat speed through the water minus speed over ground. Above zero (red) = the boat made less ground than water; below (green) = more. This is the raw observation and it is *not* current: a paddlewheel reading a few percent slow shifts this whole trace by a fixed amount on every leg, in every wind, forever. Instrument calibration, below, separates the two by using the headings the boat actually sailed.



INSTRUMENT CALIBRATION

Boat speed reads 4% fast

Boat speed reads about 4% fast — 0.23 kn at 6 kn. Enter a 4% reduce in the instrument system's own boat-speed calibration, where it also corrects the apparent and true wind derived from it. The report's BSP – SOG averaged +0.4 kn; about 0.7 kn of that was water.

$0.961 \times \text{logged boat speed} \cdot \pm 0.038 \text{ across 8 windows} \cdot -0.23 \text{ kn at 6 kn} \cdot \text{confidence fair}$

Average BSP – SOG	+0.41 kn	what the summary tile and the strip above show
Of that, measured current	0.74 kn	median of 8 fifteen-minute solves — see the range below
Of that, the instruments	–0.23 kn	at 6 kn; scales with boat speed
Published forecast to check against	none	nobody forecasts current here — which is a gap in the data, not slack water

NOAA publishes no harmonic current predictions for the Great Lakes, so there is nothing to compare against — but there is plainly current to compare. The upper-lakes discharge runs down the St Clair River, through Lake St Clair and out the Detroit River, and wind setup and seiche move water hard on a shallow lake. **The figure above is measured from this race**, not predicted, which on this water makes it the only current record you have.



Speed factor per 15-minute window (purple) against its median, with the current each window solved (blue bars, peak 1.2 kn). A calibration error is the same in every window; the current is not.

Solved over 41h 13m of steady sailing: 140° between the widest pair of headings held, 5.0 kn of water-velocity excursion for the fit to work with. Dropped 125 missing a channel, 9,712 below 2 kn, 924 while turning, 10,386 settling after a turn, 187 as paddlewheel spikes.

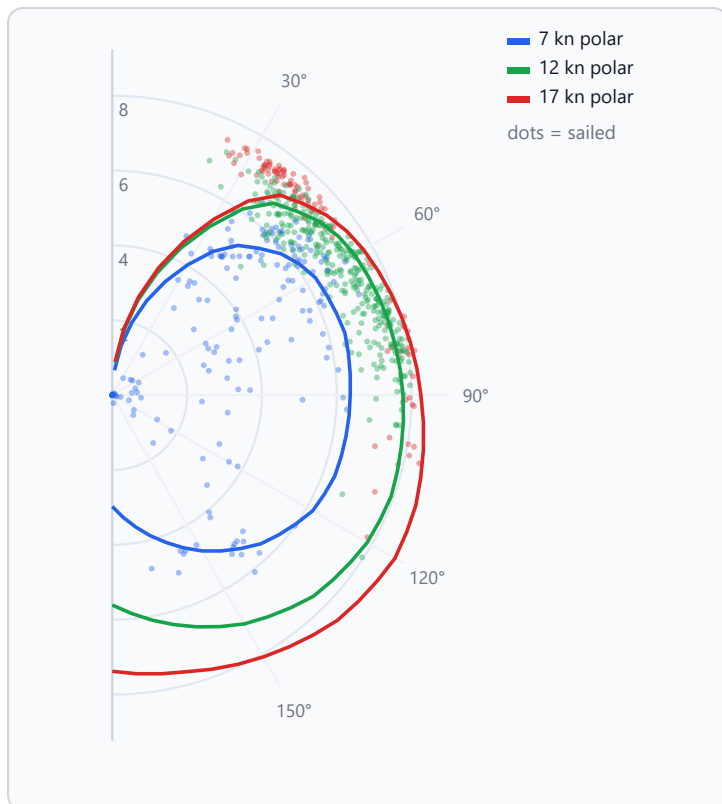
Solved from the log alone: a speed error scales with boat speed on every heading, current does not, so enough change of heading separates them. It cannot see leeway, heel, or a transducer offset from the centreline — those land in the solved current — and it assumes the current held still for fifteen minutes at a time. Every percentage of polar in this report was computed from the uncorrected reading, so they are all off by the same factor.

TIME BY POINT OF SAIL · 38% ON RECOMMENDED SAIL



Upwind 26% Reaching 71% Downwind 3%

POLAR — SAILED VS. TARGET



SPEED VS. ANGLE

Upwind

12h 25m

TARGET / SAILED TWA

SPEED AT ANGLE

38° / 37°

106%

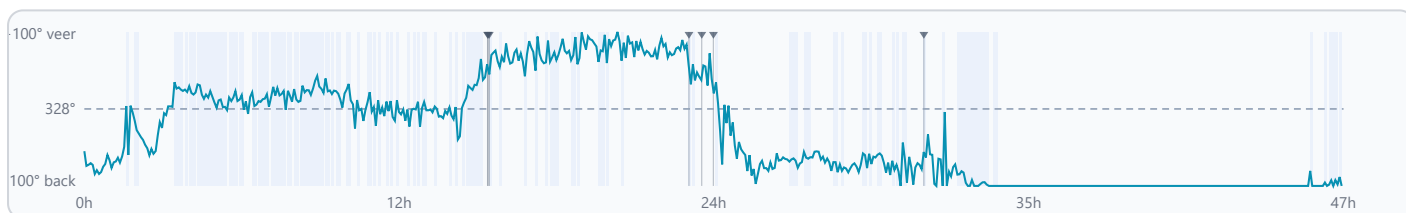
Angle: **split** — 32% high, 33% wide, and the average of the two isn't an angle you sailed



No card for downwind (1h 18m, 3% of the race) — too little of the race to draw an angle conclusion from, so it isn't given one.

WIND DIRECTION & SHIFTS

True wind direction (heading + TWA) vs. its median of **328°**. Blue bands = upwind; grey ▼ = a tack. Swing -100°...+63° around the median on the beats — the shifts there were the ones to play.



How well you played the shifts — not gradeable on this course

42% of your upwind time was on the lifted (favoured) tack, **56%** on the headed tack, 2% neutral. Of 5 upwind tacks, **4** were made while the boat was **headed** — tacking onto the shift, which is what you want — and **1** while lifted, giving one up (80% converted). Wind swung about $\pm 83^\circ$ around the median.

No grade here on purpose. Lifted-versus-headed is measured against this race's median wind direction, and it swung $\pm 83^\circ$ — that's a wind that **ROTATED** over the course, not one oscillating about a mean. The percentages are what happened; the reference they're measured against moved, so they aren't a verdict on how the shifts were played. This measure earns its keep on a windward-leeward or a short beat, where the median holds still.

UPWIND TIME BY TACK

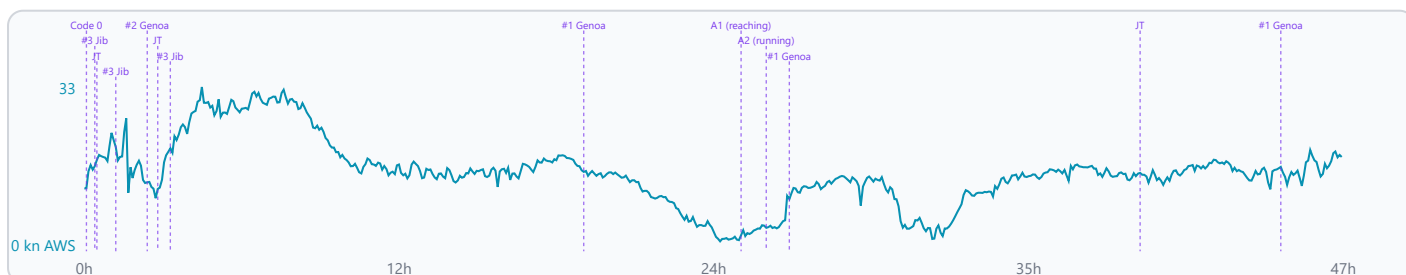


TACKS — WAS THE BOAT HEADED OR LIFTED WHEN YOU WENT?



SAIL CHANGES VS. WIND

Apparent wind (what drives sail choice) with a marker at each change of the flying sail. 13 changes over 47h 12m — about one every 218 min. A change that leads a rising or dropping breeze is proactive; one that chases it is reactive.



SAIL PERFORMANCE & CROSSOVER

Graded against the **Mostly Harmless** sail chart.

Sail	Time	% race	Wind (TWS)	TWA	Avg perf
#1 Genoa	21h 22m	45%	3–13 kn	35–89°	93%
#3 Jib	16h 49m	36%	10–27 kn	31–77°	103%
JT	6h 28m	14%	10–18 kn	61–99°	99%
A1 (reaching)	0h 55m	2%	3–8 kn	109–153°	94%
A2 (running)	0h 52m	2%	7–10 kn	117–161°	89%
#2 Genoa	0h 23m	1%	8–11 kn	65–95°	95%
Code 0	0h 21m	1%	12–19 kn	89–133°	90%

Wind and angle are 5th–95th percentile — the range each sail worked in, not the single gust and lull it saw.

STAYSAILS (FLOWN ALONGSIDE)

Sail	Time	% race	Wind (TWS)	TWA	Avg perf
Genoa Staysail	9h 04m	19%	10–16 kn	61–95°	99%
Spinnaker Staysail	1h 54m	4%	5–10 kn	31–159°	81%

Wind and angle are 5th–95th percentile — the range each sail worked in, not the single gust and lull it saw.

STAYSAIL EFFECTIVENESS — WITH VS. WITHOUT

Each staysail paired with the primary it flew under, vs. the same primary flown alone. The Δ columns are the measured difference between those two states. Read the **wind** and **like-for-like** columns first: where the two states flew in different breeze, that difference is inside the Δ too, so it isn't the staysail's gain on its own.

Primary + staysail	Time	Perf (with→without)	Δ perf	BSP (with→without)	Δ BSP	Wind (with/without)	Like-for-like?
JT + Genoa Staysail	6h 09m	100% → 96%	+3.6 [†]	7.7 → 8.0 kn	-0.30 kn [†]	13.1 / 18.9 kn (Δ5.8)	Δ 5.8 kn wind gap
#1 Genoa + Genoa Staysail	2h 39m	99% → 94%	+5.0 [†]	7.5 → 5.3 kn	+2.16 kn [†]	11.9 / 8.2 kn (Δ3.7)	Δ 3.7 kn wind gap
A2 (running) + Spinnaker Staysail	0h 52m	89% → —	—	5.1 → —	—	8 / —	Δ no baseline
A1 (reaching) + Spinnaker Staysail	0h 32m	95% → 83%	+11.9 [†]	4.8 → 3.2 kn	+1.62 kn [†]	6.3 / 3.9 kn (Δ2.4)	Δ 2.4 kn wind gap
#1 Genoa + Spinnaker Staysail	0h 30m	54% → 94%	-40.0 [†]	2.2 → 5.3 kn	-3.12 kn [†]	5.8 / 8.2 kn (Δ2.4)	Δ 2.4 kn wind gap
#2 Genoa + Genoa Staysail	0h 15m	95% → 95%	+0.5 [†]	7.0 → 6.9 kn	+0.08 kn [†]	10 / 10 kn	Δ 8 min baseline

† These deltas are measured, but they are not the staysail on its own:

JT + Genoa Staysail — Flown in 13.1 kn vs 18.9 kn bare — a 5.8 kn gap. The Δ is the measured difference between those two states, so it contains that extra breeze as well as the staysail.

#1 Genoa + Genoa Staysail — Flown in 11.9 kn vs 8.2 kn bare — a 3.7 kn gap. The Δ is the measured difference between those two states, so it contains that extra breeze as well as the staysail.

A2 (running) + Spinnaker Staysail — A2 (running) was never carried without a staysail, so there is nothing to compare against — the "without" columns are empty rather than low.

A1 (reaching) + Spinnaker Staysail — Flown in 6.3 kn vs 3.9 kn bare — a 2.4 kn gap. The Δ is the measured difference between those two states, so it contains that extra breeze as well as the staysail.

#1 Genoa + Spinnaker Staysail — Flown in 5.8 kn vs 8.2 kn bare — a 2.4 kn gap. The Δ is the measured difference between those two states, so it contains that extra breeze as well as the staysail.

#2 Genoa + Genoa Staysail — #2 Genoa was only carried bare for 8 min. The Δ is real but rests on that short a baseline, so it moves a lot with a few minutes either way.

HELMSMAN PERFORMANCE

Helmsman	Time on helm	Scored	Avg performance	Helm work	Conditions
Scott	13h 29m	12h 25m	99%	—	0–39 kn TWS
Wick	10h 29m	10h 23m	95%	—	4–31 kn TWS
Randy	10h 13m	7h 32m	89%	—	0–26 kn TWS
Robbie	9h 29m	9h 29m	105%	—	6–39 kn TWS
Sampson	3h 29m	3h 29m	102%	—	6–33 kn TWS

Conditions is the full range of wind each helm drove in — lightest to strongest, as measured — and their point-of-sail mix: upwind, reaching, downwind. Performance is read against the watch they actually had. “Scored” is the part of each trick above 5 kn: percentage of polar isn’t measurable below that, so whoever drew the drifting watch isn’t marked down for it.

LEG BREAKDOWN

Leg to	Time	Dist	Avg perf	VMG (axis)	Sails flown
Cove Port Gate	26h 19m	155 nm	101%	3.7 kn	#3 Jib 16.8h · #1 Genoa 5.9h · JT 1.1h · A1 (reaching) 0.9h · A2 (running) 0.8h · #2 Genoa 0.4h
Sandy Point	20h 52m	127 nm	94%	2.7 kn	#1 Genoa 15.5h · JT 5.3h · A2 (running) 0.1h

Legs are split where the active mark changed. One mark on this course — Finish - Round Island Light — never became the active mark during the race, so the run to it is included in the leg above rather than shown separately. The leg times still sum to the full elapsed.

Race debrief

Estimated from this race’s own log against your polar. Read it as a starting point for the debrief conversation, not a verdict.

THE FINDING OF THIS RACE

71% of this race was reaching, at 95% of target

33h 27m reaching against 106% upwind — 11 points, and reaching is where the race was spent. Closing that gap is worth 3h 28m: more than any single call in the debrief below.

Read the size of the gap carefully. A polar is built around its upwind and downwind targets; the reaching numbers between them are interpolated, and no polar knows about staysails. Comparing two regions of the same curve and calling the difference performance is a leap — some of these points may be the polar, not the sailing.

ESTIMATED TIME LEFT ON THE COURSE vs. sailing your polar target exactly for 47h 12m — you averaged 98%.

~54m

PREDICTED

41h 28m

280.6 nm routed · assumed 12.4 kn

ACTUAL

47h 12m

282.6 nm sailed · measured 11.8 kn

DIFFERENCE

+5h 43m

+2.0 nm (0.7%)

WHERE THE DIFFERENCE WENT

- Extra distance sailed

19m

2.0 nm beyond the routed distance (0.7%), priced at this race's own average speed. Note this measures the route's LENGTH, not its timing — you can sail exactly the planned distance and still lose hours by being in the wrong place when the breeze fills.
- Boat speed vs. polar

54m

The boat's own shortfall against its polar — the same figure as "time left on the course" above, and broken out by helm and sail below.
- Forecast error + tactics

4h 29m

The plan was routed on 12.4 kn mean and the boat measured 11.8 kn — close on the average, but the forecast was off point-by-point, and a router given the wrong wind in the wrong place plans a route the boat can't sail. Splitting this needs a hindcast the log can't supply.

Forecast-vs-routing split withheld. This course was re-routed over archived ecmwf_ifs025 wind for the race window, which put the theoretical optimum at 42h 03m (281.6 nm). But that archive matched your instruments to only ±2.22 kn — against ±2.33 kn for the forecast you already had, a gain of just 5%. A hindcast that is no closer to the wind you sailed in cannot separate a bad forecast from bad routing; it would re-derive the same wrong wind and call the difference routing. The archive is a grid model and your anemometer is one instrument on one boat — that residual is the gap between them, and higher-resolution archive models tested worse, not better.

Your last full-race plan before the gun vs. what the boat did. This is the whole-race difference — it already contains everything in the ranked upside below, so it is not one of those rows.

RANKED UPSIDE — BIGGEST FIRST

Each row is what a separate fix could be worth, on its own. They are **not slices of the total above** and do not add up to it — a bad sail choice and a tired helm show up in the same seconds, and any single row can exceed the whole, since flying the staysail or matching your fastest helm would put you past polar.

Helm ~2h 47m

If every scored trick at the wheel had matched Robbie's 105% over 9h 29m: Scott 99% (39m 12s), Wick 95% (57m 21s), Randy 89% (1h 06m), Sampson 102% (4m 43s). 3h 50m under 5 kn is excluded — percentage of polar isn't measurable there, so nobody is graded on the drifting watches. Watch length, wind and point of sail still differ — this is a benchmark, not a scorecard.

Sail selection ~49m

28h 10m flying a sail the crossover chart didn't advise, averaging 96% of target there vs 99% on the advised sail (38% of the race was on it).

Tacks & gybes ~1m

Measured speed lost through 9 maneuvers — the boat's settled speed either side vs what it actually did through each turn. Averaging 12.9s each. A further 15 changes of tack happened with no steerage way — the wind swinging across a parked boat, not a maneuver — and are excluded from both the count and the cost.

WHAT WENT WELL

- Sailed the boat to its polar. 98% of polar target over 47h 12m.
- Strongest upwind. 106% of target across 12h 25m upwind.
- #3 Jib went well. 103% of target over 16h 49m in 9.8–26.8 kn.
- Robbie fastest at the wheel. 105% of target over 9h 29m.

BIGGEST OPPORTUNITIES

- #1 Genoa underperformed. 93% of target over 21h 22m in 2.8–12.8 kn @ 35–89° TWA — worth a look at trim, or at where it sits on the crossover chart.
- Crossover chart needs recalibrating. The crew sailed something other than the advised sail for 28h 10m — 62% of the race. Re-tune the crossover chart against this inventory on the Sail chart page; the advice is only useful once it agrees with what the boat actually wants.
- Helm spread. 15 points between Robbie (105%) and Randy (89%). Check the Helm page for which conditions cost the most.
- Boat speed reads 4% fast. Solved against the ground track over 8 windows: 0.2kn out at 6 kn, with about 0.7kn of real current underneath it. Every percentage of polar in this report is computed from that reading, so they are all off by the same factor — and so is the "current" in the summary. Enter the correction in the instrument system's own boat-speed calibration, not here: that is where it also fixes the apparent and true wind derived from boat speed, and the polar you build next season. See Instrument calibration above.

FORECAST MODEL ACCURACY — VS. THE WIND WE ACTUALLY SAILED IN

Each model’s forecast compared to the boat’s own wind, averaged over the same forecast hour. Lower is better. The models are ordered by error, but **this race cannot say which is better** — see below. The forecast behind this ran 4 h before the start — *estimated from each provider’s published run schedule rather than read from the forecast, so treat it as ±1 h. It is older than when SailTac fetched it, which is the point.*

Rank	Model	Wind speed error	Direction error	Race covered
1=	ECMWF	±2.0 kn	±13°	100%
1=	GFS	±2.9 kn	±21°	100%
1=	HRRR	±3.0 kn	±22°	93%

Which way each model was wrong — a steady bias can be corrected for in your head, scatter cannot.

Model	Speed bias	Direction bias	vs. no forecast	Hours scored
ECMWF	−0.0 kn too little	−2° backed	67%	48 (47 steady)
GFS	+1.4 kn too much wind	−7° backed	52%	48 (47 steady)
HRRR	+1.3 kn too much wind	−9° backed	50%	45 (44 steady)

“vs. no forecast” compares each model against simply assuming the wind at the start held all race — the free forecast anyone has without downloading anything. Positive means the model beat it; negative means it did worse than doing nothing. Speed bias is measured at your masthead. The forecast is for 10 m, where the wind blows perhaps 5% lighter, so every model will look like it under-forecasts until the rig dimensions are filled in on the Heel & trim page.

No model won this race by enough to count. ECMWF and GFS are 0.87 kn apart with a ±1.92 kn interval over 48 comparisons, and ECMWF was closer in 31 of them. As far as this boat can measure, they are the same forecast quality. Forecast errors persist for hours at a time, so a race is worth far fewer independent looks at the weather than it has hours. The order above is an ordering, not a verdict — the Forecast record page pools races until it can give one.

GFS and HRRR returned the same forecast for almost all of this race, so they are not independent rows. This race used Open-Meteo’s “seamless” products, which splice a high-resolution model into their own early hours — over the continental US, GFS Seamless *is* HRRR for roughly the first day. SailTac now fetches the pure global models instead, so newer races won’t show this pairing. Treat these as one entry when you decide which model to trust.

How close any forecast could have got. Inside a typical forecast hour your wind moved ±1.2 kn and ±9° about its own average. An hourly forecast publishes one number per hour, so no model — however good — can score better than that against a log taken every second. Read the errors above against this figure, not against zero.

Measured wind direction is heading + TWA from the boat’s own instruments. 4,014 track points compared, in 48 forecast hours.

WHAT THE FORECAST COULD NOT SEE

You covered 210 nm — far enough that where the boat was genuinely changes what the forecast said, so the errors above are attributable to place as well as to time.

- ECMWF** — 210 nm of track against ECMWF’s 54.0 nm effective resolution — wide enough that where the boat was genuinely changes what the forecast said.
- GFS** — 210 nm of track against GFS’s 54.0 nm effective resolution — wide enough that where the boat was genuinely changes what the forecast said.
- HRRR** — 210 nm of track against HRRR’s 23.8 nm effective resolution — wide enough that where the boat was genuinely changes what the forecast said.

What you measured across the course

Side of the course	Wind	Direction	Time there
Right	11.8 kn	298°	2831 min
Middle	15.8 kn	263°	1 min

The boat did not spend enough time on both sides of the course to compare them — a side needs a couple of minutes before its average means anything. *Left and right are measured against the race’s median wind direction, there being no laid course axis to use — so treat the sides as approximate.*