

BOAT-on-WIND STRATEGY BOAT-on-BOAT TACTICS

“Visualize what you’ll do in every situation so when you begin to see it happening, you can react.”

Rick Lalley DF-65 2010 and Soling 688 April 10, 2022

1. **PRE-RACE: Visualize and sail VMG course – combination shortest distance and fastest speed Hot marks?**
 - a. Check rigging, sail settings, sheets clear, rudder aligned, batteries charged, hatch and battery cover watertight
 - b. Wind direction, shift pattern (light winds generally more variable), shoreline effects, gusts, clouds, dead spots, flags
 - c. Compare speed and pointing to top sailors Practice timed starts **BLAST (B)oom (L)eft (A)lways (S)tarboard (T)ack**
2. **START: Full speed at gun Favored end Favored sector Clear path to stronger wind and/or expected shift**
 - a. Nail time and distance on final approach Allow time for bad air and interference Avoid congestion
 - b. If early, trim or ease sails to slow Keep steerage Don’t stall
 - c. Hail bargers or find clearer lane down the line
 - d. Dial-up hook > Luff windward boats to carve space to leeward Foot to build speed just before gun
 - e. Clear air and speed critical first 100 feet
3. **WEATHER LEG: Sail tack pointing bow closest to mark Windward side of fleet Starboard advantage**
 - a. Wind right of mark > sail longer starboard tack first Wind left of mark > sail longer port tack first
 - b. Sail toward expected stronger breeze or directional shift. Boats nearest shift gain most
 - c. Climb *UP* Ladder (waves are equal position lines) Tack on headers (leads back to middle) Sail lifted tack
 - d. Heavy Air: sail for shifts, then velocity Light Air: sail for velocity, then shifts ... Clear Air Key
 - e. Capitalize on gusts. (cat’s paws...darker water) Sail *to* them and *in* them as long as possible
 - f. Windward telltale flutters > head down Leeward telltale flutters > head up (detailed on page 2)
 - g. Telltales: VMG (optimum lift/drag ratio) Inside telltale flicks every 2-4 seconds; more flicks in strong winds
 - h. Compare other boats’ speed, direction, wake, heeling angle and sails
 - i. Generally sail in MIDDLE sector Minimize sailing cross-course: if start right side, don’t sail to far left side
 - j. Avoid corners. Avoid lay lines until 5 –10 boat lengths from mark Stay with fleet unless good reason to split
 - k. Tack to safe leeward position (SLP) OR dip sterns Let port tackers cross if want to be left of them
 - l. Win first cross Consolidate lead by sailing back toward center of fleet Stay between competition and mark
 - m. Visualize deck sight lines: Within 0 to 45 degrees = boats ahead > 45 degrees = boats behind .. 90 degrees tacking
4. **WEATHER MARK ROUNDING: Visualize starboard or port mark rounding Avoid Congestion**
 - a. Approach starboard parade from slightly below port lay line, find hole, slightly overstay, tack for inside overlap
 - b. Wide mark entry > close exit Ease sails when rounding to reduce heeling and rudder angle
 - c. Inside boat CAN force opponent beyond windward mark (Opposite tack rule takes precedence over buoy room rule)
5. **REACHING LEG: Broad reaching fastest point of sailing**
 - a. Sail rhumb line in strong wind Sail high to keep wind clear and protect against boats passing to windward
 - b. Bear off in gusts to sail longer in breeze then back toward rhumb line Steer up slightly in lulls to maintain speed
 - c. Gain and keep inside position at mark rounding (going low or slow may help)
6. **DOWNWIND LEG and ROUNDING: Favored tack upwind likely opposite jibe downwind**
 - a. Sails square to wind slow Trim sails in some from full out position to improve attack angle
 - b. Sail on jibe that points bow closer to leeward mark (like sailing on tack that points bow closer to windward mark)
Wind arrives at stern or left aft > sail longer port tack first Wind lifts further left > steer lower to mark
Wind shifts to stern right > jibe onto starboard tack
Wind arrives at stern or right aft > sail longer stbd tack first Wind backs further right > steer lower to mark
Wind shifts to stern left > jibe onto port
 - c. Bear off in gusts to sail longer in breeze then back to or above rhumb line Steer up slightly in lulls to maintain speed
 - d. Going high prevents boats sailing over you Going low improves wind angle approaching leeward mark
 - e. Protect starboard advantage at end of leg Protect inside rounding
 - f. Approach mark wide (12”) & round close (4”) Trim sails and turn rudder to increase heeling while rounding
 - g. Inside boat CAN NOT force opponent beyond mark (Buoy room rule takes precedence over same tack rule)
7. **LAST BEAT and FINISHING LEG: EVERY BOAT PASSED GAINS A POINT**
 - a. IF Upwind Finish: Sail shortest course to *Downwind* End. IF Downwind Finish: Sail shortest course to *Upwind* End
 - b. Wind approaching right end of finish line > Finish at left (lowest) end on port tack lay line > Sail longer starboard tack first
Wind approaching left end of finish line > Finish at right (lowest) end on starboard tack lay line > Sail longer port tack first
Clues: “Visualize ladder rungs” “Visually, which end of line is closer?” “Sail across (not parallel to) finish line”
“Over standing lay line wastes time & distance” “Trend of boats ahead?”
 - c. Take full lead by taking long tack toward favored end OR see “d” get windward of trailing boat
 - d. ½ windward - ½ lead: Round > sail 3 lengths > tack back toward opponent > tack again before opponent rounds mark
 - e. Stay between opponent and finish line Match Tacks Protect starboard tack advantage Shoot the line.
 - f. Let opponents go that are sailing to unfavored side of course; otherwise, sit on them

VISUAL TUNING:

1. Confirm desired settings before launching
2. Main and Jib luff simultaneously from top to bottom (adjust relative position of jib and main boom)
3. Distance between main and jib forms even curve from top to bottom Jib far enough out to prevent back winding the main
4. Neutral helm in lulls, slight weather helm that "hunts wind" in constant wind Some weather helm (3 to 4 degrees) in gusts
5. Head up or ease sails to maintain desired heel angle Excessive healing adds weather helm
6. 2-3 degree rudder angle complements keel attack angle; if more, rudder acts as a brake
7. Steer by jib luff Trim by jib and main leach

TELLTALES SHOW ATTACHED FLOW LEEWARD SIDE (Outside) DETERMINES PROPULSIVE FORCE

Build speed, then point Main slightly luffing *just before jib* visually helps to point as high as possible.

Leeward Sailing Limit: outside telltales stall or stream forward > Sailing too low > Head up or ease sheet.

Acceleration Mode: outside telltale dances Slightly lower than full speed mode Accelerate out of tacks

Full Speed Mode: inside & outside telltales stream aft (light air, reduce side slippage)

VMG (optimum lift/drag ratio): inside telltale flicking every 2-4 seconds; more in strong winds

SWEET SPOT (center of groove): inside telltale slightly stalled (flies up 75% of time)

Pinching Mode: avoid unless feathering (overpowered): inside telltale straight up most of the time

Windward Sailing limit: inside telltales continuously twirling > Sailing too high > Bear off or sheet in

GUST (Cat's Paw) BEHAVIOR

Head for gust ... Wind gust veers (swings clockwise) relative to prevailing wind in Northern Hemisphere

Within Gust, wind on left side is *more veered* (lifting boats) than wind on the right side (heading boats) so tack onto lifted tack

GENERAL RC RULES (Local --- any "hot" marks?)

10: port tack boat keeps clear of starboard tack boat **BLAST: Boom Left Always Starboard Tack**

11: windward (upwind) boat keeps clear of leeward (downwind) boat

both boats on starboard, or both boats on port, the leeward boat has ROW

windward boat on starboard has ROW over leeward boat on Port

12: clear astern boat keeps clear of boat clear ahead

13: tacking boat keeps clear of all other boats

14: avoid contact with other boats if possible; may be disqualified if damage occurs

15; 16.1: boat acquiring right-of-way, or a right-of-way boat changing course shall give boats room to keep clear

17.1: luffing rights turn off as soon as boat passing to windward gains overlap, then leeward boat must return to proper course

17.2: windward boat shall not sail *below* her proper course once overlapped by boat passing to leeward

MARKS & OBSTRUCTIONS

18.1: starting mark is not a mark of the course, so no room need be given. Room must be given at finish mark.

18.2c: overlap established when entering the 3-boat zone, even if broken later

18.3: boat tacking inside 4-boat zone loses right to room at the mark

20: if recalled at gun, keep clear of boats that have started and go back to the "right side" of the line around either end. No rights.

CE AFT OF CLR ... TO REDUCE WEATHER HELM: CE FORWARD OF CLR ... TO REDUCE LEE HELM:

MOVE CE FORWARD: *** MOVE CE AFT**

Increase jib camber (power up) Decrease jib camber (power down)

Decrease main camber (power down) Increase main camber (power up)

Trim jib sheet &/or Ease main sheet Ease jib sheet &/or Trim main sheet

Ease vang (dumps air) Tighten vang

Move mast forward &/or rake forward Move mast aft &/or rake mast aft

MOVE CLR AFT *** MOVE CLR FORWARD**

Move battery aft Move battery forward

Corinthian spirit!

Clean getaway – nail time and distance to start line

Clear lane at favored end of start line (*and* to favored end of finish line)

Climb up & down the Ladder Capitalize on wind direction, velocity and puffs, lifts and headers

Concentrate on boat speed, sail trim, attack angle, heel angle

Consider when to foot for speed (lower faster) or pinch for shorter course (higher slower)

Concise tacks and jibes without cutting speed

Consolidate lead by crossing fleet

Control competition using loose or tight cover

Consistency wins regattas