

Sailboat Race Courses

May 2002

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Setting a Course

After you have been racing a while, you will probably notice that most sailboat race courses are slight variations of a few basic themes. The starting line is square to the wind, the first mark is directly upwind from the middle of the starting line, the marks are left to port, and the course itself is a combination of triangles and straight upwind/downwind legs. While the racing rules allow nearly any shape of course design, there are some good reasons why most Race Committees follow these basic guidelines.

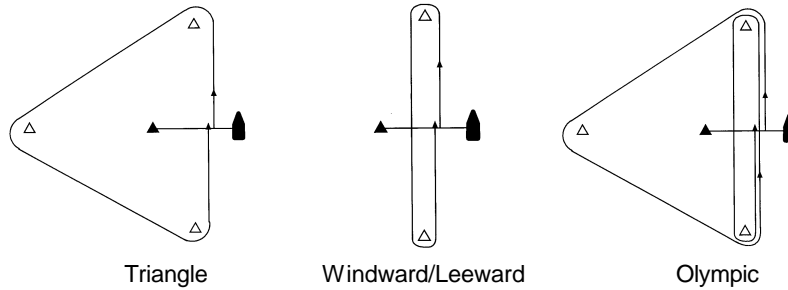
The first rule of thumb is that the starting line should be square to the wind and square to the course to the first mark. This is true whether the first leg is upwind or downwind, but is particularly important for upwind starts. The reason is simple: if the starting line is not square then the end that is closer to upwind or closer to the first mark has a significant advantage and all of the racers will want to start in the same place. Or course, not all of the boats will fit in the same place at the same time and the result can be difficult right-of-way situations, fouls, and even collisions.

The second rule of thumb is that the first leg should be upwind. First, this makes the start easier without boats going over early, but the main reason is to spread the boats over the course so that they don't all arrive at the first mark at the same time. Because racers have to tack to go up wind, the best direction to sail is a matter of opinion and fleet tends to split up on windward legs with some going more right and others going more left. The result is a less-crowded mark rounding at the weather mark and fewer chances for anyone to break a rule.

Marks are usually left to port in fleet races for a slightly different reason. When two groups of boats are approaching the weather mark with one group on port and the other on starboard tack, the mark rounding tends to go more smoothly and the rules are easier to apply if the mark is rounded to port so that the boats that do not need to tack have the right of way on the approach. If a port-tack and a starboard-tack boat are approaching a starboard mark rounding, the right-of-way boat (starboard) must tack in order to get around the mark. When she starts to tack, she retains right-of-way only until she reaches head-to-wind and then becomes a sitting duck for any other boat on the course, port or starboard. Once she is on port tack she regains some rights, but now she must keep clear of any boats approaching on starboard tack. The result can be real chaos if very many boats reach the mark at about the same time. Starboard roundings are used in match racing because each boat only needs to worry about one other on the course and the extra tactical complexity makes the race more interesting.

Finally, most race courses have in common the overall course design. Most race course designs, except for long-distance races, are variations of triangles and windward/leeward legs. First of all, this makes life easier for the Race Committee because they don't have to worry about accidentally breaking one of the other rules-of-thumb and in addition these types of courses are easy to set up, describe, and operate. Upwind and downwind legs provide the most opportunity for tactical decisions that allow you to pass other boats, and as a result are very popular for racing high-performance boats. The triangle course has the advantage of keeping the lead boats away from the large group of boats still coming upwind by making them sail to the gybe mark first, and it also had the advantage of keeping the boats moving on hot summer days when no one wants to sail straight downwind. For this reason a triangle is often preferred for club races and is pleasant to sail. An Olympic course where a triangle is followed by a windward/leeward lap combines the two and by the time the straight downwind leg starts, the fleet is usually spread enough to reduce the number of interactions between downwind and upwind boats.

Race Course Diagrams



Taxonomy of a Race Course

When racers get together after the race they need a common language to talk about the day's events on the race course. For that matter, the Race Committee needs a way to describe the course in the Sailing Instructions and at the Skipper's Meeting. Here are some of the terms you may hear when people talk about race courses.

Committee Boat: The end of the starting line marked by the Race Committee boat.

Usually the starboard end of the line when facing upwind. The Committee Boat flies the flags and sounds the horns to signal the racers and records start and finish times.

Pin: The end of the starting line marked by a buoy. Usually the port end of the line when facing upwind.

Open Line: Racers are allowed to cross the start/finish line during the race. This is the case unless the Sailing Instructions say otherwise.

Closed Line: Racers are not allowed to cross the start/finish line while racing except while starting or finishing their race. This is sometimes called a *Closed Gate*.

Weather Mark (or Windward Mark): The mark buoy that is the most upwind.

Lee Mark: The mark buoy that is the most downwind.

Gybe Mark: The second mark on a triangle course, where you have to gybe to stay on the course.

Windward Leg: A leg of the race where you must sail closehauled and tack to reach the next mark.

Reaching Leg: A leg where you can sail on a reach and do not need to tack or gybe to reach the next mark.

Downwind Leg: A leg where you must sail more or less straight downwind to reach the next mark and you may need to gybe one or more times.

Marks Left to Port: When you round a mark, you pass it so that the mark stays on the left side of your boat. Most fleet racing courses are designed this way, particularly for the first windward mark.

Marks Left to Starboard: When you round a mark, you pass it so that the mark stays on your right side. Most match-racing courses are designed this way, particularly the America's Cup.