RYA / RORC GUIDANCE

RACING AROUND WAYPOINTS

The RYA has approved an application under rule 86.3 from the Royal Ocean Racing Club to test new rules during 2014 in events for which it is the organizing authority, to make it possible for courses to use waypoints rather than marks wherever it is suitable to do so. Other organizing authorities may apply for such permission.

Introduction

For good competition, race committees for offshore races will often want to set a mark where no fixed buoy exists, and where the laying of a mark specifically for that race will be impractical or expensive.

Electronic Position Fixing Systems (usually GPS) are reliable and inexpensive; they are required equipment for races of OSR Category 3 or higher.

This raises the possibility of using a geographic position (waypoint) as a rounding or passing point in a course, employing electronic position fixing technology to provide evidence that the boats have sailed the course as required. Such a waypoint is intended as a substitute for a mark.

The use of waypoints raises issues for several reasons:

- A waypoint is not a physical object.
- Electronic position fixing does not provide an absolute confirmation of a boat's position at any point in time.
- Boats approaching a waypoint may have different, equally valid, perceptions of each other's position relative to the objective position of the waypoint.
- RRS 18 and RRS 28.2 cannot apply, because a mark is defined as an object. Therefore, new rules are needed, and these require national authority permission, as they are outside the scope of changes to sailing instructions that rule 86.1(b) permits.

APPROVED TRIAL RULES AND RELATED GUIDANCE

New definition

Waypoint A waypoint is a position, other than a *mark*, described by latitude and longitude coordinates.

Amended rule 28

28 SAILING THE COURSE

28.1 A boat shall s*tart*, sail the course described in the sailing instructions and *finish.* While doing so, she may leave on either side a *mark* or *waypoint* that does not begin, bound or end the leg she is sailing. After *finishing* she need not cross the finishing line completely.

28.2 A string representing a boat's track from the time she begins to approach the starting line from its pre-start side to *start* until she *finishes* shall, when drawn taut,

(a) pass each *mark* or *waypoint* on the required side and in the correct order,

(b) touch each rounding *mark*, touch a hypothetical object at each rounding *waypoint*, and

(c) pass between the *marks* or *waypoints* of a gate from the direction of the previous *mark* or *waypoint*.

She may correct any errors to comply with this rule, provided she has not *finished*.

28.3 The sailing instructions may specify criteria to determine whether a boat has rounded or passed a *waypoint* on the required side.

Insert into Part 2 new rule W1

W1 ROOM TO PASS A WAYPOINT

W1.1 When rule 20 applies, rules W1.2 and W1.3 do not.

W1.2 When *overlapped* boats are approaching a *waypoint* to pass it on the required side the outside boat shall give the inside boat *room* to pass the *waypoint* unless the outside boat has been unable to do so from the time the *overlap* began;

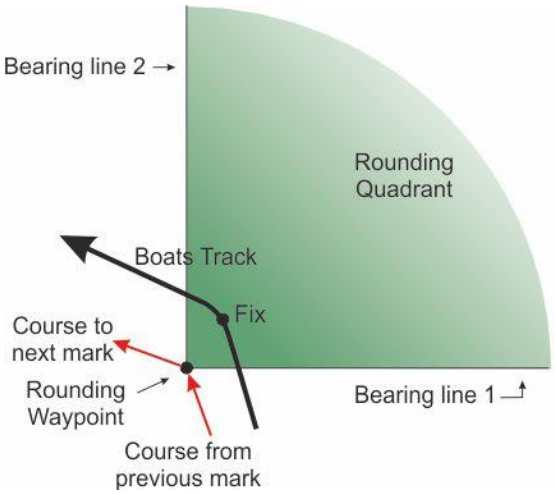
W1.3 If the inside boat has reasonable doubt that she has *room* to pass the *waypoint*, she may hail the outside boat accordingly. The outside boat shall then give the inside boat additional space unless she is unable to do so.

Proof of Sailing the Course

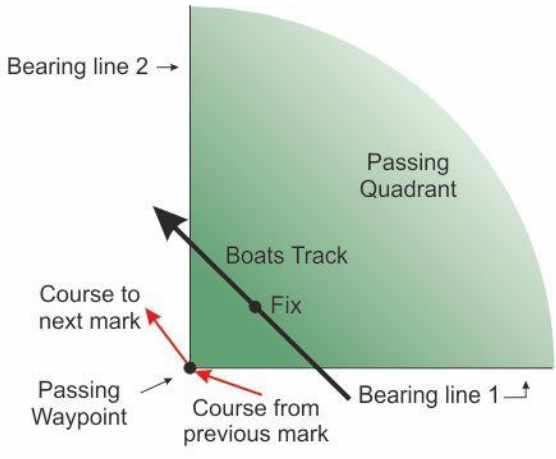
When boats meet at a physical mark, simple visual evidence is usually available to confirm to one boat that the other has rounded or passed correctly. Because no such direct evidence is available at a waypoint, the race committee may wish that boats should be able to show that they have left the waypoint on the required side.

The recommended mechanism is to specify a “passing quadrant” associated with the waypoint as shown in the following diagrams. A boat is deemed to have passed the waypoint on the required side if she provides a GPS fix that lies within the associated quadrant.

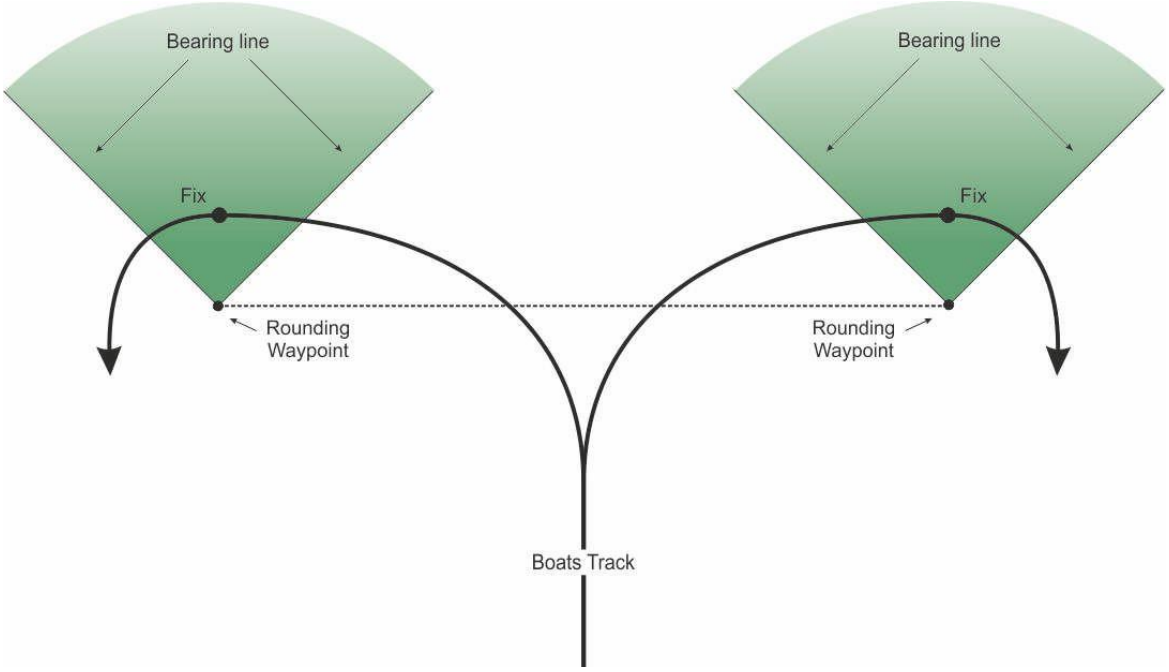
Rounding Waypoint



Passing Waypoint



Waypoints as a Gate



Recommended Sailing Instruction

Each waypoint has an associated rounding/passing quadrant defined as the area enclosed between two bearing lines (with 90° between them) extending from the waypoint. The bearing lines are specified with each waypoint designated in these sailing instructions. A boat that provides a valid GPS fix within this quadrant is deemed to have rounded or passed the waypoint on the correct side.

Recording

As the proof of sailing the course relies on electronic fixes, a means must be provided of recording fixes and the times at which they were taken. There are many ways in which this could be done:

- The boat's GPS/Plotter can record the boat's track, from which fixes can be extracted;
- A tracking system may be used to record the boat's track;
- A dedicated GPS logging device may be used to record the boat's track;
- A photograph of an instrument displaying the fix;

Consideration should be given to the impact of recording fixes on the handling of short-handed boats.

Note: because two GPS receivers located on the same boat may show different positions for the boat, data derived from the receiver used as the boat's primary navigation system should take precedence over other GPS data in determining whether or not a boat has sailed the course correctly. This is particularly important when logging systems are used to which the boat has no access for navigational purposes.

Reporting

This will depend on the requirements of the organising authority, noting that in races around physical marks it is not usual to require more than a written declaration that the boat has sailed the course in accordance with the rules. Onerous reporting requirements may discourage competitors from entering the event.

Possibilities include:

- Requiring the boat to retain the original record of the fix until it is called for by the race committee (either as a partial sample, or required from all boats) or by the protest committee in the event of a protest for not correctly rounding or passing the waypoint. A reasonable time limit should be set.
- A positive requirement to lodge the record of the fix with the race committee. This could be combined with other reporting/declaration requirements. Such fixes could be published on the notice board or event website to help avoid unnecessary protests.
- Installing a position-logging system provided by the organizing authority, to be accessed by the race committee.

The question of whether a boat has sailed the course as required is a different issue from meeting a reporting requirement. The former should be the subject of a protest, to be decided by a protest committee, with DSQ as the default penalty. The latter could be a potentially lesser penalty, which could, if so stated in the sailing instructions, be administered, without a hearing, by the race committee, subject to the right to a hearing if disputed by the boat.

Recommended Sailing Instruction

[Provide:

SI XXX to define the evidence required that the boat has sailed the course correctly,

SI YYY to state the penalty to be applied for failing to provide the evidence required in SI XXX]

A boat that fails to provide the evidence of sailing the course required by SI XXX shall be penalised by the race committee without a hearing. The penalty shall be in accordance with SI YYY. A boat so penalised shall be entitled to a hearing on request. This changes rule 63.1.

A boat shall not protest another boat for failing to report as required by SI XXX. This changes rule 60.1.

Specifying a Waypoint

When describing a waypoint in the sailing instructions, the following form of words is recommended.

Note: the GPS coordinates of a geographic position can vary significantly depending on the GPS Datum used. The datum used by most British Admiralty charts is WGS84.

Recommended Sailing Instruction

GPS Datum. All GPS positions specified, or required to be reported, in these sailing instructions shall use the XXXXX Datum.

Waypoint NAME

Latitude nn:nn.nnn E/W

Longitude nnn:nn.nnn N/S

Round [or Pass] to Port/Starboard

Rounding [or Passing] Quadrant between bearing lines nnn degrees and yyy degrees TRUE/MAGNETIC to the waypoint.