

Appendix 1: Regatta Courses

By-Laws to RULE 42-43 (Part V) - Courses

Regulations for RA Events Regatta Courses

1 RA Events Manual

In addition to conforming to the Rules of Racing and to related By-laws a course and all its technical equipment must also comply with the specifications and descriptions given in the latest edition of "The RA Events Technical Manual".

2 Stretches of water

2.1 General

A standard course for RA events shall be straight and shall not have less than 6 racing lanes. It shall provide fair and equal racing conditions for at least six crews. For a course constructed after February 2001, there must be a minimum of eight racing lanes.

In addition to the racing lanes there must be sufficient water width available to allow crews to get to the start, to warm up and to cool down safely and without disruption to racing.

For courses on lakes where the banks on both sides of the racing lanes are at such a distance that there would be no negative impact on the conditions in the racing lanes, a minimum of 8 lanes must be available, of which there could be 6 racing lanes and 2 training lanes.

2.2 Length of Water

The minimum length of water necessary to contain the standard course is 2,120m. For a course for Masters the minimum length is 1,150m. However, courses for masters must take into account the additional requirements for warm-up and pre-start marshalling behind the start.

2.3 Width of Water

The standard course for RA events shall be at least 95m wide i.e. 15m (water width available to allow crews to get to the start) + 75m 6 x 12.5) + 5m (free space between the racing lanes and the opposite bank = 95m.

This width is a minimum and is only acceptable if a low level TV road is provided alongside the full length of the course.

The ideal recommended width of the course for RA Events shall be at least 162m i.e. $27 + (8 \times 13.5) + 27 = 162\text{m}$.

This width allows for traffic movements beside the course and for TV coverage from the water.

2.4 Depth of Water

Depth of Water – For a standard international course the depth of water must be at least 2 metres throughout all racing lanes if the depth of the course is equal at all points, or 3 m at the shallowest point if the depth over the course is unequal. A course depth of 2 metres represents the minimum competition requirements. A depth greater than 2 metres may be required to allow for aquatic plant growth. However, given the varying nature of aquatic plant growth conditions across the country it is recommended that this is studied on an individual basis for each course.

2.5 Local Conditions

The course must be sheltered from wind as far as possible. If not, there must be no natural or artificial obstacles (such as trees, buildings, structures) in the immediate neighbourhood of the course which might create wind shadows and cause unequal conditions on the water.

On a standard course there should be no stream. Any stream existing should be so minimal as not to give rise to unequal conditions on the different lanes. The running of the race must not be influenced by natural or artificial waves. The banks should be so designed as to absorb and not to reflect waves.

2.6 Plan

A plan showing the location of the course, the length and the number of lanes and the layout of the technical installations must be included in the advance program.

3 Technical Installations — Category A (For RA Events)

3.1 Start zone

3.1.1 Start Pontoons

The bows of each boat shall be aligned on the start line. This requires the use of start pontoons which support a boat-holder and can be moved forwards or backwards in order to allow for the bow of the boats of different lengths to be aligned on the start line. The pontoons must be of a solid construction and able to be firmly fixed in position and shall meet the specifications described in the RA Event Technical Manual.

For RA Events the start pontoons are recommended to be connected by land or by a Start Bridge, minimum 2m wide, allowing easy access for officials, technicians and for media.

The Start Bridge shall be connected to the land (or the Aligner's Hut) and to the Start Tower through a floating pontoon.

For regattas where Para events are included, the start pontoons must allow for the standard Para 1x boat (as defined by World Rowing) to be aligned on the start line in addition to all other lengths of boat up to 8+.

3.1.2 Steering Aids

To assist crews with their steering, the Albano lanes to be buoyed at 5 or 6.25 metre intervals for the first 100 metres of the course. These buoys shall be of a different colour from those marking the majority of the course — see 3.2.3 Buoys.

3.1.3 Start Tower

The start tower shall be between 40 and 50 metres behind the start line as close as possible to the centre of the course. The tower shall be equipped with a covered platform for the starter which shall be not less than 3 metres and not more than 6 metres above the water level, depending on the distance from the start line. The tower shall be built in such a way that the starter has a clear view over the entire start area, including the aligner's hut.

The Start Tower shall be connected to the start bridge through a floating pontoon.

3.1.4 Starter's Equipment

The tower should be equipped with either one or two large clocks that are clearly visible from a minimum distance of 100m to the crews on the course and those crews waiting for the start. The starter shall give their instructions and orders by means of a microphone connected to loudspeakers so arranged that they may be heard simultaneously by all competitors.

In addition, the start tower must be provided with a red flag with a white diagonal cross, a bell and a megaphone. This additional equipment shall also be provided as a back-up where the start is given by

a traffic light system of visible and audible signals. A notice board and chalks or felt markers should be provided to enable the Starter to provide visual information to crews of any postponement of races.

3.1.5 Radio or telephone communication

The starter shall be in direct communication by radio and/or telephone with the Judge at the Start, the Judge at the Finish, the Control Commission and the President of the Jury.

3.1.6 Aligner's Hut

This shall be a fixed structure placed exactly on the start line, ideally not less than 15m and no more than 40m from the first lane. The floor level of the hut should be a minimum of 1m above the water level. The hut should provide weather protection for up to 4 persons and their electronic equipment and there should be enough space so that the Judge at the Start and the aligner can both be seated on the line of the start one behind the other, both clearly observing the start area. The Judge at the Start shall sit closer to the first lane with the Aligner behind them, at a higher level. There shall be radio links between the Aligner and the start pontoon officials.

There shall be installed two vertical wires – one permanently fixed behind the video camera and one removable in front of the video camera. The vertical wires must be exactly in line with the horizontal start line. When looking through the vertical wires towards the sight marker at the opposite side of the course, they must all be in one line.

For RA Events, it is preferred if the hut be provided with a false start detection system including a “freeze frame” video system connected directly to the Starter's start signal. This requires a video camera showing the start line, a computer and two monitors.

3.1.7 The Start Line

The start line shall be the line running between the fixed tautly stretched thin vertical wire (1 mm) located in front of the officials but behind the video camera in the aligner's hut and a vertical line on a fixed sight marker on the opposite side of the course. An additional removable vertical wire installed a minimum 80 cm in front of the video camera shall be used for aligning the video camera and shall be removed after each alignment. Both vertical wires must be exactly in line with the horizontal start line. When looking through the vertical wires towards the sight marker at the opposite side of the course, all three marks must be in one line. The vertical wires shall be 1 mm thickness in black colour. The fixed sight marker shall be divided vertically and painted one half black and the other half luminous yellow, with the black half in the direction of the finish. The start line shall be the vertical line where the two colours meet.

3.1.8 Other Facilities

There shall be facilities for effecting minor repairs in the neighbourhood of the start, (this will require a repair pontoon approximately 3m x 6m, upper edge max. 15 cm above the water level, ideally located near to the Aligner's Hut – used for urgent boat repairs at the Start). Adequate toilet facilities for officials and media in the start area should be provided either as a permanent fixture or by using temporary units.

3.1.9 Start Zone

The start zone is the first 100m of the course, from the start line to the 100m line. The start zone shall be marked by Albano system buoys of a different colour from those marking the rest of the course and placed at 5m or 6.25m intervals.

3.1.10 Alignment Control Mechanism

RA Events may use an alignment control mechanism in the centre of each lane which shall hold the bow of the boat in a fixed position on the start line until the starter makes the start.

Such a mechanism shall be designed to hold the bow safely, without any risk of damage to the boat. It shall release the bow of the boat immediately when an electrical signal is triggered by the starter. The mechanism shall also be designed to operate in a "fail safe" manner i.e. if there is any fault with the mechanism, then it shall immediately release the bow of the boat and move to a position such that no damage can be caused to any part of the boat.

3.1.11 Visible Signal and Audible Signal

At RA Events the start shall be given by using a lights system ('starting lights') with a visible and an audible signal.

The starting lights showing the visible signal and housing the loudspeaker emitting the audible signal shall be fixed adjacent to each start pontoon.

The centre of the starting lights shall be fixed at a height of between 0.7 metres and 1.1 metres above the water level. A starting light shall be positioned 3 metres from the centre line of the start pontoon, on the side nearer to the centre of the course and visible to the crew on that start pontoon. The visual signals of the starting lights shall operate in only three positions:

- a neutral (no light) position;
- a red light signal;
- a green light signal.

The starter shall start the race by operating just one button. This button shall simultaneously control the green light signal and the sound signal; start the timing system, freeze the video picture (if provided) for the Judge at the Start and it will release the alignment control mechanism (if provided).

The control system for the starting lights shall be designed to allow the following order of events as far as the crews are concerned:

- neutral – no lights, no sound signal;
- red light, no sound signal;
- if necessary, return straight from red back to neutral;
- green light and a sound signal.

The mechanism must not have more than three positions for the visual signal (neutral, red and green) and the control system must be capable of returning from red to neutral without passing through green.

The mechanism must ensure that the green light and the sound signal are given at exactly the same time.

The light system should also provide a false start alert which can be activated by the Starter (and also in principle by the Judge at the Start) and which should be in the form of repeated flashing of the red lights and sound signals

Separate starting light units shall be fixed so that they can be seen by the starter and by the Judge at the Start.

The electrical system shall be provided with a duplicate, back-up system. Both the red and the green signals shall be clearly visible to the bow person in an eight when positioned on the start even in conditions of bright sunlight.

3.2 Between Start and Finish

3.2.1 Lanes

The lanes shall be buoyed according to the Albano system. These lanes must be straight and of the same width over their whole length.

The width of each lane shall be no less than 12.5 and no more than 15m all lanes on the course shall be of identical width. (In special circumstances the width of each lane may be reduced to 12.5m).

For a standard course it is recommended that there should be eight buoyed lanes, (minimum is six).

For RA Events it is recommended that there shall be a minimum of 8 buoyed lanes.

3.2.2 Lane numbering

In principle, Lane No 1 should be on the left hand side of the starter in the Start Tower looking towards the Finish.

3.2.3 Buoys

The space between buoys along the axis of the course shall be 12.5 metres or 10 metres except in the Start Zone where it should be 5 metres or 6.25 metres depending on the thickness of the longitudinal wires making up the Albano course, as defined in the RA Events Technical Manual. The buoys may be spherical or cuboid in shape but shall be of such material and design that when struck by an oar or boat they will deflect easily and not cause damage or undue interference to the boat or crew. The surface of these buoys (whose diameter shall be 15cm or square) shall be pliant (not hard).

The colour of buoys shall be the same in all lanes at each point on the course. The colours should be visible in all weather conditions. In the Start Zone (the first 100 metres) and at every 250m line the colour of buoys shall be a clearly different colour from the buoys in the majority of the course. In the last 250 metres the colour of buoys shall be the same as those in the first 100m, or such other colour which is clearly distinct from the colour in the majority of the course. Except for the Start Zone and each 250 metre line, each alternate line of buoys may be of alternating colours where this will assist television presentation.

There shall be no buoys on the start line nor on the finish line.

3.2.4 Distance Markers

The distance markers shall show the distance in the direction from the start to finish.. Every 250 metres beyond the start, the distance from the start shall be marked on both sides of the course, either by clearly visible boards of a minimum size of 2m x 1m on the banks or by cubes (1m cube) on the water. They should read, at the first 250 metre mark — “250”, then “500”, and so on to the 1750 metre mark. There shall be no distance marker at the start or the finish.

3.2.5 Intermediate Times

Equipment shall be provided every 500 metres for recording the intermediate times and placings of all competitors. For RA regattas, video cameras are only accepted for taking of intermediate times if they provide 100 frames per second or more

3.3 The Finish Area

3.3.1 Finish Line

The finish line shall be the line running between a tautly stretched thin (1mm) vertical wire immediately in front of the Judges at the Finish and the vertical line on a fixed sight marker on the far side of the course. The fixed sight marker shall be divided vertically and painted one half black and the other half

luminous yellow, with the yellow half in the direction of the start – the finish line shall be the vertical line where the two colours meet.

There are two options for the vertical wires for the Photo-finish cameras:

- (1) Photo-Finish Cameras on different level to Jury & Timing Seats - there shall be installed two vertical wires – either both removable in front of the photo-finish cameras or one in front of the photo-finish cameras (removable) and the second one (fixed) behind the photo-finish cameras. The wire in front of the photo-finish cameras must be at a distance of 100 cm, but a minimum 80 cm, in front of the photo-finish cameras. When looking through the two vertical wires to the sight marker at the opposite side of the course, all three points must be in one line. There shall be installed a separate fixed wire for the Judges at the Finish and Timing officials to use by sighting against the finish line marker on the far side of the course.
- (2) Photo-Finish Cameras on same level as Jury & Timing Seats - there shall be installed two vertical wires:
 - (a) one behind the cameras, removable or permanent Updated to include current specifications (depending on the available space)
 - (b) one at a distance of 100cm (minimum 80 cm) in front of the photo-finish cameras, which should be divided in two sections:
 - (i) The upper part of the wire, which is in front of the video cameras, has to be removed before racing and should be easily and accurately fixed back again in order for the accuracy of the camera position to be checked at any time.
 - (ii) The Judges at the finish and Timing officials should be able to use the lower part of the wire by sighting against the finish line marker on the far side of the course at all times during the regatta.
 - (c) The vertical wires must be exactly in line with the horizontal finish line. They should be maximum 1 mm thick and of black colour.
 - (d) When looking through the vertical wires towards the sight marker at the opposite side of the course, they all have to be in one line. (e) There should be no glass in front of the Photo-finish cameras.

In the case where there is no possibility to install a vertical sight marker on the opposite side of the course (a very side open lake), the finish line may be marked instead by two vertical wires (80 to 100cm apart) immediately in front of the Judges at the Finish may be used.

The finish line may be marked on the water by two red flags placed on white buoys at least 5 metres outside the course on each side. If necessary, the two red flags (or one of them) may be placed on the bank. It is essential that these flags be exactly on the finish line and that they do not impede the view of the judges at the finish or the progress of crews going to the start.

3.3.2 Finish Tower

This must be a structure erected exactly on the finish line and placed ideally 30 metres from the outside of the racing lanes. It should have three levels. It should accommodate the timing, the Judges at the Finish and the photo-finish equipment together in the same room. In addition it can accommodate the commentary, the results board operator (where provided), TV cameras and a regatta control room. There must be a loud hooter or horn to signal to each crew that it has crossed the finish line.

3.3.3 Area Beyond the Finish

There shall be sufficient clear water beyond the finish line to allow crews to stop. Ideally this should be 200m. If the boathouse area is located beyond the finish line this is essential. Under other arrangements a minimum distance of 80m might be acceptable.

3.3.4 Timing and Results Systems

Times shall be shown to 1/100th of a second on the Results Sheets and on the Scoreboard.

In the case of close finishes the order of finish must be determined by means of special equipment such as a photo-finish camera, capable of measuring and displaying differences to at least 1/100th of a second.

For RA Events, a full back up of the timing/results/photo-finish systems shall be provided and the timing/results/photo-finish systems must comply with the specifications and descriptions given in the latest edition of "The RA Events Technical Manual".

3.3.5 Results/Video Board

A results and/or video board should be located in a position where it is visible from the main spectator areas and, if possible, by the competitors at the end of the race.

The operation of the results/video board must comply with the specifications and descriptions given in the latest edition of "The RA Events Manual".

4 Technical installations — Category B

All other courses shall be classified as having Category B technical installations.

A number of Category B courses may well provide facilities and equipment which make them very close to or similar to Category A courses. In these cases it is possible to hold RA Events based on the final decision of the event Technical Delegate and the RA Board following the provisions in 5 below.

5 Adjustment for Regattas

The provisions of these rules shall apply to all regattas conducted under the auspices of RA, but may be adjusted with the concurrence of the Board to suit the requirements of the event or the venue for the event.