



# Australian Jet Sports Boating Association

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Australian Jet Sport Boating Association  
Closed Course Design Guide



## Disclaimer

This document has been prepared and endorsed by Australian Jet Sport Boating Association (inc)  
Management Committee pursuant to the Rules of Association.



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## PREFACE

- **Personal Watercraft Race Track Safety in Design**

Safety, Form and Function are equally important in the design of a Personal Watercraft Closed Race Course. The race track must be user friendly and must meet the operating requirements of a wide range of Personal Watercraft Models. To be Safe and successful, today's PWC Race track designs must integrate certain discreet and detailed requirements into the concept, final design and layouts.

The Basis of Design geometrical guides within this document are the minimum standard requirements for closed course layouts and are a mandatory requirement for AJSBA Sanctioned events.

### 1. Introduction

The Australian Jet Sport Boating Association (AJSBA) is a not for profit association registered with ASIC and is the Australian Sports Governing Body for Personal Watercraft.

The AJSBA is an affiliated association to the International Jet Sport Boating Association (IJSBA).

This Closed Course Design guide adds geometry metrics to current IJSBA rule book, direct extracts from current rulebook are clearly *identified in blue*



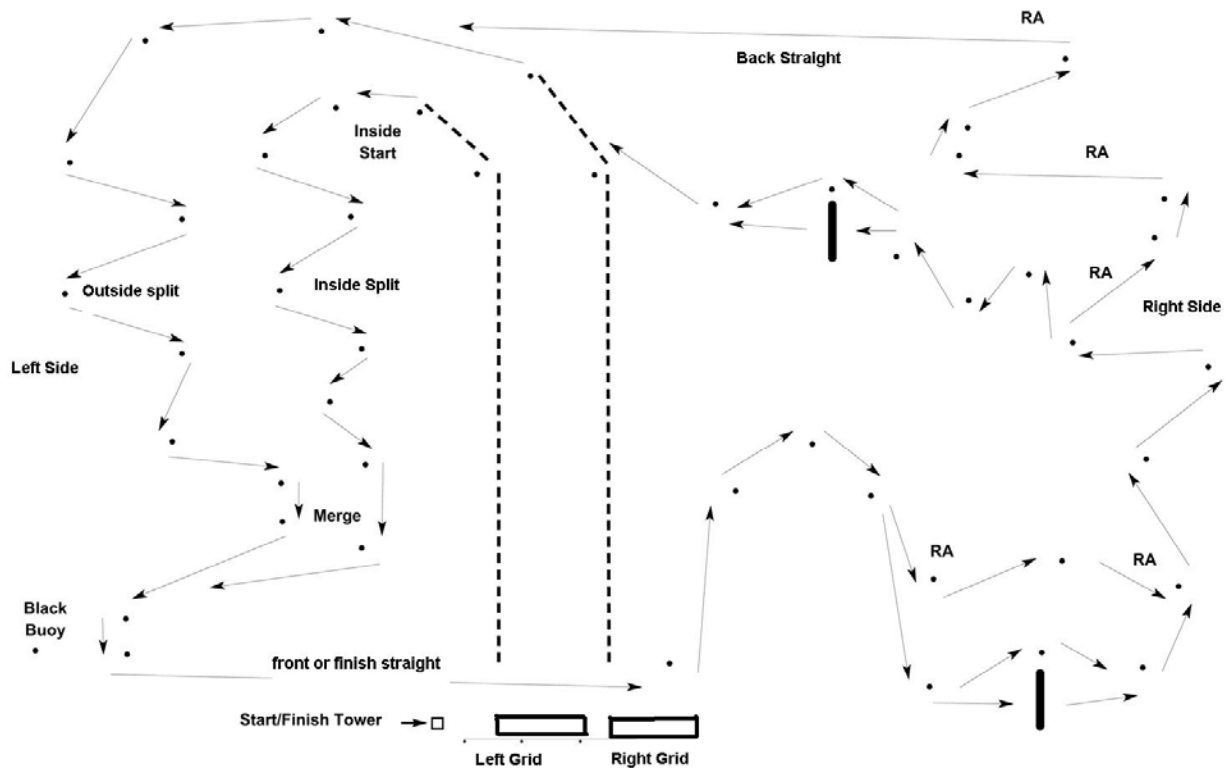
## 2. Closed Personal Watercraft Buoy Course overview

Closed Race courses best practice has a traditional rectangular outline with a back straight; front finish straight, left and right sides of the course

Left and right hand side start grids with split Hole-shot Buoys entering splits section of course

Dependent on Clock wise or Anti-clockwise Race directional layout as is the figure below indicates, the left hand start grid takes the inside split and the right hand start grid takes the outside split.

Closed course races are traditionally in protected water zones or flat-water zones.



**2011 quakysense IJSBA World Finals COURSE LAYOUT**

--- Subject to change ---

## 4. IJSBA 11.2 CLOSED-COURSE EVENT

11.2.1 A closed-course event is a contest of speed and riding ability featuring multiple competitors negotiating multiple laps of a course consisting of left and/or right-hand turns. Obstacles (e.g., log jumps and/or ramps) may be present. Competing watercraft must meet IJSBA class specifications. For specific closed-course event rules, refer to Section 12, pgs. 53-56.



### 5. Craft on Course

The maximum number of watercraft per closed-course heat should not exceed the following:

Class	Ski	Sport	Runabout
Junior	12-----*14	12-----*14	9-----*12
Novice	12-----*14	12-----*14	10-----*14
Amateur	12-----*16	12-----*16	10-----*14
Pro	18-----*20	16-----*20	12-----*16

\* If a dual first-turn design is used.

### 6. Start line grid.

Start line grid positions should be a minimum of 1.5 meters in width for Ski Class and a minimum of 2 meters width for modern Runabout class

### 7. Start Line Straight

Start line straight should be a minimum length of 100 meters

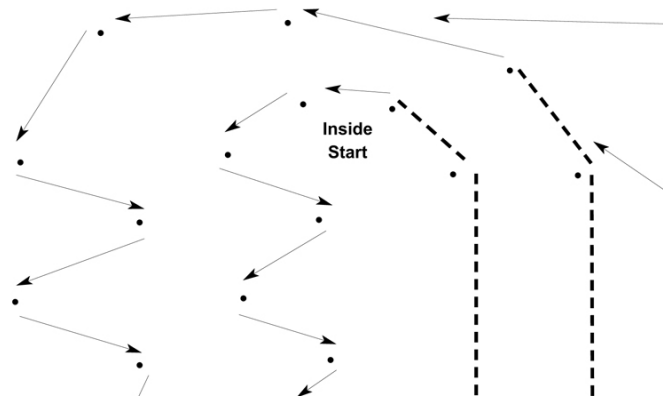
If this minimum distance is unachievable a rolling start or Le mans start must be used

### 8. Holeshot Corner Apex

The Hole-shot corner apex or Hole-shot Buoys are described as the amount of buoys required for the first significant and continual corner from the start line straight. The first hole-shot corner can be from a right angled 90 to a 180 degree hairpin turn.

Hole-shot corner apex should consist of a minimum 3 buoy turn apex each of a minimum of 135 degree incremental apex graduations with the 4<sup>th</sup> buoy corner apex of no more acute than 90 degrees

Minimum diameter between 1<sup>st</sup> and last hole-shot buoy should be a minimum of 60 meters



### 9. Course Marker Buoys

#### IJSBA 15.4.4 Corner/Course Marker Buoys:

A course marker is a mandatory negotiating point signified by a perfectly identifiable floating device whose position will be described during the pre-race riders meeting and a publicly posted course map (practice or reconnaissance lap(s) may also be used). Buoys or lines of buoys may be used to guide, slow down or mark areas where a change of pace is expected. Any such buoy(s) shall be clearly identifiable by different size or color from other course marker buoys. All riders must negotiate completely around any course marker buoy. The nose of the watercraft must be clearly steered around any marker buoy. Any competitor riding over a course marker buoy will be judged to have missed the buoy no matter what side of the watercraft the buoy reappears.

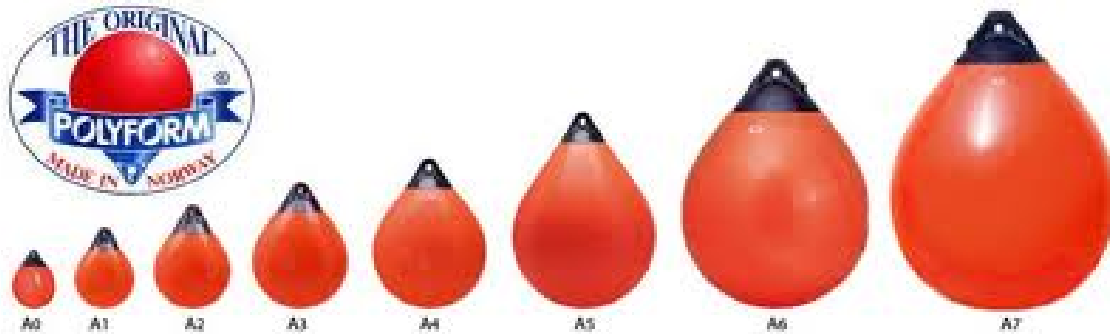


*The rider will be required to renegotiate the turn buoy going in the proper direction, and will be required to do so in a safe manner so as not to create a hazard or danger to other riders on the course.*

9.1 Minimum size of A3 buoys is the requirement

9.2 It is best practice to set the major buoy negotiation positions at equidistance intervals

Typical Buoy types in figures below



Model:	A-0	A-1	A-2	A-3	A-4	A-5	A-6	A-7
Size: (Dia. x length)	8 x 11.5 in. 20.3 x 29.2 cm	11 x 15 in. 27.9 x 38.1 cm	14.5 x 19.5 in. 36.6 x 49.5 cm	17 x 23 in. 43.2 x 58.4 cm	20.5 x 27 in. 52.1 x 68.6 cm	27 x 36 in. 68.6 x 91.4 cm	34 x 44 in. 86.4 x 111.8 cm	39 x 54 in. 99.1 x 137.2 cm
Circumference	28.3 in. 72,2 cm	36.1 in. 91,1 cm	48.7 in. 122,5 cm	58.1 in. 147,6 cm	67.5 in. 172,7 cm	86.4 in. 219,8 cm	106.8 in. 270,0 cm	130.0 in. 329,7 cm

The larger high standing inflatable buoys would be a requirement in Open Ocean events with water swell conditions above 2 meters





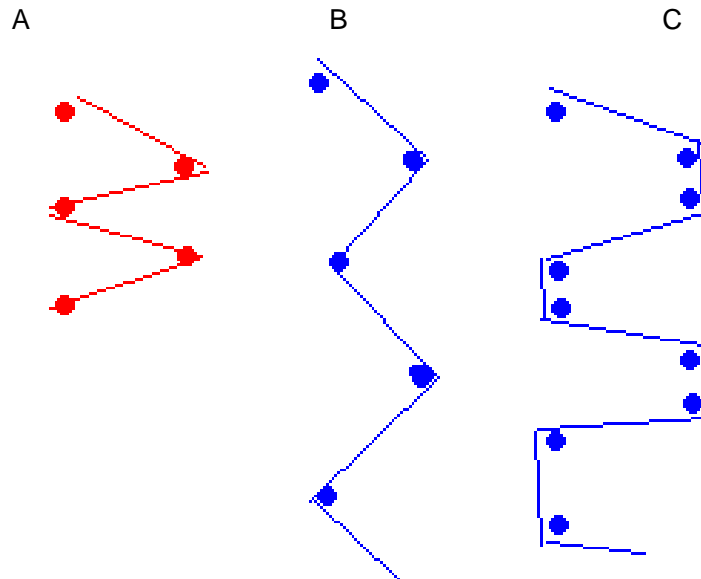
## 10. MARKER BUOY CORNER APEX

In the typical Diagrams below figure A are single buoy corners more acute than 90 degrees and are only suitable for Ski Class

Figures B & C are typical Buoy Corner options mandatory for Runabout Course design layouts with C being the preferred option

Double Buoy turns have a minimal distance apart of 2 Runabout Boat lengths.

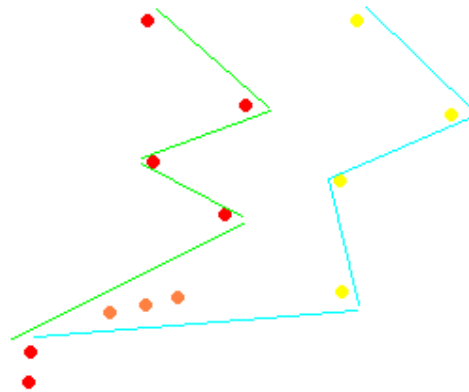
Typical Diagrams





## 11. The SPLITS

The Splits are describe as a portion of the closed course where after the first lap is completed the rider can choose which course split to run after back straight, Traditionally they are called inside and outside splits  
The back straight preceding entry into splits must be a minimum of 100 meters



The exit of the Splits must be geometrically position to prevent craft over-runs as described in section 12  
In the example above merge buoys in orange are used to guide both inside and outside split lanes

### Split Buoys

For the Inside and outside Split Buoys, whilst the IJSBA rule 12.4.4 states the red buoy indicates a left hand turn and the Yellow Buoy indicates a right hand turn the Split bouys are traditionally color coded differently at major IJSBA and AJSBA events

This has been documented best practice, when 2 craft, which may be a prescribed safe distance apart, but racing through turns heading in the same direction a deliniated or different track color work best in these instances.

Outside split all one color typically white or blue

Inside split all one color typically red or green

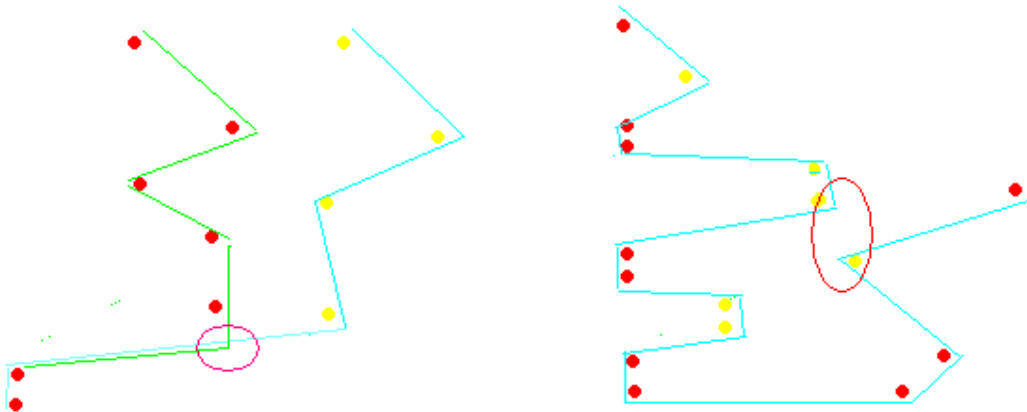
**IJSBA 12.4.4 Buoy Identification:** *Red buoys signify a left-hand turn. Yellow buoys signify a right-hand turn. Black Buoys are generally used to signify the path taken by a rider who has missed a buoy. Blue and other specially colored buoys are for special use (e.g., merge lanes, perimeter boundaries,etc.). The Race Director will explain their purpose at the riders meeting.*



## 12 Overrun – Overshoot zones

The below figures are examples of potential craft overrun zones

Course design area ***must eliminate any*** possibility of these potential zones; the traditional rectangle course outline layout ***must be*** large enough to accommodate this.



## 13. Ramps & Log Jumps

**The Log Jump** is to be used for Ski Classes only expert and Pro divisions

The log jump consists of a Ski class track width obstacle minimum of 5 meters in length of 150mm poly pipe threaded through ATV tyres {22 to 25 inch tyres nominally} the tyres can be tubed and inflated to a very low 5 psi.

There must be no sharp fixings protruding

The log must be securely anchored and both ends to keep its position uniformly consistent across the track



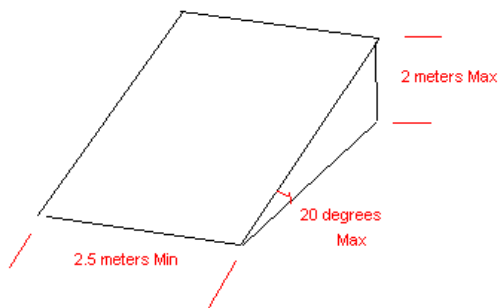




**Ramp Jump** is to be used for Ski Classes only expert and Pro divisions

It is a structurally fabricated floating ramp.

- Width of ramp is depended on whether placement is on a Split section of track or main track
  - i. Split section ramps have a recommended minimum width of 2.5 meters
  - ii. Main Track section ramps must have a consistent width as log jumps with a minimum width of 5 meters
- Incline Angle of no greater than 20 degrees
  - i. Ramp exit lip kicker radius similar to freestyle kickers are not recommended
- The transition incline length giving overall height different at point of exit of no more than 2 meters
- Fabrication material cannot have any sharp protruding attributes
- Detail design must incorporate, Structural engineering requirements, Material requirements, Centre of gravity, buoyancy calculations, any initial transition radius on approach or first contact.



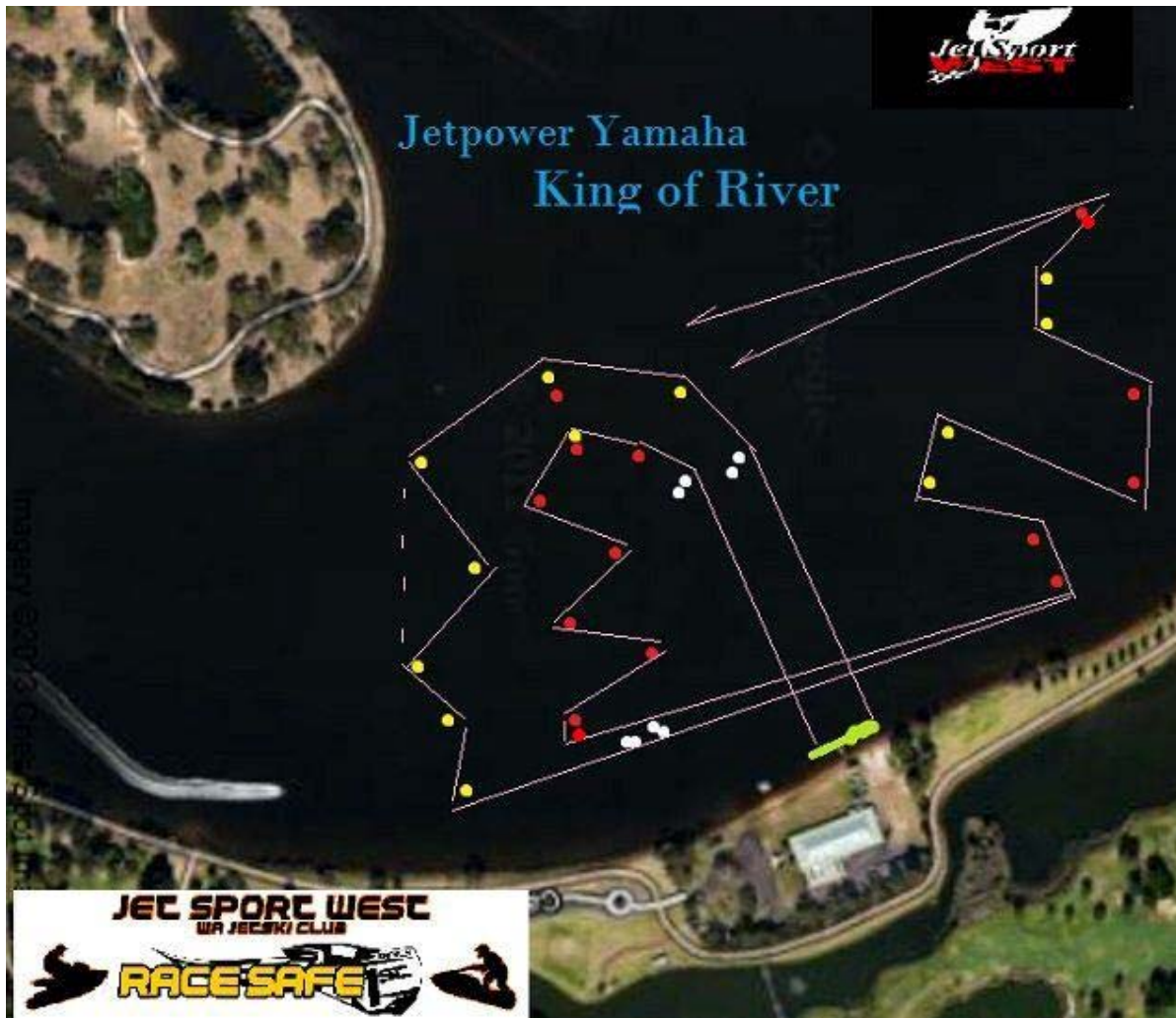
**14. IJSBA 12.4.5 Finish Line Buoy:**

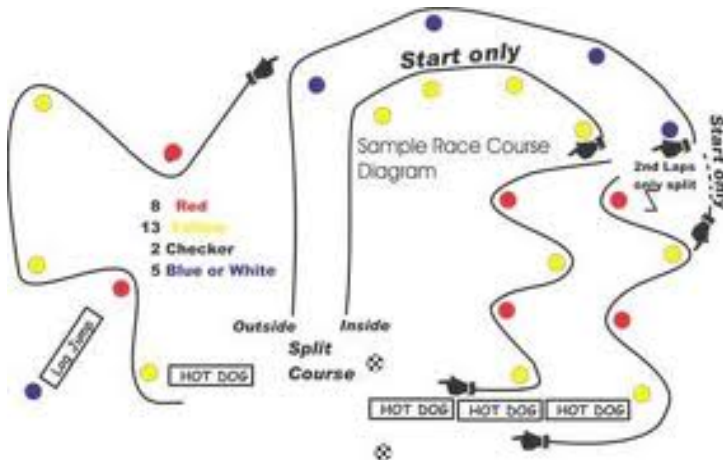
*Finish line buoys, two (2) each, should be clearly marked with contrasting colored checkerboard and/or the word "Finish" repeating around the central circumference of each buoy. A rider incorrectly negotiating a finish line buoy will be penalized two positions. Going back to renegotiate a finish line buoy is not allowed.*

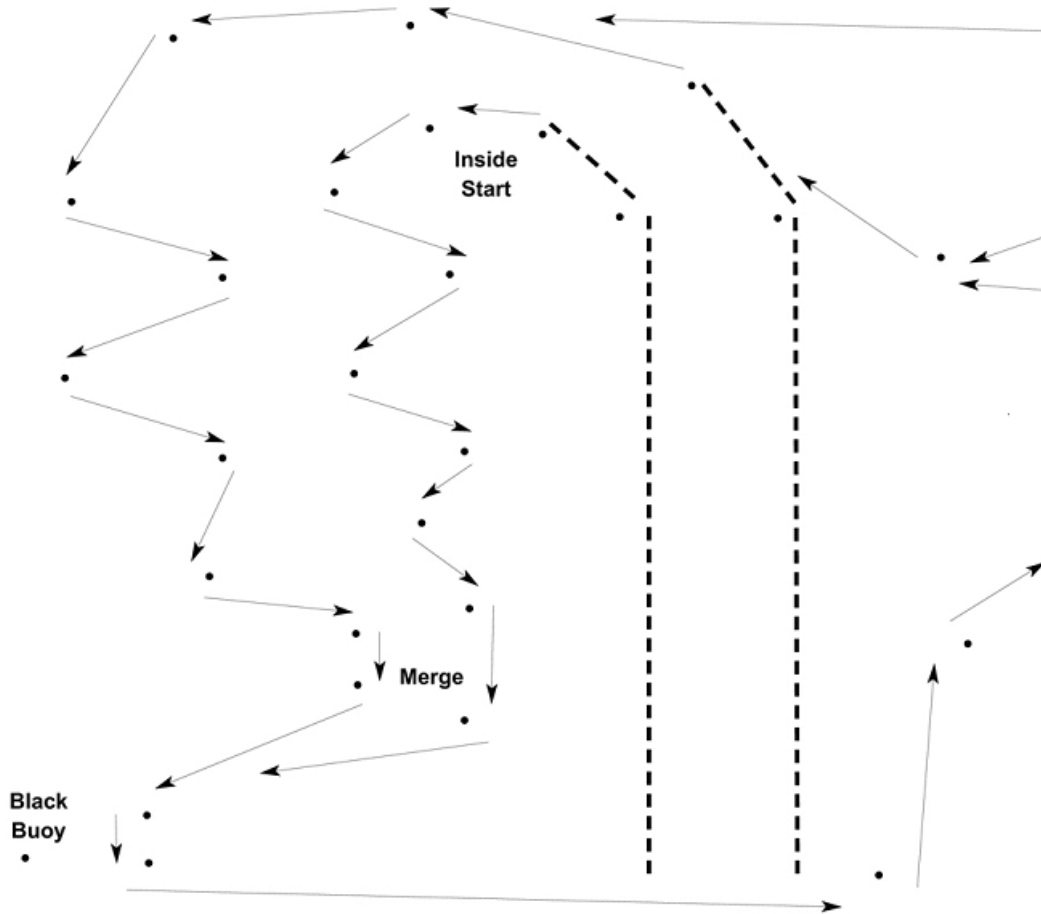


### 15. Typical Event track layouts

These are mostly published prior to event as “indicative” and dependent on water, tides, winds other environmental conditions and factors of the day can subtly change.









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