

Quick Guide: Mark Laying for Club Racing.

Typical RO Instructions: To Mark Boats for Club Racing in a Moderate Northerly and following Club NOR & SSIs:

- Lay TWO Triangular Courses with a 45 deg Included Angle on each.
- Outer Course Beat Length: 0.6 nm ; Inner Course Beat Length: 0.5 nm
- Start/Finish Line, ie Start Box , to be approximately 50% up the Beat.
- Start Line Minimum 110m long between Distance & Pin Mark. Lay a Distance Mark.
 - See Quick Guide on Laying a Start Line.
- Weather Stations Wind Direction: Between 340 -350 degrees True. (NNW)
- Weather Stations Wind Speed: Avg: 15 knots. Gust:18 knots

Mark Boat #1 (Top End and Start) Use Catalyst

Load 4 buoys as per list (1x Large) and lay in order. Priority is to lay the Top Outer Buoy as soon as possible because all other buoys depend on it. Take a Windex to sight the wind direction.

Order of laying	Mark	Buoys Loaded	Location & Position Dependency
1.	Top Outer	Large Cylindrical Yellow	Wind Direction Either near Sunken Rock(N) or off Seatoun Wharf(S). More westerly closer to SunkenR
2.	Top Inner	Orange Spherical	Down Wind of Top Outer by 0.05 (0.6-0.5)/2= 0.050 nm (But see Below in NW wind)
3.	Start/Finish PIN	Red Spherical	Wind Direction & > 110m Line Length from Inner Distance Mark. See "Guide to Start Line".
4.	Start/Finish Distance	White Spherical	Behind S/F line by less than 1 boat length. Get the Start Box to call it. See "Guide to Start Line".

Mark Boat #2 (Bottom & Wing End) Use Lovelocks

Load: 4x Buoys as per list (2x Large) and Lay in order. Take a Windex to sight the wind direction. Let Mark boat #1 get away first to lay the Top Outer Mark.

Order of Laying	Mark	Buoys Loaded	Location and Position Dependency
1.	Bottom Outer	Large Cylindrical Yellow	Down wind of Top Outer and 0.6 nm away Use Northing of Top Mark + 0.600nm
2.	Bottom Inner	Orange Spherical	Down wind of Top Inner and 0.5 nm away OR 0.05 nm Upwind of Outer Bottom
3.	Wing Outer	Large Cylindrical Yellow	Half way between Outer Top and Bottom (0.3 nm from Top Mark Northing) and (0.3 nm out from Beat Line (Top Mark Easting + 0.3nm)
4.	Wing Inner	Orange Spherical	Half way between Inner Top and Bottom and (0.5/2=0.25 nm) from the Beat Line (Top Mark Easting + 0.25)

Discussion:

- Getting the OUTER top mark in place ASAP enables all the other buoys to be placed relative to its GPS Northing and the wind angle. (345)
- Default in a Northerly Wind is Off Sunken Rock by about 100m. (41 18.460)
- Default in a Southerly Top Mark is Off Wahine Memorial Park by about 400m. (41 19.160)
- Default Wing Mark is Half way between (41 18.810)

- Lay the Outer Bottom Mark
 - 1. Using a sight and bearing directly upwind to the Top Mark
 - 2. Using a GPS Northing of Top Mark to get an accurate Beat Length.
 - 3. Calculated by Northing 14deg 18.460min + 0.600 nm = 14 deg 19.060min
- Using GPS Location of the Top Outer the other Marks can be Geolocated.
- Mark Boats #1 and #2 will remain responsible for any Course Changes to their listed Buoys.
- Mark Boats become the minimum 2x Fully Crewed Rescue Boats as soon as the Course is laid. Their area of rescue patrol will be between the buoys they laid and their end of the course split by Start/Finish and Wing marks.
- A cell phone with a Compass App (True) and GPS App (Decimal Degrees) is required.
- A Windex is also required.

Reporting:

In the end the locations of the 6x Buoys should be about as follows:

TOP Buoys	Northing	Easting
Outer	41 18.462	174 50.149
Inner	41 18.512	174 50.149
Wind Bearing	340	

Startbox	Northing	Easting
FIXED	41 18.763	174 49.832
PIN END 150m		174 49.926 min
Distance 40m		174 49.846 min

WING Buoys	Northing	Easting
Outer	41 18.762	174 50.449
Inner	41 18.762	174 50.399
Bearing to TM	295	
Bearing to BM	205	

Bottom Buoys	Northing	Easting
Inner	41 19.012	174 50.149
Outer	41 19.062	174 50.149
Bearing to Top	350	
Wind Bearing	350	

Quality Check v RO Instructions:

Course Bearing v Wind Bearing at Bottom

- OK (within < 10 degrees)

Beat Lengths:

- Difference GPS Northing Outer (Bottom – Top) $19.062 - 18.462 = 0.6$
- Difference GPS Northing Inner (Bottom – Top) $19.012 - 18.512 = 0.5$

Triangle 45 Degree Included.

- At WING MARK Difference Bearing to TopM – Bearing to BottomM = 90
- $295 - 205 = 90$
- ALSO Easting is HALF the Beat Length added to the Beat Line.
- Top Mark Easting $174 50.149 + 0.6/2 = 174 50.449$
- Wing Marks and Start Box are on SAME Northing = $\frac{1}{2}$ Beat length

Preparation:

- a. Be familiar with the Club Racing NOR and SSIs
- b. Be familiar with Default Course Layouts
- c. Be familiar with the Roles and Responsibilities for Club Racing
- d. Check the weather forecasts on BOTH MetService and on Predictwind
- e. Be familiar with the Quick Guide to Start Line Laying at Worser Bay.
- f. In a North West wind plan ahead. See Below.
- g. Talk to the day's RO before launching. Follow the RO instructions.
- h. Check Fuel and Radio check Ch77 s prior to Launch.
- i. Take a GPS unit (or a Phone) and a Windex.
- j. Let the least experienced crew member do as much of the work as possible including driving and decisions.
- k. Be prepared to "gently" round up stragglers in the first race of the day to get them back to the Start Line to avoid too much delay in the Start Sequence of the second race.. Either to sail directly to the start or take them in tow.
- l. Enjoy!

Special Points to Note:

The Northwesterly wind is the most challenging course to lay at Worser Bay:

Specifically the Top Mark and the Outer and Inner Start Line Buoys.

Think ahead and plan on these two locations together.

The **more** westerly the wind:

- the **farther out** the Start Line needs to be out into the bay to ensure all the start line is inside the lay lines of BOTH the Top Marks. Inner and Outer.
- the **farther out** the Start Line Inner Distance mark needs to be out in the bay to ensure all starters can lay past the north corner of the rocks and seaweed around the club house. We want to avoid for "Room to Tack" calls from boats close to the rocks.
- The **closer in** the Top Marks need to be to the shore around Sunken Rock to ensure the Lay Line to the Top Mark includes ALL of the Start Line. You may want to lay the Inner Top **even closer in** than the Outer Top to achieve this.