

# Yacht Racing 2021 Review & 2022 Plans

## 1. Yacht Racing 2021:

A number of Div-1 & Div-3 yachts left Port Edgar or retired from racing during the Covid-19 Lockdown and later, giving concern about how club racing would revive post-Pandemic. The fleet survey in March identified 26 yachts planning to race, half of them 707s. Hence, PEYC introduced a radically different fleet arrangement with a separate 707 class start and a single yacht class for the rest. To cope with the 136% range of 'Baseline Handicaps' (BH) in the yacht class, a 'staggered start' system was adopted in the order Div-3 (BH >= 975), Div-2 (707 - BH 927) & Div-1 (BH < 975), with elapsed times of Div-3 & Div-1 yachts combined into one race. This reversal of the traditional 'fastest off first' approach works well, being fairer to the Div-3 yachts starting 10-mins ahead of Div-1 (i.e. 10% in a typical 100-mins race), with more 'boat on boat' interactions as faster yachts catch up with those starting earlier. This has been a great success and some 36 yachts participated in club racing, 32 belonging to members and 4 to visitors.

## 2. Yacht Courses 2021:

Since the average BH of the likely Div-1 + Div-3 fleet was 923, and 707s are 927 BH, course design and selection has been based on a 'benchmark' of 925 BH, with all divisions sailing the same course. With no need for 'paired' courses, revised lists of 10 instead of 5 courses in descending length order were devised to suit the prevailing winds for committee boat starts in the west area and race box starts off Port Edgar. The extra courses allow better matching of course length to the wind & tide conditions, to create the matrix of recommended courses on OOD Duty Sheets. The navigation buoys around the QC tower on the Beamer Rock have not been included in courses, due to the severe currents and standing waves, but the two off the south tower (K1 & K2) have allowed more options in designing race box courses. Night courses continue to be race box based, using mark F at the end of each round to bring yachts closer to the OOD, and mark W as a spreader for safety when required. Night courses initially had only two rounds, to avoid congestion in the dark if a short 3<sup>rd</sup> round using mark Q was used. However, early experience showed how difficult it is for OODs to gauge wind strength from the pier, particularly for east winds, and an extra 3<sup>rd</sup> round using mark Z was added to all night courses to provide an extension option.

Winds this season have generally been quite moderate, with very few of the longer courses selected. Of the 39 race-days to date (7<sup>th</sup> Nov), 25 used published courses, 11 were 'bespoke' to suit the conditions, 2 were cancelled for no wind (Club Trophy & Autumn #3), and one was abandoned because mark T had disappeared (Wed-B #1). Courses 8, 28 & 129 were each used twice & 39 three times.

## 3. Yacht Calendar 2021:

22 Wed race evenings: 19<sup>th</sup> May - 27<sup>th</sup> Oct (Two not possible due to tide height for berth access)

Planned: 5-races in each of Wed A & B, Twilight & Night Series + Club & RNLI trophy races

22 Sun race days: 23<sup>rd</sup> May - 12<sup>th</sup> Dec

Planned: 4-race Sun A & B; 5-race Aut. & Win. + two 3-race mini-series + QMT & Last Race trophies

Both Sunday mini-series were cancelled for lack of interest & run as two extra races in Sun A & B series.

Committee boat starts were scheduled on 21 days and race box starts on 23 days.

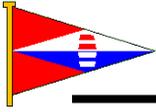
## 4. Yacht Average 2021 Turnouts:

Class	Wed-A	Wed-B	RNLI	Twilight	Night	Sun-A	Sun-B	QMT	Autumn	Winter	Last
Yacht	10.0	8.8	10	7.4	5.2	3.8	4.2	7	3.3		
707	9.6	10.3	7	7.8	3.8	n/a	n/a	n/a	1.3		
Total	19.6	19.1	17	15.2	9.0	3.8	4.2	7	4.6		

Average Sunday turnouts have been only 27% of Wednesdays, a trend apparent in recent years. Many members can devote regular week-day evenings to racing, but find it hard to justify weekend events, perhaps illustrating a 'societal change' in attitudes to family life that PEYC has to take account of.

## 5. Race Management 2021:

PEYC club racing has always been run by yacht crews assigned one or two duties per season and urged to 'Manage racing as well as you expect others to do so for you!' Over the years, procedures have been simplified, guidance expanded & equipment simplified to help you. The matrix of recommended courses versus wind strength & direction, added to Duty Sheets in 2017, has greatly reduced the work-load & lets



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teams concentrate on laying a start line and running the start sequence on time. Target times for the lead Div-1 yacht to complete Rd-1 have been added to help OODs judge if they should shorten course.

Start Mark	Wind	18 kt		15 kt		12 kt		9 kt		6 kt	
		Course	Target								
E	W	3	20:24	5	20:24	6	20:27	8	20:23	9	20:38
E	WSW	12	20:25	15	20:27	16	20:25	19	20:12	19	20:12
E	SW	22	20:24	24	20:26	26	20:23	29	20:27	29	20:27
H	E	34	20:24	35	20:23	37	20:22	39	20:38	n/a	
A	ENE	43	20:23	46	20:25	47	20:21	49	20:16	49	20:16

Race management this season has been pretty good, with no major mistakes. One area of improvement would be more accurate setting of start lines at 90-deg to the wind to encourage boats to spread out.

## 6. Fleet & Wednesday Proposals for 2022:

I recommend that, unless there's a significant change in the yacht fleet, the same separate classes for 707s and other yachts should continue in 2022, with staggered starts for Div-3, Div-2 & Div-1 for those races and series where numbers should justify doing so. Since Wednesday evenings are more popular, we need to maximise our use of them with committee boat starts from 19:00 in the west area or race box starts from 18:45, if constrained by tide, sunset or night course considerations. Rosyth tidal predictions for 2022 are unusual because we should be able to schedule racing for all 30 Wednesday evenings during BST from 6<sup>th</sup> Apr to 26<sup>th</sup> Oct. The most marginal evening will be Wed 27<sup>th</sup> Apr when the tide drops below 1.2m between 19:00 & 20:50 with sunset at 20:43. Hence, a committee boat start, racing over LW and a potential delay into twilight for deep draft yachts to get onto their berths. Wed 15<sup>th</sup> June & 13<sup>th</sup> July will require an 18:45 race box start with shorter time limit due to the tide, while three Night Series races will also have shorter time limits.

The provisional calendar for Wednesdays could have a 4-race Easter, 6-race Wed A & B and 5-race Twilight & Night series, along with four stand-alone trophy races.

## 7. Course Proposals for 2022:

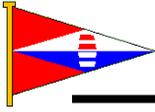
OODs may have noticed that 'n/a' often appears in the recommended course matrix, indicating that there isn't a short enough published course for the race duration & conditions (For example: 10% of the 2021 CB courses calculated by the selection algorithm are 'n/a'). I suggest that the shortest possible windward-leeward course is added to each course list by deleting the longest one and shifting the remainder up one place. That would, for example, reduce 'n/a' occurrences to 3% of the 2022 CB courses.

Concerns were expressed mid-season about the direction of rounding mark E in some cases, creating 'cross-over' courses. A review showed that it would be safer to leave mark E to starboard instead of currently to port in courses 10-19 for WSW winds. But mark E will continue to be left to port in W wind courses 00-09, and to starboard in SW wind courses 20-29. These changes will be implemented for 2022.

## 8. Night Series Proposals for 2022:

The Night Series was extended to the last Wednesday of BST for the first time in 2019, based on the QC bridge lights providing enough light for safe starting off Port Edgar. The last 2021 Night Series race was on 27<sup>th</sup> Oct, when Civil Twilight finished at 18:21, well before the starts at 18:45 - 18:55. A poll of crews competing that night showed that the majority felt starting was safe, race mark lights were sufficiently visible, safety provisions were adequate but gave some suggestions for improvements. However, safety concerns were expressed about night course legs from mark X to mark K2 passing too close to the QC central tower on the Beamer Rock, an area with very strong currents in certain conditions. These courses will be revised to eliminate this issue for 2022.

Overall, most crews were enthusiastic about continuing Wednesday racing to the end of BST.



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## 9. Mark Proposals for 2022:

Abandoning a race because a mark is missing (e.g. Wed-B #1) is disastrous, ruining perhaps 100+ members' enjoyment. Keeping PEYC race marks in position has always been a challenge with strong currents reversing the ground tackle loading on every tide cycle. Mark W, in 30m of water off PE, has had a long history of being dragged out of position. In 2020 we tried a 'twin-anchor' technique with two sets of ground tackle 200m apart east-west with their mooring lines brought reasonably tight together at the 'angel' weight below the mark. Hence, each anchor & chain is only loaded in one direction and not dragged through 180-deg when the tidal current reverses. This has worked really well in 2020 & 2021, reliably keeping mark W in a stable position throughout tide cycles. Our most vulnerable marks are S, A, M & T along the edge of Society Bank, where peak spring currents can reach 3 kt, and we will consider using twin anchors on these marks for 2022.

## 10. Sunday Yacht Racing Options for 2022:

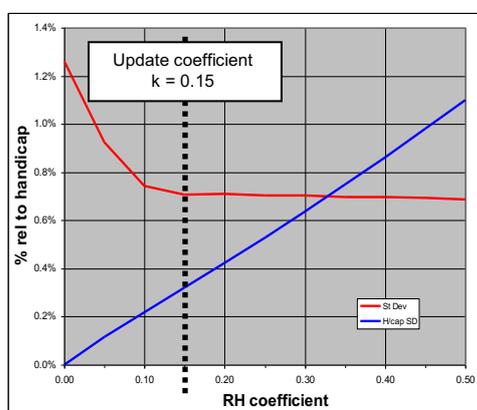
However sad to admit, there is clearly little enthusiasm for conventional yacht racing at weekends, both 'Round-the-Cans' or long distance, and owners find it difficult to muster a full race crew. The Cruising Committee are planning Sunday-cruises on a monthly basis from May to September and would like the racing yachts to join in. Possible additional options for the other 21 Sundays between April & September:

- 5-race Sun-A & Sun-B series scheduled from May to September, generally every 2<sup>nd</sup> week
- Designate some Sunday races as 'Family' orientated, short-handed or restricted sail events
- Use 'staggered starts' for fairer racing across a wide handicap range
- Decouple RH values for Sun from Wed using different boat names (e.g. Dram v Dram Sunday)
- Resurrect the Sunday BBQ race format: AM or PM race followed by BBQ at clubhouse

## 11. Rolling Handicap System for 2022:

PEYC has used a Rolling Handicap (RH) system since 1995, applying it to the majority of club races to encourage competitors to try harder by reducing the performance differentials across any fleet. It tracks the achieved performances of boats and adjusts handicaps after each race to encourage the 'mid-fleet' racers, challenge skilled crews and keep series results closer together.

The current +5% and -5% capping boundaries prevent RH values diverging more than 5% from a yacht's FYCA Baseline Handicap (BH). The requirement for a boat to have two or more consecutive slow results (i.e. >+5%) before applying an RH change, removes sporadic atypical performances due to mistakes, 'wind-tide gate' situations or significant wind strength changes after the leading boats have finished.



The RH update coefficient is selected to reduce the spread of average performances relative to rolling handicap, of boats within a fleet, for the least amount of handicap variation for individual boats. The graph shows the reduction in standard deviation (SD) of the average assessable (i.e. in range -7.5% to +5%) performances of boats in a fleet as the update coefficient  $k$  is increased. From 1.3% SD at  $k = 0$ , it reduces to 0.7% SD at  $k = 0.15$  but shows no further improvement as  $k$  increases. Meanwhile the standard deviation of RH variability (i.e. handicap 'noise') increases linearly from 0% at  $k = 0$ . The RH coefficient  $k$  was initially set at 0.25 in 1995, reduced to 0.20 in 1996 and to an optimal 0.15 in 2001.

In my opinion, the RH system has helped sustain interest in PEYC racing over the years and the Club would be unwise to abandon or even modify a well proven system. However, we should also recognise yacht performance against FYCA Baseline Handicap, independent of partial adjustments for crew skill by the RH system. SI Amendment 2021-6 introduces 'dual-scoring' on BH and RH for 2021 series results and no resetting of RH values at the start of the season. I recommend continuing this approach for 2022.

*Jim Scott - PEYC Sailing Secretary - 8<sup>th</sup> Nov 2021*